ROCKWELL SOFTWARE

RSLogix 500™

Programming for the SLC 500™
and MicroLogix™ Families

Getting Results Guide

Doc ID LG500-GR001A-EN-P

Rockwell Automation

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Warranty

This Rockwell Software product is warranted in accord with the product license. The product's performance will be affected by system configuration, the application being performed, operator control and other related factors.
The product's implementation may vary among users.
This manual is as up-to-date as possible at the time of printing; however, the accompanying software may have changed since that time. Rockwell Software reserves the right to change any information contained in this manual or the software at anytime without prior notice.
The instructions in this manual do not claim to cover all the details or variations in the equipment, procedure, or process described, nor to provide directions for meeting every possible contingency during installation, operation, or maintenance.

Preface

Purpose of this book

This Getting Results book provides you with information on how to install and navigate the RSLogix 500 software. This guide includes troubleshooting information and tips on how to use RSLogix 500 effectively. It also explains how to access and navigate the online help.

Intended audience

We assume that you are a control engineer familiar with:

- IBM-compliant personal computers
- Microsoft Windows 98®, NT 4.0™, or Microsoft Windows 2000™ or Windows XP™
- Rockwell Automation's SLC 500™ and MicroLogix™ families of controllers

Document conventions

This manual uses the following typographical conventions:

- **[Bold]** characters in brackets represent keystrokes used to execute a function. When more than one key is to be pressed at a time, the keys are separated by a plus sign. For example, **[Ctrl + v]** means hold down the **[Ctrl]** key and press the **[v]** key.
- **Bold** characters represent menu choices.
- `TEXT IN THIS FONT` represents characters that you should type.

Online help

If you need help while using RSLogix 500, use any of the following methods:

- choose **Help** from the menu bar
- click the Help button on any RSLogix 500 dialog
- press **[F1]** on any instruction, dialog box, or window view.

For more information about the online help refer to *RSLogix 500 online help* on page 73.

Training

Rockwell Software offers both classroom training and a computer-based training program for RSLogix 500 software. For more information see *RSLogix 500 Training* on page 77.

Commonly used terms

The following table defines terms commonly used in this book.

This term:	Represents this concept:
activation files	Hidden files in the root folder that allow the software to run. The software checks for these files before you have access to offline or online programming
back up	To make a copy of the current file before replacing that file with an updated version.
download	Restore a specified file to a specified processor. For example, when you download the current project file, you copy the file to a specified processor so the processor can begin running that file.
library	A file into which you store or from which you retrieve portions of ladder logic.
mnemonic	A term, usually an abbreviation that is easy to remember. SLC instructions are typically represented by a 3-letter mnemonic.
project	All of the files that make up the SLC 500 logic program including the documentation files.
upload	Access an SLC processor and save a copy of the project.
verification	An analysis of the ladder program files that results in the display of any programming errors.
zone	Portion of the ladder logic identified by a marker indicating the edited state of the file.

Contents

Chapter 1

Installing RSLogix 500

Introduction

This chapter explains how to install and start RSLogix 500 software. This chapter includes information on the following:

- system requirements
- installation methods
- activation overview and methods
- installation and activation procedures
- starting procedures
- troubleshooting installation and activation

After installing the software, we recommend that you read the release note located in the online help. The release note may contain more up-to-date information than was available when this document was published. To view the Release Notes, start the RSLogix 500 software; then choose **Help > RSLogix Release Notes**.

Important If you are installing RSLogix 500 on a computer running Windows NT®, Windows 2000™, or Windows XP™, you must have administrator privileges for the computer. For more information, contact your system administrator.

System requirements

To use RSLogix 500 effectively, your personal computer must meet the following hardware and software requirements:

Hardware requirements

- an Intel Pentium II® or greater microprocessor
- 128 MB of RAM for Windows NT, Windows 2000, or Windows XP installations (64 MB for Windows 98® installations)

- 45 MB of available hard disk space – 115 MB if you are installing the source control feature (available in the Professional edition)
- 256-color SVGA graphics adapter with 800x600 resolution
- a CD-ROM drive
- a 3.5-inch, 1.4 MB disk drive (required only for activation, therefore, it is not required on client machines in a client-server installation)
- any Windows-compatible mouse or other pointing device

We recommend a 500-MHz Pentium computer with 128MB RAM or greater for optimal performance.

Software requirements

- The operating system must be one of the following:
- Microsoft Windows 98
- Microsoft Windows 2000
- Windows NT 4.0 with Service Pack 6 or greater.
- Windows XP

  RSLogix 500 will not run under Windows 3.1, or Windows for Workgroups using the 32-bit extensions to these environments, versions of Windows NT operating systems earlier than 4.0, or Windows 95® operating systems.
- RSLogix 500 relies on RSLinx™ communication software, version 2.31.00 or later. One copy of the RSLinx Lite software in included with the RSLogix 500 software.

Activation

Tip You can find a great deal of information about how software activation works in Appendix A, starting on page 81.

All Rockwell Software products are copy-protected, allowing only a computer with access to an activation key the ability to run the software. The activation key is located in an activation file, which is originally located on the Master disk supplied with the product. The activation file contains one activation key per product. Each activation key contains one or more licenses, depending on the number of copies of the product you have purchased.

Tip Store your Master disk in a safe place. If your activation becomes damaged, the Master disk may be the only means to run your software in an emergency.

During installation, follow the instructions that appear on the screen to move the activation file from the Master disk to the root folder of the drive on which you're installing the software.

Important Do not install activation on RAID or mirrored drives. You could lose the activation.

Installing RSLinx Lite software

If you have RSLinx 2.10 or later installed, you do not need to install RSLinx Lite.

RSLinx Lite provides communication between the programmable controller and a personal computer.

To install RSLinx Lite software:

1. Insert the RSLogix 500 CD-ROM into the CD-ROM drive. The installation program should start automatically. If it does not, open the installation disk with Windows Explorer and run SETUP.EXE.
2. Click **Install RSLinx Lite**.
3. Follow the directions that appear on the screen.

When the installation is complete either click **Exit** on the CD-ROM menu or install RSLogix 500.

Installing and activating RSLogix 500 software

Tip

While installing RSLogix 500 software, you will have the opportunity to specify the folder into which you want to install the software. The default folder is:

x:\Program Files\Rockwell Software\RSLogix 500 English (or RSLogix 500 Pro English)

We recommend that you use the default folder whenever possible.

In procedures that appear throughout this document, we assume that you used the default name. If you did not use the default name, substitute the actual name you specified for the default name shown.

Security Server users: If you intend to use Security Server with RSLogix 500, you must have a working and configured Security Server before attempting to run RSLogix 500. Carefully read the warnings that appear on the screen before continuing with Security Server installation!

To install and activate RSLogix 500 software, perform the following steps:

1. Insert the RSLogix 500 CD-ROM into the CD-ROM drive. The installation program should start automatically. If it does not, open the installation disk with Windows Explorer and run SETUP.EXE.
2. Click **Install RSLogix 500**.
3. Follow the instructions that appear on the screen.

   Serial number. When asked for the serial number, you can find this information on the box your software came in.

   Changing the folder. The default installation folder is C:\Program Files\Rockwell Software\RSLogix 500 English. If you wish to install the software to a different location, choose the **Custom** setup type. Click **Change** to change the drive or folder. Installed features default to those of the Complete setup. For additional help with the Custom setup, click the Help button.

   Activation. When prompted to install activation, insert the Master disk into the 3.5-inch disk drive. Follow the instructions that appear on the screen to move the activation file from the Master disk to the computer's hard drive.
4. When you are finished installing and activating the software, remove the RSLogix 500 CD-ROM and the RSLogix 500 Master disk from the drives. Store them in a safe place.

Installing the source control feature

Tip

The source control feature of RSLogix 500 requires that you run the software under Windows 2000 or Windows XP.

The source control feature is a standalone version of the RSMACC Archive module. Do **not** install the source control feature if you are using the RSMACC Archive module.

The source control feature of RSLogix 500 can help you manage your projects. This feature creates a library of projects. Users can "check out" projects to work on them, and check them in when their changes are complete. The source control feature keeps track of these changes, noting who changed the projects. You can also "roll back" a project to any previously checked-in version.

For information about configuring and using the source control feature, see Chapter 9, *Source control*.

Installing the Microsoft SQL Server Desktop Engine

The source control function requires that you install the Microsoft SQL Server Desktop Engine (MSDE). MSDE is a version of SQL Server 2000 that runs in a standalone mode.

Important

If you already have an instance of Microsoft SQL Server 2000 installed on the computer, do not install MSDE. The source control feature **will** function with SQL Server 2000.

To install MSDE:

1. Insert the RSLogix 500 CD-ROM into the CD-ROM drive. The installation program should start automatically. If it does not, open the installation disk with Windows Explorer and run SETUP.EXE.
2. Click **Install Source Control**.
3. Click **Install SQL Server Desktop Engine**. The MSDE installation starts.
4. The MSDE installer shows a dialog showing the progress of the installation. When the installation completes, this dialog closes.
5. Reboot your computer (you must reboot to start MSDE).

Installing the Archive Module Extended Procedures Component

The Archive Module Extended Procedures Component is set of procedures used with MSDE to properly function with the source control database. To install the Archive Module Extended Procedures component:

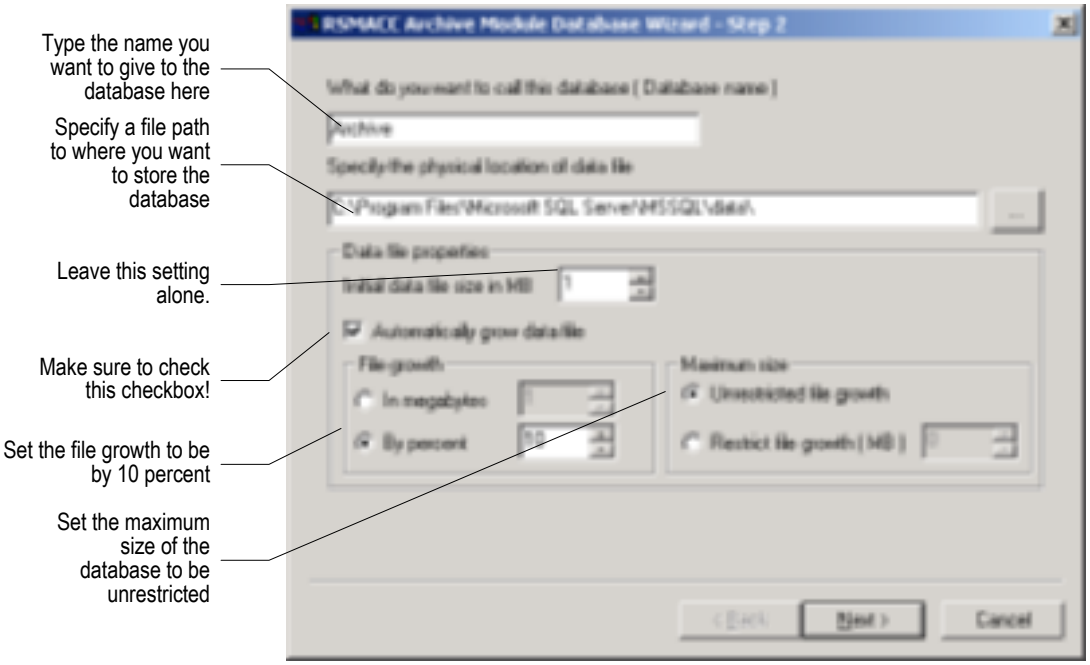
1. Insert the RSLogix 500 CD-ROM into the CD-ROM drive. The installation program should start automatically. If it does not, open the installation disk with Windows Explorer and run SETUP.EXE.
2. Click **Install Source Control**.
3. Click **Install Archive Module Extended Procedures Component**.
4. Follow the on-screen instructions for installing the component.

Creating the Archive Module database

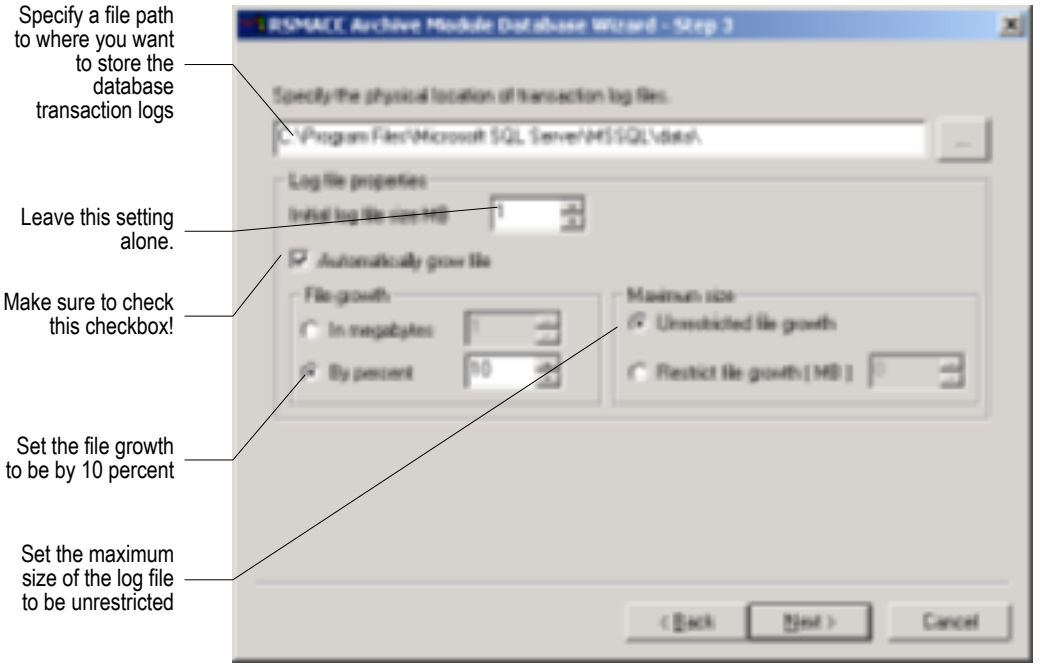
To create the Archive Module database:

1. Make sure the Archive Module Extended Procedures Component is installed on the computer on which you want to create the Archive Module database.
2. Make sure MSDE is installed and running on the computer on which you want to create the database(s). Once you have MSDE installed and running, log on to the computer as a user with administration rights.
3. Place the RSLogix 500 CD-ROM into the server computer. The installation program should start automatically. If it does not, open the installation disk with Windows Explorer and run SETUP.EXE.
4. Click **Install Source Control**.
5. Click **Run Archive Module Database Creation Wizard**. This starts the Archive Database Wizard.
6. Step 1 of the wizard sets the name of the server on which you are going to install the database and how you will access the database.
    a. Leave the **Server** field blank (this tells the wizard to create the database on your computer).
    b. Make sure **Use NT authentication** is set.
    c. Click **Next** to continue creating the database.

7. Step 2 of the wizard defines the name of the database, where the database is located on disk, and the properties of the database. The following illustration shows how to set up this window. When you have completed this window, click **Next**.



8. Step 3 of the wizard defines the location and size of the database transaction logs. The following illustration shows how to define these logs. When you have completed this window, click **Next**.



9. In Step 4 of the wizard, you need to identify the location of the RSFREPROC.DLL file. This is a file placed on your computer when you install the Archive Module Extended Procedures Component. By default, this file is placed in the \Program Files\Rockwell Software\RSMacSvr folder. Select the location of this file, then click **Next**.
10. Click **Finish** to complete the wizard. The wizard creates the database.

Installing the Archive Module Administration Utility

To install the Archive Module Administration Utility:

1. Insert the RSLogix 500 CD-ROM into the CD-ROM drive. The installation program should start automatically. If it does not, open the installation disk with Windows Explorer and run SETUP.EXE.
2. Click **Install Source Control**.
3. Click **Install Archive Module Administration Utility**.
4. Follow the on-screen instructions for installing the utility.

Installing the Archive Module client component

The Archive Module client component provides access to the source control database. You must install and configure the Archive Module client component before using the source control feature of RSLogix 500.

For information about configuring the client component, see *Configuring the source control database* on page 63.

To install the Archive Module client component:

1. Log onto the computer that will run the Archive Module client component using an Administrator account (or an account that has Administrator privileges).
2. Place the RSLogix 500 CD-ROM into the server computer. The installation program should start automatically. If it does not, open the installation disk with Windows Explorer and run SETUP.EXE.
3. Click **Install Source Control**.
4. Click **Install Archive Module Client Component**.
5. Follow the on-screen instructions for installing the component.

Starting RSLogix 500 software

To start RSLogix 500 software, click **Start > Programs > Rockwell Software > RSLogix 500 > RSLogix 500**.

Troubleshooting installation

If RSLogix 500 does not start up or run properly, keep the following in mind:

- Do you have the correct version of RSLinx installed? The software requires RSLinx version 2.31.00 or later.
- Does your computer have enough memory? Check the hardware requirements on the first page of this chapter for memory requirements.
- Is the RSLogix 500 software activated? If upon attempting to run RSLogix 500 you see a message indicating that activation for RSLogix 500 is missing, you will need to move activation to your local hard drive. Put the RSLogix 500 Master Disk in the floppy drive. Click **Start**, then **Run**. In the open field type `x:\evmove`, where *x* is the letter of the drive containing the Master disk. See *Activation* on page 81 or the online help in the EVMove utility for more information about using software activation.

Chapter

2 Getting started with RSLogix 500

Welcome to RSLogix 500

RSLogix 500 software is a 32-bit Windows ladder logic programming package for the SLC 500 and MicroLogix® processors. RSLogix 500 is compatible with SLC 500 and MicroLogix programs created with any of Rockwell Software's programming packages.

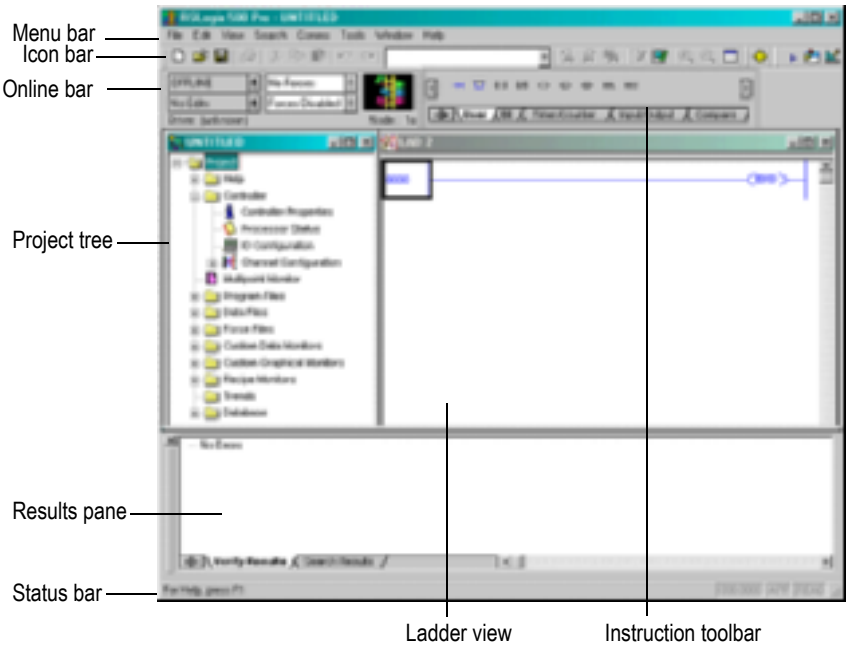
RSLogix 500 software includes:

- a free-form ladder editor that lets you concentrate on the application logic instead of syntax as you write your program
- a powerful project verifier that you use to build a list of errors you can navigate to make corrections at your convenience
- drag-and-drop editing to quickly move data table elements from one data file to another, rungs from one subroutine or project to another, or instructions from rung to rung within a project
- an address wizard that makes entering addresses easier and reduces keying errors.
- search and replace to quickly change occurrences of a particular address or symbol
- a point-and-click interface called a project tree that lets you access all the folders and files contained in your project
- a custom data monitor to view separate data elements together and observe interactions
- trending and histogram functionality for monitoring and displaying process data
- SLC libraries for storing and retrieving portions of ladder logic for use across any of Rockwell Software's SLC programming software products.
- a compare utility that lets you graphically view project differences.

Exploring RSLogix 500

To navigate through the various windows and toolbars in RSLogix 500 more easily, you should understand what they contain and what functionality each provides.

When you open a project in RSLogix 500 you can expect to see:.



- **Menu bar** - Select functionality from the menus that appear as you click each selection on this bar.
- **Icon bar** - The icon bar contains many functions that you will use repeatedly as you develop and test your logic program. If you want to know what any of the icons represent, RSLogix 500 can tell you. Move your cursor over the icon, and floating ToolTip window appears to tell you what the icon is used for.
- **Online bar** - See at a glance the processor mode and whether you have online edits or forces present. You can also view the communications driver and node number.

- **Project tree** - This view contains all the folders and files contained in your project. You can usually click an icon in this tree and then click the right mouse button for a menu that applies only to the icon selected. For example, if you click the right mouse button on a program file, you see options to rename the program file, open the program file, hide the program file, or reveal properties of the program file.
- **Status bar** - Look here for ongoing status information and prompts as you use the software.
- **Results pane** - Displays the results of a Find All search or a verification procedure. You can hide this pane or place it anywhere on your screen.
- **Ladder view** - This is where you edit your ladder logic. You can view several program files at the same time.
- **Instruction toolbar** - Displays instruction mnemonics in tabbed categories. When you click on a category tab the instruction toolbar just above it changes to show that category of instructions. Click an instruction to insert it in your ladder program.

Tip

You may find it more convenient to use a floating instruction palette from which you can select any instruction available to your processor. Press **[Alt+4]** to view the palette. You can resize the palette by dragging its lower edge.

Quick Start Steps

The following steps explain how to get running quickly with RSLogix 500.

Step 1 • Configure a driver in RSLinx

A "light" version of RSLinx, called "RSLinx Lite" comes with RSLogix 500. This version of RSLinx provides the communication drivers necessary to use RSLogix 500. RSLinx Lite will not, however, provide communications through DDE or OPC – those communication modes are used with other software packages, such as HMI or data acquisition packages. To use DDE or OPC communication, you will need to purchase RSLinx.

Of course, you will want your program to run in an SLC 500 or MicroLogix controller. That means you will need some way to connect your computer to your controller – and you will have to tell the software how you are connected.

Communications from RSLogix 500 take place through another software package, called RSLinx. RSLogix 500 talks to RSLinx, which in turn talks to your communications devices.

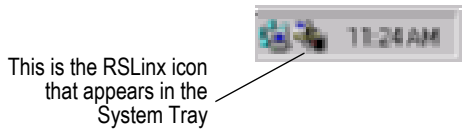
A *driver* is a small piece of software that allows a computer to talk to other systems. In this case, RSLinx uses drivers to connect your computer to your processor. You have to tell RSLinx what driver you want to use to make that connection.

The driver you use depends on the way your processor is physically connected to your computer. There is a wide variety of possibile physical connections; it's important you know which type of connection your system is using and how that physical connection is configured. For instance, if your processor is connected to your network through another computer running RSLinx Gateway, you need to use an RSLinx Gateway driver. If you are directly connected to your processor through a 1784-KTX card, you need to use the driver for that card.

You will also need to know the parameters of the physical connections – for instance, if you are connecting through a 1784-KTX card, you will need to know how your KTX card is configured, the station numbers of the processors on your DH-485 network, and how fast your processors are communicating on the network.

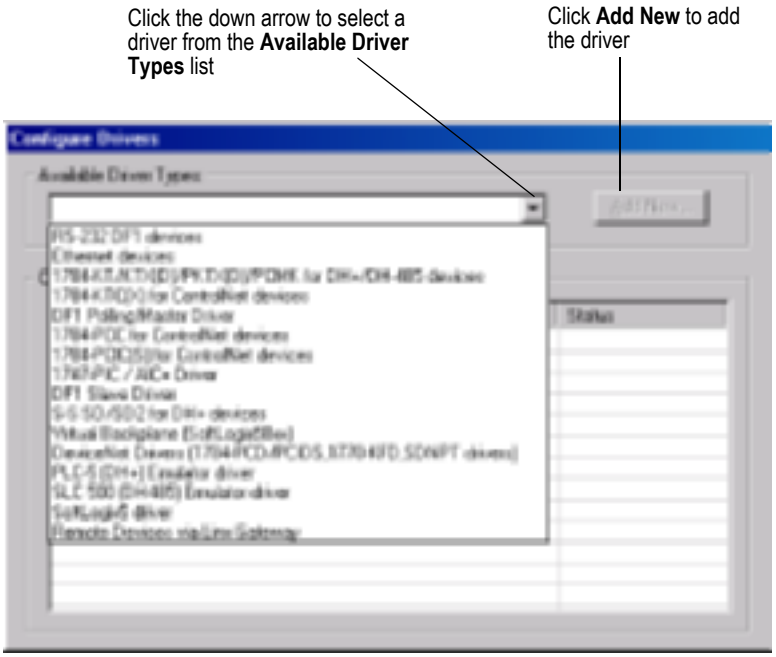
To configure a driver in RSLinx:

d. Open RSLinx by clicking **Start > Programs > Rockwell Software > RSLinx > RSLinx**. RSLinx starts in a minimized mode – you will see an RSLinx icon in your Windows System Tray. (The System Tray is a part of the Windows Taskbar – by default, the System Tray is in the lower right-hand corner of your screen.) Click the RSLinx icon to open the RSLinx window.



e. In RSLinx, click **Communications > Configure Drivers**. This opens the Configure Drivers window.

f. In the Configure Drivers window, select the driver you need to use based on your physical connection to the processor. For example, if you are connecting with a 1784-KTX card, select the 1784-KT/KTX(D)/PKTX(D)/PCMK for DH+/DH-485 devices driver.



g. Click **Add New** to add the driver to the Configured Drivers list.

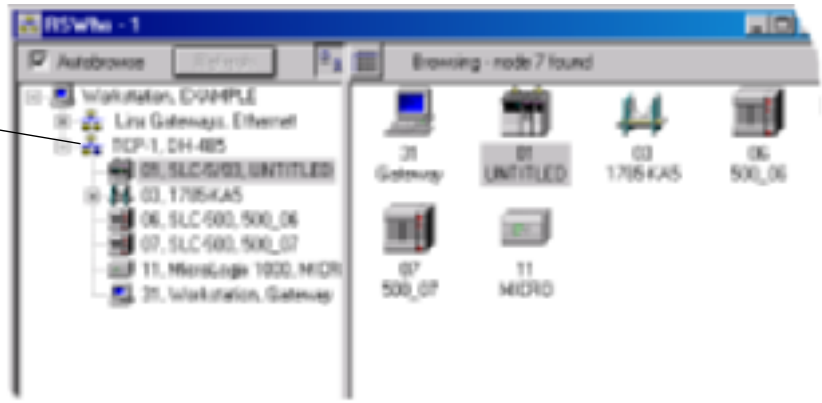
h. RSLinx asks you to name the driver. RSLinx uses this name to refer to the driver. You can use the default name, or enter a name (names can be up to 15 characters long). Click **OK**.

i. The window that appears next depends on the driver you selected. This window is where you configure the driver. Configure the driver to match your physical connection to the processor. If you need help with the parameters for the driver, click the **Help** button on the window.

j. When you have finished configuring the driver, the driver appears in the Configured Drivers list of the Configure Drivers window. Click **Close**.

k. You need to make sure the communications driver you configured is working properly. To do this, use the RSWho function in RSLinx. This function shows what processors and other communications devices are available through the driver. To display an RSWho window, click **Communications > RSWho**.

In the RSWho tree, open the driver you configured (a Remote Devices via Linx Gateway driver is shown here)



l. In the RSWho tree, open the driver you configured. You should see the processor to which you want to connect. If you can see the processor, the driver is configured correctly and you can proceed to the next step.

   If you cannot see the processor, the driver is not configured correctly (or some other communication problem is preventing you from accessing the processor). Correct the problem before proceeding. See the online help in RSLinx for information about the driver you are using.

Step 2 • Configure system communications

There are two kinds of communications configuration in RSLogix 500.

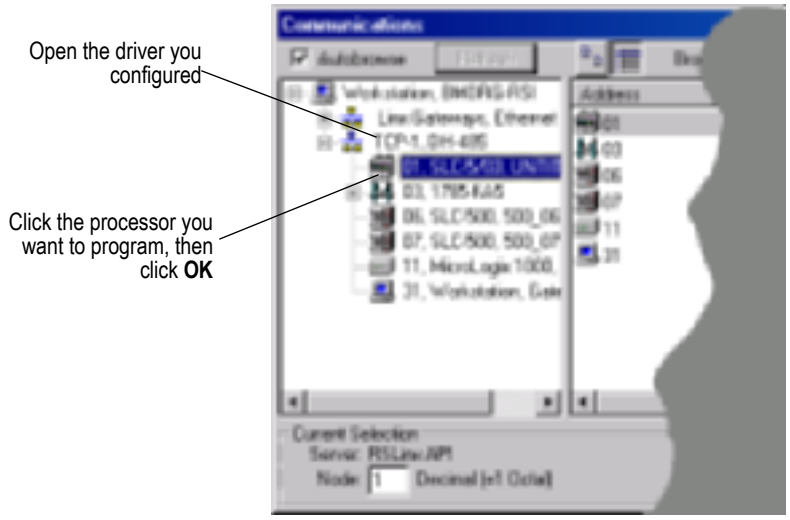
- **System communications**, which are set globally. When you set system communications parameters, those parameters are the default for all new projects in RSLogix 500.
- **Controller communications**, which are communications parameters specific to a given project. When you set controller communications for a project, those settings overwrite the system communications settings for that project. (Other new projects still use the system communications settings.)

Setting system communications parameters can save you time later. We suggest you set the system communications parameters before creating your first project in RSLogix 500.

To set the system communications parameters:

a. From the **Comms** menu, click **System Comms**. This displays the Communications window. (If RSLinx is not running, it will start.) The Communications window is very much like the RSWho window you encountered while configuring your communications driver.

b. In the Communications window tree, open the driver you configured. The processor you want to program should be visible. Click the processor, then click **OK**.



There is a great deal more that you can do from the Communications window. See the online help for more information.

Tip

If you want to change the system communications settings, click **Comms > System Comms**.

If you want to set different communications parameters for a given project but leave the system communications settings alone, open the properties for the project's controller. See the online help for RSLogix 500 for more information.

Step 3 • Create a new project or open an existing project

Create a new project

Projects are the complete set of files associated with your program logic. To create a new project, click **File > New**. RSLogix 500 prompts you for the type of processor you will communicate with and creates a project tree for the project. The project tree gives you access to program, data table, and database files.

Open an existing project

To open an existing project, click **File > Open**. The software displays a window that allows you to choose a project to open.

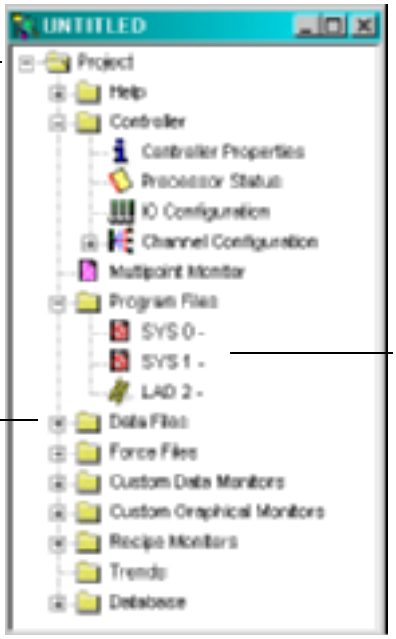
Using the project tree

When you have opened or created a project, RSLogix 500 display's the project's project tree. The project tree allows you to navigate through the various program and data table files in your project.

The following illustration shows the parts of the project tree.

This symbol (-) means that the folder's contents are already visible. Click the symbol to collapse the folder and hide its contents.

This symbol (+) means that the folder contains files that are not yet visible in the project tree. Click the symbol to expand the folder and reveal its contents.



You can rename files. If you do, the name you give it will be shown instead of the default. Program files 0 and 1 are internal files and cannot be renamed.

Tip

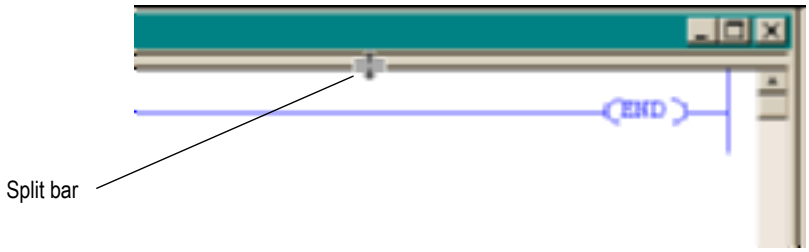
You can hide any program file (except system files) in the project tree. This can be useful once you've completed editing a program file and don't want to risk accidentally selecting it and making changes. Click on the file in the project tree and then select **Hide** from its context (right-mouse) menu.

Tip

Compare project files easily by clicking **Tools > Compare**. Then select the projects you want compared. You can print the resulting graphical display or save it to a report and print it later.

Opening Multiple Files

To open multiple files within the same project you can split the viewing window.

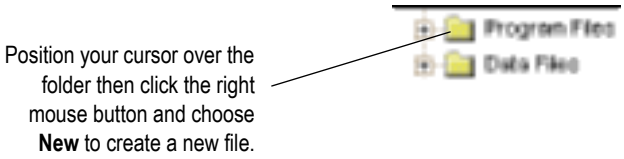


Use your mouse to point to the split bar. The cursor turns into a double bar with two arrows. Drag the bar up or down to its new position allowing you to see two views of the window.

You cannot view program files from different projects with only a single RSLogix 500 application running on your computer. You must open more than one application to work on multiple projects at the same time. Once you have the projects opened, you can drag-and-drop instructions and data between them.

Step 4 • Create program and data table files

The project tree is your entry point for creating new files or accessing existing files. To create a new file, right-click the program or data file icon and then select **New** from the menu. You will be prompted for information about the file.



Program files contain controller information, the main ladder program, and any subroutine programs. The number of program files you can have in your ladder project is determined by the type of controller you are using.

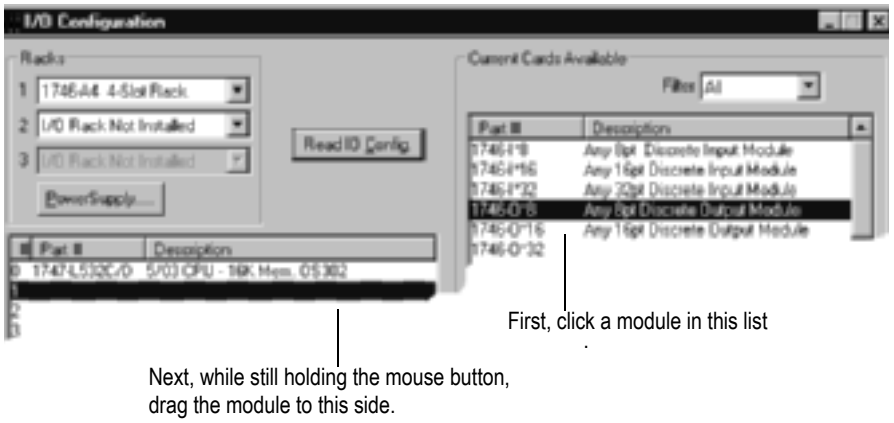
Data table files contain the status information associated with external I/O and all other instructions you use in your main and subroutine ladder program files. In addition, these files store information concerning controller operation. You can also use the files to store recipes and look-up tables if needed.

Step 5 • Define chassis and modules

After you have opened a project, you need to define your chassis, identify the I/O cards and their positions in the chassis, and select a power supply for each chassis in your configuration.

You perform these procedures in the I/O Configuration window. Access this window by double-clicking the I/O Configuration icon in the project tree. Then click a module in the list on the right side of the window and drag it into the slot where you want it to reside.

From the I/O Configuration window, click the **Power Supply** button to examine the loading on a rack based on the module configuration that you have selected.

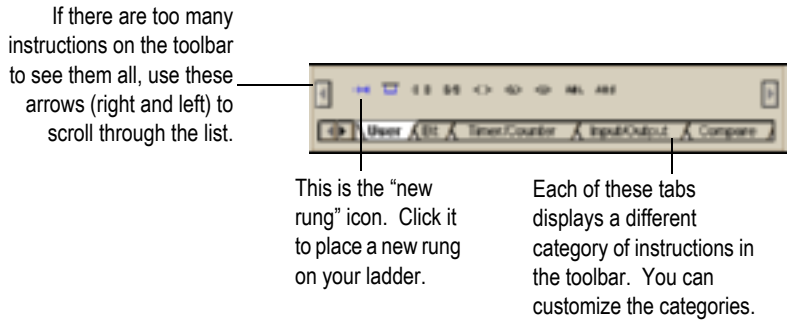


For more information about other tasks you can accomplish from the I/O Configuration window refer to *Chassis and module setup* on page 27.

Step 6 • Enter a logic program

When you open a program file by double-clicking its icon in the project tree, the ladder file opens in the right side of the RSLogix 500 window. Usually, program file #2, the main program file, will open when you open a project. If you have not entered any ladder logic in a program file, only the end rung will show.

Click the end rung and then select the New Rung icon from the user toolbar. To place an instruction on a rung, click the instruction's button.



You can place several instructions on a rung in sequence by clicking the icons one after another. RSLogix 500 places instructions from left to right.

RSLogix 500 supports a file-based editor. This means that you can:

- create and/or edit multiple rungs at a time
- enter addresses before you actually create data table files for your I/O
- enter symbols before you have assigned addresses for them in the database
- enter instructions without having to provide addresses until just before validating the file

To add addresses, click an instruction then type the address in the empty field that appears above the instruction. With RSLogix 500 you can also drag and drop addresses from a data table file onto instructions in your ladder logic.

Tip

As you begin to enter an address (type file letter), a wizard pops up a list of valid options. You can then make a selection by pressing **[Enter]** to select the default item, or navigate the list to make a different selection. You can also ignore the list and continue entering your own address.

If you want to close the wizard press the **[Esc]** key. It can be opened again by pressing **[Insert]** when an address/symbol entry field is open.

Remember to use the right mouse button to access functions whenever possible. The right mouse button provides you with context menus that list editing options. And always remember that you can click **F1** (or the **Help** button when available) on any instruction or within any window to access help.

Keyboard users can press the **[Shift + F10]** key combination to access a right mouse menu.

Tip

You can select multiple rungs by holding down the **[Ctrl]** key and clicking the left mouse button on every rung you want to select. You can also select a range of rungs by holding down the [Shift] key and clicking the beginning rung and ending rung.

When you select rungs in this manner, RSLogix 500 remembers the order in which you made your selections, and pastes the rungs to the clipboard in that order. When you paste the rungs, the order in which you copied them is retained. For example if you click rung 11 and then [Shift] click rung 8 to copy a range of rungs, the rungs are copied to the clipboard from rung 11 to rung 8. Pasting these rungs will place them in the new location in this same order.

For more detailed information about the steps you follow to enter the ladder logic including information about branching, addressing, and performing program edits online, refer to *Entering ladder logic* on page 29 in this book.

Step 7 • Add documentation to your logic instructions

You can use several method to add symbols and descriptions to addresses in the database.

- Modify symbols and descriptions from within a program file. To do this, right-click the address in the instruction that you want to document, then click **Edit Symbol** or **Edit Description**.
- Modify an address's assigned documentation in the data file. Double-click the data file in the project tree, and then click on an address within the grid that appears on the data file dialog. At the bottom of the dialog there are fields where you can enter the documentation for the address.
- Modify the database using the database editor. Double-click an icon in the database folder located in the project tree.
- Enter a symbol while creating new instructions, then assigning an address to the symbol using the database symbol/description editor.
- View and edit the project database using Microsoft Excel (RSLogix 500 Professional version only)

For information about the database import and export options available to you refer to *Importing or exporting the documentation database* on page 41 in this book.

Step 8 • Validate your project

Before you can compile and download your project to a processor, you must validate the project. Validation makes sure your project meets the basic rules of SLC 500 or MicroLogix programming. You can validate a single program file or you can validate your entire project at one time. To verify a file, click the Verify File icon or click **Edit > Verify File**. To verify your whole project, click the Verify Project icon or clcik **Edit > Verify Project**.

After you initiate a verification, the Verify Results output window displays and gives you information about mistakes or omissions that may have occurred as you wrote your program logic.

The results of any verification are displayed at the bottom of the window under the project tree. To hide this results window after viewing it, click the X in the upper left corner of the window.

Click on any result item to navigate to the location of the error within the logic program.

Step 9 • Configure communication channel, download and go online

Tip

If you are developing the program offline – for example, if you are using a computer that is not located where you will use the program – you may want to override system communication settings made in step 1of this quick-start guide. You can override the system communication settings this from the Controller Properties window, Controller Communications tab. Settings made through this method will override any driver and node settings established in step 1, and should be completed before proceeding with step 8.

Before going online you have to define processor communication settings, such as baud rate, and also decide certain system and protocol controls. Depending on the type of processor that you are using and the method of communication (direct vs. networked or modem), the complexity of this procedure varies.

Double-click the channel configuration icon in the project tree to make these settings. If you need information about any parameter, click **Help** on the channel configuration window.

Finally, click **Download > Comms** to download the current offline program into the controller. RSLogix 500 will ask if you want to go online. Click **Yes** to go online.

Step 10 • Monitor data files

You can use RSLogix 500 to monitor what is happening in your data table files.

While monitoring these files you can:

- define how your data file selection grid will display
- change values in the data table
- change the display radix
- show which addresses are used in your ladder logic
- switch between files
- quickly jump to another address in another data table file
- cross reference data

To monitor a data table file, click the data file icon that represents the file you want to monitor. You can have multiple data table files opened for monitoring at the same time. Drag each data table window into viewing position by clicking on the title bar and moving the mouse. Release the mouse button to place the data table window.

You can also choose to cascade or tile all the windows opened in your RSLogix project by selecting the **Window** menu item and clicking **Arrange**.

Data changes made offline only affect the disk file unless the program is restored to the processor.

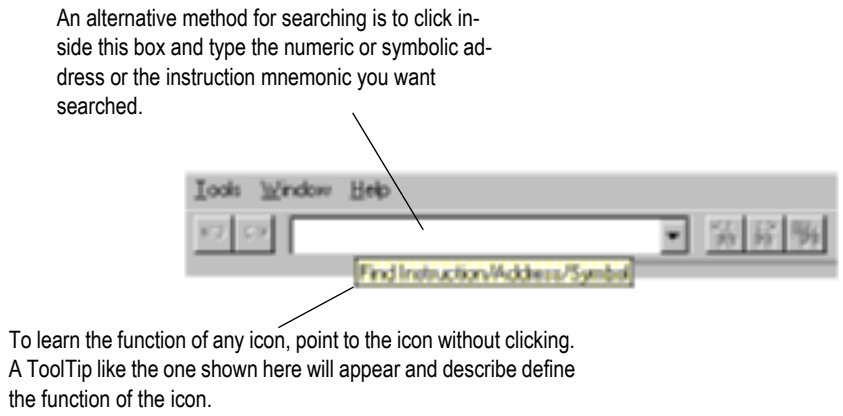
Data changes made online only affect the processor file unless the program is saved or uploaded while online to update the disk file.

For other tips about how you can create and monitor lists of related addresses instead of accessing the data table files, refer to *Monitoring data* on page 47 in this book.

Step 11 • Search and replace instructions

RSLogix 500's Find function allows you to quickly locate instructions, addresses, and symbols in ladder program files. You can even search for edit zones within your logic program. If you want to automatically replace instructions and addresses with different ones, you can use the Replace option. Wildcards may be used in your search.

Begin any Find or Replace operation from the **Search** menu. Then type the mnemonic (XIC, TON, etc.), the address (B3/4, etc.) or a combination of both mnemonic and address (XIC B3/4) or mnemonic and symbol (XIC SYMBOL) for the instruction you want to locate in the Find What text box.



Tip

You can quickly navigate to a program file, rung, address, symbol or data table file. Press **[Ctrl+G]** to display a Goto dialog.

Step 12 • Print a report

You can obtain a printout of various elements of your project, such as program files, data table files, and processor information. Select your report choices from the **File** menu by selecting **Report Options**.

Tip

To preview the way a ladder file will print, click **Preview**. You can scale up the image to make the instructions appear larger on the printed page or scale down the image so that in cases where many instructions are on a rung of logic, all the instructions can fit on the printed page.

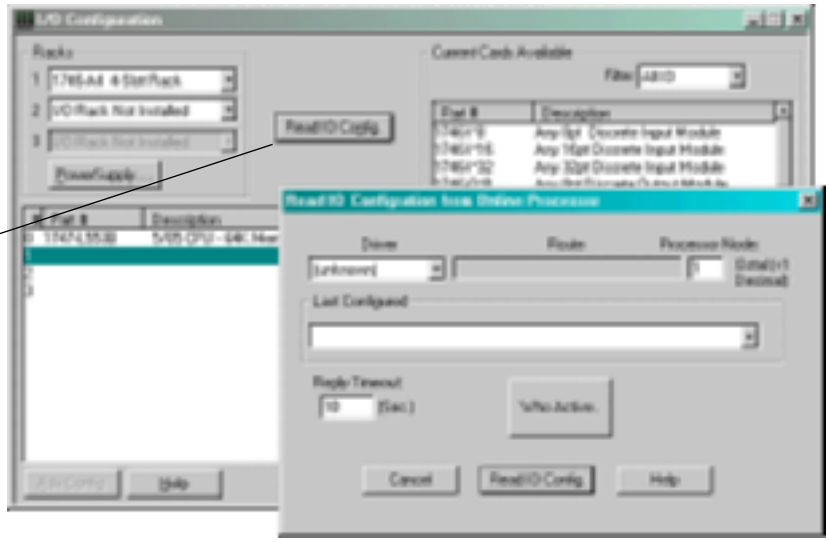
Chapter

3 Chassis and module setup

After you have opened a project, you need to define your chassis, identify the I/O cards and their positions in the chassis, and select a power supply for each chassis in your configuration.

You can also display the I/O configuration for your project at any time by double-clicking the **I/O Configuration** icon in the project tree.

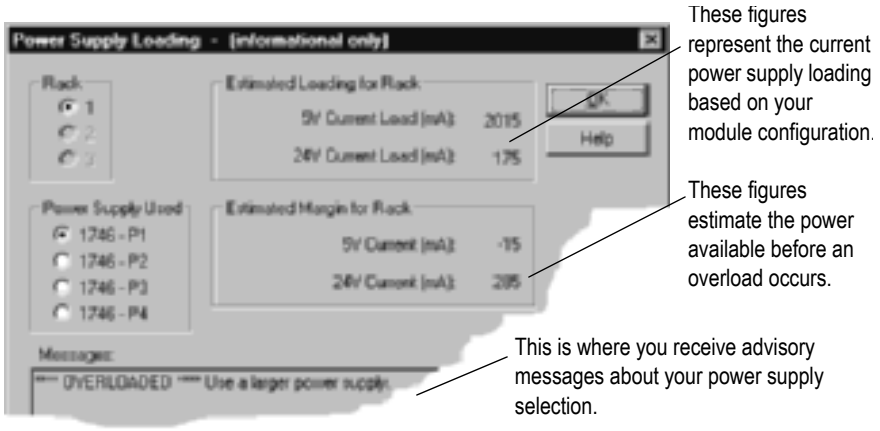
Click this button to call a dialog (shown) allowing you to select a processor from which you want to read the configuration.



The I/O Configuration dialog lets you do other tasks also.

- You can learn if the power supply you have planned to use will supply enough power for the modules you have placed in the rack.
- You can configure your analog and other specialty modules.
- You can automatically read the existing I/O configuration of a processor node on the network.

Power supply loading



Access the Power Supply Loading dialog by clicking Power Supply on the I/O Configuration dialog. The Power Supply Loading dialog is informational only. You cannot establish any settings on this dialog. Use it to examine the loading on a rack based on the module configuration that you have selected.

Analog and specialty module configuration

If you have a Specialty I/O Module in your configuration, you have to enter additional parameters so that the module can function properly in your program. You enter this information in the Advanced I/O Configuration window. Go to this dialog by clicking the **Adv Config** button on the I/O Configuration dialog.

Remember you can always click the **Help** button or press **[F1]** on a dialog if you are unfamiliar with any of the parameters.

Automatic I/O configuration

If you are programming an SLC 5/03™, SLC 5/04™ or SLC 5/05™ processor offline and have communications configured for the processor, you can have the processor read the actual I/O configuration for the processor and reflect that information on the I/O Configuration window. This can save considerable time. To do this, click the **Read I/O Config** button on the I/O Configuration dialog.

Chapter

4 Entering ladder logic

This chapter provides information that you can use to make editing your ladder logic easier.

Tip

Shortcut methods exist for most editing functions within RSLogix 500. You can access this list of shortcuts in the online help by searching the word "shortcuts" in the online help.

Backing up your work

Remember to back up your work as you develop your ladder logic programs. RSLogix 500 uses two types of backup files that you can access at any time, and provides you with an auto-recovery file in the case of a power failure. All of these files contain the entire description database associated with the project.

- Auto-Backup files are created automatically each time you save a project. You can preset how many backups should be retained for any project by entering a Number of Backups on the System Preferences tab of the System Options dialog. Reach this tab from the Tools menu. Then click Options and select the System Preference tab. Auto-backup files (saved as .RSS files) have the letters BAK and a series of numbers (000 to 999) appended to the filename. For example, an auto-backup created for project TEST.RSS might be identified as TEST_BAK000.RSS, and a more recent backup might be identified as TEST_BAK001.RSS.
- Compressed Format Backup files are typically generated for archiving or giving to another user. Compressed format backup files include the .RSS and all database files for the project compressed into a single .RS1 file. From the File menu click Backup Project to generate a compressed-format backup file.

Crash Recovery

If you experience a power interruption, RSLogix 500 provides you with a recent backup file containing current edits.

RSLogix 500 automatically creates file backups while you are working with a project and when you save the project. This auto-generated recovery file (internal RSS file) is only available to you the next time you open a project if you have a system crash or your power is interrupted. After attempting to open a project after a power failure RSLogix 500 prompts you with choices.

You can open:

- the auto-saved file, ensuring retention of any edits made before the power interruption.
- the last backup that you made, when you selected Save before the power interruption.

Tip

You must have saved or closed the file you are working on at least one time for the auto-recovery process to work. Therefore, it is good practice to save the file immediately after beginning a new project. This ensures that your auto-recovery process can begin properly.

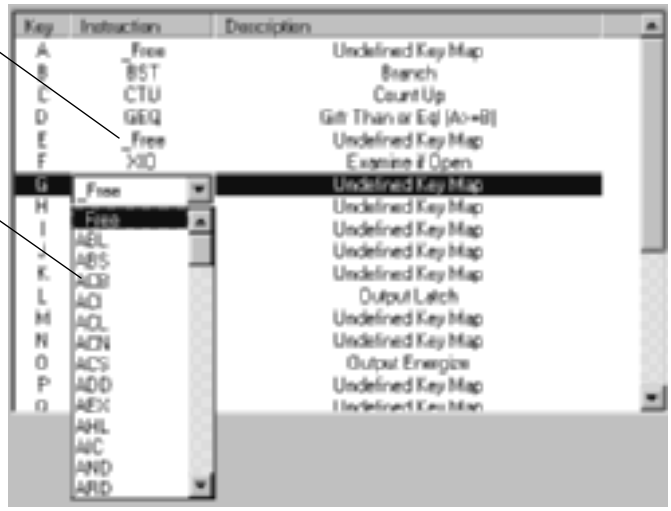
You can set the interval time at which auto-recovery saves of your project will occur. Do this by making a setting in the Preferences dialog. The auto-recovery process ensures that you will be able to retain any work that had been done on the file between the time of the power interruption and the last manual save.

Quick entry of instructions

To make your programming tasks faster, RSLogix 500 lets you map any available alphabetic key (A-Z) on your computer keyboard to a ladder logic programming instruction.

Double-click the word Free anywhere in this list.

Then click a mnemonic from the drop down list to assign it to the keyboard key and make it a quick key.



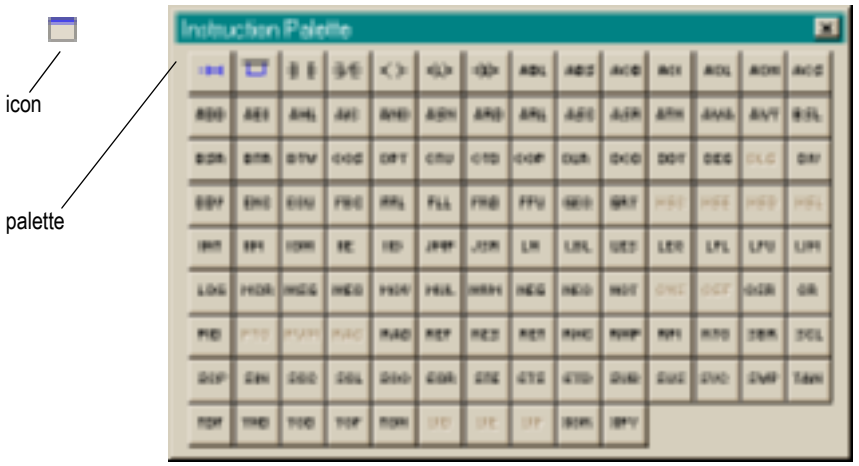
From the View menu click Properties. Then click Quick Key Mapping to access the mapping list. Make sure you have a program file window opened and active or you will not be able to select Properties from the View menu.

Tip

You can jump to any rung in your project by clicking the Search menu, and then clicking Goto. You can go to a rung in the current program file or you can go to a rung in another program file within the same project.Keyboard users can press the [Ctrl + G] key combination to access the Goto Rung dialog.

Floating instruction palette

As a convenience for selecting instructions RSLogix 500 lets you display a floating instruction palette. From the View menu click Instruction Palette or click the palette icon.



You may have to resize the palette for your screen. To do this click on the lower edge of the palette window and drag to an appropriate size.

Addressing

There are several different methods that you can use to address instructions. You can enter an address by:

- manually typing it in
- dragging addresses from data files or the CDM (Custom Data Monitor)
- using copy and paste from program to program

Tip

You can drag-and-drop rungs, branches, instructions, and addresses from file to file or from the database to a file. To drag-and-drop, position the mouse pointer over a file element, click and hold down the left mouse button and drag the element to another location, and then release the mouse button. Red boxes indicate valid locations; these turn green when properly selected.

Branching

Add a branch

Click this icon on the instruction toolbar to place a branch in your ladder logic. If your cursor is on an instruction, the branch is placed immediately to the right of the instruction. If your cursor is on the rung number, the branch is placed first on the rung.

Move a branch

Click on the upper left corner of a branch to move the entire branch structure to another location in your ladder logic program.

Expand a branch

Click the right leg of the branch, then drag the leg to the right or left. Valid release points will be visible on the ladder display.

Nested branches

Place the cursor at the upper left corner of a branch leg, click the right mouse button, and select Append New Branch to place another branch structure within the original branch structure.

Parallel branches

Place the cursor at the bottom left corner of a branch leg and click the right mouse button to Extend Branch Leg Up or Extend Branch Leg Down.

Copy branch leg

Click on the left edge of the branch leg you want to copy. In the picture at the left this is the center leg. Then click copy in the right mouse menu. Finally click on a rung or instruction in your logic and click paste from the right mouse menu to insert the rung leg

Copy entire branch structure

Select the right leg of the branch structure, then click copy in the right mouse menu. Finally click on a rung or instruction in your logic and click paste from the right mouse menu to insert the rung structure.

Delete a branch

Place the cursor at any location on the branch and click the right mouse button. Then click Delete. If you cut or delete a branch, all instructions on the branch are also deleted.

Branching restrictions

You are limited to a maximum of 75 parallel branches.

You are limited to a maximum of 4 nested branches. (SLC 5/02 and higher and MicroLogix).

Undo operation

The undo icon reverses your last action. You can use this icon to walk through (and undo) your previous actions one at a time. RSLogix 500 remembers up to 200 previous actions.

If you want to undo a move operation, you must click undo two times. This is because RSLogix 500 considers a move a series of two actions (copy and cut). You have to let RSLogix know that you want both the copy and the cut undone. If you click undo only one time when trying to undo a move, the move appears to be a copy, and you will see the moved element appear at both locations.

Online editing

The online editing function lets you monitor and correct your ladder program when your programming terminal is connected to a SLC 5/03, SLC 5/04 or SLC 5/05 processor. Only one programming device at a time can perform online edits of the program.

Online editing functions consist of inserting, replacing, and deleting rungs in an existing ladder program while online with the processor.

Within your logic program RSLogix 500 places zone markers in the margin to the left of the left rail. These letters signify edit zones and they indicate the type of ladder program edit that exists in the program.

Lower case zone markers indicate edits that exist only in the computer memory. Upper case zone markers indicate edits that exist in the processor memory. After successfully assembling the edited rungs, the zone markers disappear.

Tip

You can search for zone markers in your project the same way you might search for an instruction or an address. To do this, click the **Special** button on the Find dialog.

Lower case zone markers

e	(Offline and online, all controllers) These rungs are currently under edit within the computer RAM. If you are working offline, after a successful program verification the lower-case e will disappear and the edits will be incorporated into the program. If you are working online, after accepting the rung, the lower-case e will be replaced by an upper-case I indicating that the rung is now in the controller's memory and will be inserted into the program file.
i	(Online Editing, SLC 5/03, 5/04 and 5/05 controllers only) These rungs are to be inserted into the program. Rungs marked with a lower-case i currently exist in the computer memory and will not be entered into the controller until the rung is accepted (right mouse button selection). After the rung is accepted, the lower-case i is replaced by an upper-case I.
r	(Online Editing, SLC 5/03, 5/04 and 5/05 controllers only) These rungs are to be replaced in the ladder program. Rungs marked with a lower-case r currently exist in the computer memory and will not be entered into the controller until the rung is accepted (right mouse button selection). An r marked rung is always preceded by an e marked rung. After the rung is accepted, the lower-case r will be replaced by an upper-case R.
d	(Online Editing, SLC 5/03, 5/04 and 5/05 controllers only) These rungs are to be deleted from the ladder program. Rungs marked with a lower-case d indicate a deletion reflected in the computer memory. This deletion will not be reflected in the controller until the rung is accepted (right mouse button selection), at which time it will be replaced by an upper-case D.

Upper case zone markers

I	(Online Editing, SLC 5/03, 5/04 and 5/05 controllers only) These rungs have been inserted in the controller's logic program. You can test the edits by selecting the Edit menu and clicking Test Edits to see how the rung works in the online ladder program. Click Assemble Edits to finalize the rung insertion and complete the editing process.
R	(Online Editing, SLC 5/03, 5/04 and 5/05 controllers only) These rungs have been replaced in the controller's logic program. Rungs marked with an upper-case R continue to function in the program until you select Test Edits to see how the new rung works in the online program. Select Assemble Edits to finalize the replacement and complete the editing process.
D	(Online Editing, SLC 5/03, 5/04 and 5/05 controllers only) These rungs have been deleted in the controller's logic program. Rungs marked with an upper-case D continue to function in the program until you select Test Edits to see how the program functions without the rungs in the online program. Select Assemble Edits to finalize the deletion and complete the editing process.

Online editing example

This example replaces an XIC instruction with an XIO instruction with the same address while online.

1. Select the rung in the program that requires editing and then from the Edit menu, select Start Rung Edits from the main menu or choose Start Rung Edits from the right mouse menu. A duplicate of the selected rung (preceded by the e edit zone marker) is shown in your program. This is the rung that all edits will be performed on. The r edit zone marker precedes the original rung (rung to be replaced). See the example below.

2. Make the edits to the rung. The lower-case edit markers do not change since they represent changes that only exist in the computer memory; these changes are not yet a part of the online program in the controller. (At this step you can click Cancel Rung Edits to cancel the edits you have made to the rung.)
3. Select Accept Rung. This changes the edit zone markers and places both rungs in the controller memory. The upper-case I represents the rung that has been inserted into the online program. The upper-case R represents the online rung that is to be replaced. At this time the R rung is still operating in the program.

4. Select Test Edits. The I-marked rung takes precedence. The program in the controller will operate with the inserted rung, and the R-marked rung will be ignored. (Alternately you can click Cancel Edits to cancel the accepted I-marked rung and retain the originally programmed R-marked rung instead.)

5. Select Assemble Edits. All edit zone markers disappear and the edits are incorporated into the online program. There is no Undo option after online edits have been assembled.

   Going from online to offline with rungs under edit removes the RAM online edits. Make sure you have accepted edits before going offline if you want any changes retained in the processor.

Online editing restrictions

Your programming terminal must be connected to a SLC 5/03, SLC 5/04 or SLC 5/05 processor. During an online editing session you cannot:

- resize data table files
- create or delete program files
- change program file protection
- change index across file boundaries flag
- reconfigure the I/O
- select force protection

ASCII editing

ASCII Editing is a function of RSLogix 500 that lets you modify instructions using ASCII instruction mnemonics instead of having to modify instructions using the ladder editor.

A quick way to call the ASCII Editor is to double-click a rung number in the left margin. If you double-click a rung with logic already on it, you will see the mnemonics for the existing instructions and can modify or add to them. If you double-click an empty rung, you get an empty editing box into which you can type the mnemonics that represent the logic you want placed on the rung.

Tip

Another quick method to call the ASCII text editor is to click the rung number and then press the forward slash key (/) on your keyboard.

Configuring interrupts

Use interrupts to interrupt the scan of the main program to accomplish a certain task. Programming requires you to enter essential criteria for the interrupt to function properly. Depending on the processor you are using, this criteria is entered into the Status file by accessing it directly (All SLC processors and MicroLogix 1000 processors) or by entering the appropriate data in the Function File utility (MicroLogix 1200 and 1500 processors only).

Selectable Timed Interrupt

Use the selectable timed interrupt (STI) function to interrupt the scan of the main program file automatically, on a periodic basis, in order to scan a specified subroutine file. You can specify the time interval when your selectable timed interrupt routine will execute.

Processor Type:	Action:
All SLC and ML 1000	Select a program file for the STI by double-clicking the S2 data file icon in the project tree. Then click the STI tab and enter the information needed to define the STI. Press the Help button if you need more information.
ML1200 and ML1500	Select a program file for the STI by double-clicking the Function Files icon in the project tree. Then click the STI tab and enter the information needed to define the STI. Press the Help button if you need more information.

Discrete Input Interrupt

Use the Discrete Input Interrupt (DII) for high-speed processing applications or any application that needs to respond to an event quickly. This function allows the processor to execute a ladder subroutine when the input bit pattern of a discrete I/O card matches a compare value that you programmed.

Processor Type:	Action:
All SLC	Double-click the S2 data file icon in the project tree. Then click the DII tab and enter the information needed to define the DII. Press the Help button if you need more information.
ML1000 ML1200 ML1500	Unavailable with these processors.

Chapter 5

Importing or exporting the documentation database

Introduction

The import and export utilities are available from the Tools menu by clicking Database. Use the import functionality in RSLogix 500 when you want to apply documentation that already exists to a project you are currently developing in RSLogix 500. Use the export functionality in RSLogix 500 to make the database documentation that is part of your current RSLogix 500 project available to other projects.

Tip

RSView products can read the documentation database directly from your RSLogix 500 projects – there is no need to export the database when using RSView.

Import database

You can apply documentation to newly created logic files by importing existing database documentation. The existing documentation might come from:

- projects developed using Rockwell Software's DOS-based AI or APS programming software
- another project developed using RSLogix 500
- a spreadsheet application, like Microsoft Excel™ (saved as a .CSV file)
- an ASCII text file

Sometimes when you import a documentation database, there may be conflicting entries in the import file and the database. This is called a collision. Before you begin any import you can select if you want the imported database instance or the current database instance discarded if collisions occur.

A.I. project documentation database

Choose the Native Import option in the Database menu to import database documentation consisting of:

- address symbols and descriptions (.DSC files)
- page title and rung descriptions (.RPD files)

APS project documentation database

Choose the Native Import option in the Database menu to import database documentation consisting of:

- address symbols and descriptions
- page title and rung descriptions
- instruction comments

By default the file type selected for import is a .OP$ file. The .OP$ file is the database control file. It references individual database files (for example the symbol/description file or the page title/rung description file) that reside in the same folder as the .OP$ file. After an import completes, RSLogix 500 creates a log file that informs you which database files successfully imported and which database files contained errors and could not successfully be imported.

RSLogix 500 documentation database

Choose the Native Import option in the Database menu to import database documentation consisting of:

- address symbols and descriptions
- page title and rung descriptions
- instruction comments
- symbol groups

By default the file type selected for import is a .CTD file. The .CTD file is the database control file. It references individual database files (for example the symbol/description file or the page title/rung description file) that reside in the same folder as the .CTD file. After an import completes, RSLogix 500 creates a log file that informs you which database files successfully imported and which database files contained errors and could not successfully be imported. For a complete list of RSLogix 500 file extensions for individual database documentation refer to the online help and search "file extensions."

CSV (Comma Separated Values) file

Choose the ASCII Import option in the Database menu to import database documentation contained in a .CSV file and consisting of:

- address symbols and descriptions
- instruction comments
- symbol groups

For an example of a .CSV file, refer to the online help and search "CSV format for import/export."

ASCII delimited text file

You can import documentation files that were created using RSLogix 500 software or AI software and exported and saved as ASCII delimited files. ASCII delimited means that the fields for each RSLogix 500 database record are enclosed in quote marks and separated by commas.

Choose the ASCII Import option in the Database menu to import database documentation contained in an ASCII delimited text file. Choose from:

- address symbols and descriptions (.EAS files)
- page title and rung descriptions (.ERP files)
- instruction comments (.EIC files)
- symbol groups (.ESG files)

Users can specify any extension instead of the default extension for each file type (shown above in parenthesis) when using Rockwell Software's AI or RSLogix 500 software.

An example of each of the above files can be found in the "ASCII Export" section of this manual.

Export database

Use the export functionality in RSLogix 500 to make the database documentation that is part of your current RSLogix 500 project available to other projects.

You can select the display format for descriptions in the exported file. Choose "treat descriptions as five, 15-character lines of text" if you are exporting a database that will be used by Rockwell Software's AI or APS programming packages.

You can export documentation to the following output formats:

- ASCII delimited RS500 format
- ASCII delimited AI format
- ASCII delimited APS format
- a comma separated value file (.CSV file)

After it has been exported, you can edit the ASCII file with a text editor, or load the file into another database.

When you export database documentation to AI or APS ASCII delimited format, the symbols, descriptions, and instruction comments may be truncated due to size restrictions imposed by the AI/APS databases. This may result in conflicts in the exported data.

RS500 ASCII delimited text file examples

The examples in this section show how the documentation would be represented in an exported ASCII text file, using the RS500 output format.

Each field in a line of ASCII text is enclosed by quotes and separated by a comma.

Address symbols and descriptions (.EAS files)

"B30","0","SYMBOL","description","","","","","0","","","0","GROUP_NAME"

ASCII Field #	Maximum Length	Contents
1	39 characters	Address
2	--	Scope (0=global, 2-255=local program file #)
3	20 characters	Symbol
4	20 characters	Description line 1
5	20 characters	Description line 2
6	20 characters	Description line 3
7	20 characters	Description line 4
8	20 characters	Description line 5
9	12 characters	Device code (always 0 for addresses that are not real I/O)
10	9 characters	Device description above
11	9 characters	Device description below
12	--	Disable xref flag, (0=enabled, 1=disabled)
13	20 characters	Symbol group name

Page title and rung descriptions (.ERP files)

"RUNG000002-000002","page title","rung comment\"

ASCII Field #	Maximum Length	Contents
1	39 characters	Data table address or rung identifier
2	--	Page title
3	20 characters	Rung description

Instruction comments (.EIC files)

"B3/0","XIC","ins comment","","","","",""

ASCII Field #	Maximum Length	Contents
1	39 characters	Address
2	3 characters	Instruction type
3	20 characters	Comment line 1
4	20 characters	Comment line 2
5	20 characters	Comment line 3
6	20 characters	Comment line 4
7	20 characters	Comment line 5

Symbol groups (.ESG files)

"GROUP_NAME","description"

ASCII Field #	Maximum Length	Contents
1	20 characters	Symbol group name
2	80 characters	Symbol group description

A.I. ASCII delimited text file examples

These examples show how a line might appear in an ASCII text file exported using the AI output format. Each field in a line of ASCII text is enclosed by quotes and separated by a comma.

Address symbols and descriptions (.EAS files)

"B3/0","0","SYMBOL","description","","","","","0","","","0"

The field breakdown of AI ASCII delimited text is the same as shown for RS500 ASCII output format, except the symbol and description fields are limited to 15 characters and there is no symbol group field.

Page title and rung descriptions (.ERP files)

"RUNG002-0002","page title","rung comment\"

The field breakdown of AI ASCII delimited text is the same as shown for RS500 ASCII output format.

APS ASCII delimited text file

APS documentation database files saved to ASCII text format contain keywords. Keywords tell the software whether the information immediately following the keyword is a rung comment, an instruction comment, an address comment, or a symbol. Symbol and address comment examples are shown below.

```
SYM      B3/0      SYMBOL
AC       B3/0      "descriptio"
```

Refer to your APS programming manual for a complete list of keywords and an explanation of how an APS ASCII text file is built.

CSV format

Search "CSV format for import/export" in the RSLogix 500 online help for complete details.

Chapter

6 Monitoring data

Introduction

RSLogix 500 provides you with several customized methods for monitoring data in your data table files.

- Multipoint Monitor
- Custom Data Monitor
- Custom Graphical Monitor (RSLogix Professional version only)
- Recipe Monitor
- Histograms
- Trending
- Data Logging (MicroLogix 1500LRP only)
- Cross Reference Report

The Multipoint Monitor and Custom Data Monitor methods let you compose lists of addresses that you monitor frequently, or lists of addresses with interrelated functionality, so that you can view, document, protect or even force the changing data values from a single source file.

The Custom Graphical Monitor interprets the Custom Data Monitor graphically with easily customized buttons, sliders, gauges and charts.

The Recipe Monitor is a variation of the Custom Data Monitor used specifically for monitoring groups of related indirect addresses with a common index.

When you are online, you can use histograms and trends to see how your program is behaving over time, by examining bits as the program runs in the SLC controller. A trend logs the data for more than one address (typically related) over a period of time. A histogram logs the data contained in a single address over a period of time.

The data logging feature lets you use ladder logic to enable recording data for predefined sets of addresses. Your data can be date and time stamped.

The Cross Reference report lists every occurrence of all logical addresses in your project.

Multipoint Monitor

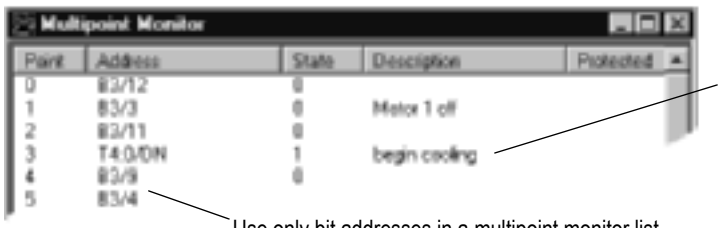
This is only available with MicroLogix 1000, SLC 5/03 - OS302, SLC 5/04 - OS401 and OS410, and SLC 5/05 controllers. The Multipoint Monitor function can only be used to monitor bit addresses. If you want to monitor word addresses as well as bit addresses, use the Custom Data Monitor.

Bit addresses in a multipoint list can come from any data table file. They do not have to be from the same data table file.

You can use a multipoint list to:

- change the on/off state of bits
- set and clear forces on I/O points
- define separate descriptions for on and off state
- write protect a bit

To access the Multipoint Monitor feature, double-click the Multipoint Monitor icon located in the project tree.



The offline multipoint list is stored in the project file. It is not part of the processor image. The online multipoint list is stored in the processor memory and is, therefore, cleared whenever the processor memory is cleared.

When using the MicroLogix controller, descriptions are always stored in the.RSS file. With the SLC 5/04 and SLC 5/05 controllers the descriptions are stored in the processor.

Forces

To monitor forces, double-click the input or output force file in the project tree.

Caution

All force functions can result in sudden machine movement, possibly injuring personnel or causing equipment damage. USE EXTREME CAUTION WHEN USING FORCES!

You can also use the Forces dialog to install and enable or disable forces while you are monitoring your file offline, or in any processor mode while monitoring your file online. Use the right-click menu on a bit in the Forces dialog to force the bit on or off. For more information about forcing, refer to the online help.

Custom Data Monitor (CDM)

This is available with all controllers. The Custom Data Monitor function can be used to monitor bit addresses and word addresses.

Addresses in a custom data monitor list can come from any data table file. They do not have to be from the same data table file.

Features of the custom data monitor include:

- CDM lists can contain bit addresses or word addresses.
- CDM lists can contain ASCII comments to help you clarify bit listings.
- You can define up to 255 (CDM) lists per project (0-254, inclusive).
- The CDM name is limited to 20 characters.
- The CDM description is limited to 59 characters.
- You can click and drag addresses from the data tables to the CDM file.
- You can use the [Ctrl] and [Shift] accelerator keys to drag more than one address at a time from the data tables.

To access the Custom Data Monitor feature, double-click the CDM file icon located in the project tree.

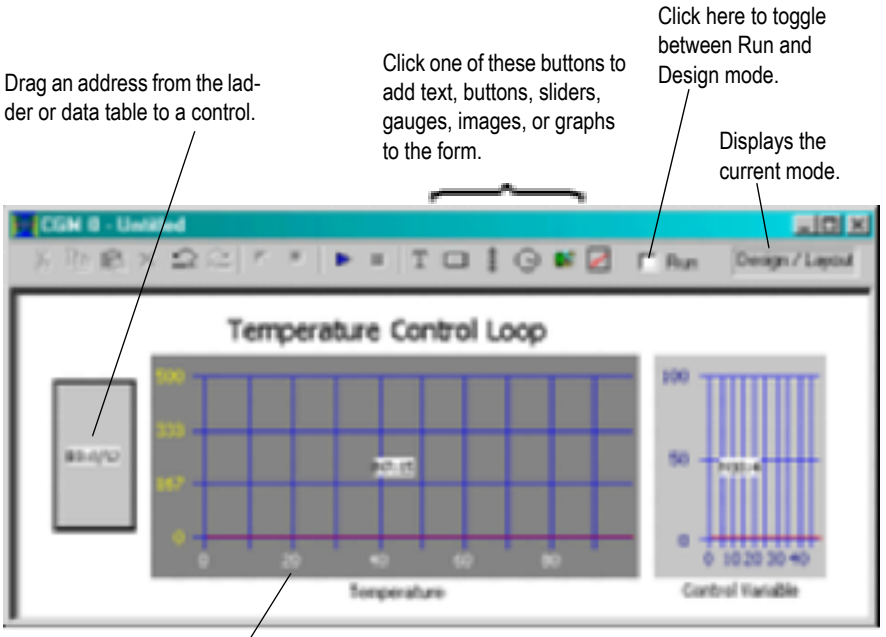
Custom Graphical Monitor

This feature is only available in the RSLogix 500 Professional version. The Custom Graphical Monitor provides the data monitoring of a Custom Data Monitor, but in an easy to interpret graphical representation. The Custom Graphical Monitor is a form on which you can place ActiveX controls for buttons, sliders, gauges and charts as well as text and imported images. As is typical of ActiveX controls, you place and configure controls with the form in Design mode and switch to Run mode to activate the controls.

To access the Custom Graphical Monitor feature, double-click the CGM folder located in the project tree.

To create a new Custom Graphical Monitor file, right-click the Custom Graphical Monitors folder and select New.

By default an untitled Custom Graphical Monitor file (#0) is included in your project. Right-click and select **Properties** to rename this file.



Right-click a control and select Properties to change colors, define ranges, and set other options.

Recipe Monitor

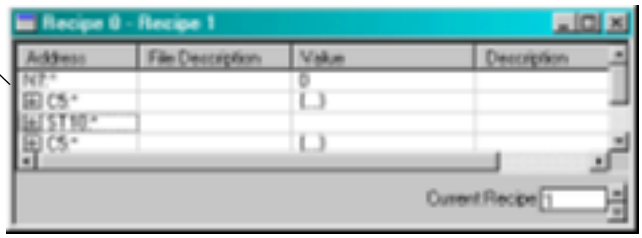
The Recipe Monitor is a variation of the Custom Data Monitor. The Recipe Monitor is used specifically for monitoring groups of related indirect addresses with a common index.

Many SLC and MicroLogix projects contain data tables in which each element is relevant for a different mode of operation. When these data tables are grouped such that element 1 of each file corresponds to mode 1 of the assembly line used to make product 1, this is referred to as a "recipe." The easiest way to keep track of recipes is to use a common reference address with indirect addresses to each of the related data files. The Recipe Monitor provides an easy and intuitive interface for this type of application.

To access the Recipe Monitor feature, double-click the Recipe folder located in the project tree.

To create a new Recipe Monitor file, right-click the Recipe Monitors folder and select **New**.
By default an untitled Recipe Monitor file (#0) is included in your project. Right-click and select **Properties** to rename this file.

Drag a data file from the project tree to the Recipe Monitor. Note that an asterisk (*) represents the indexed part of the address. If you type in or drag an address from the ladder, be sure to use an asterisk to indicate the indexed part.



Trends

A Trend logs the data for more than one address (typically related) over a period of time. Contrast this with a histogram which logs the data contained in a single address over a period of time.

This option provides the features of the RSTrendX Viewer plus remote trending capability. The RSTrendX Viewer is an ActiveX control for displaying process data in a trend or strip chart recorder format. It is based on the Viewer display in the RSTrend Data Acquisition and Trending software.

To create a Trend chart right-click the Trends folder in the project tree and select **New**. Trends are saved with the project. Logged data is not retained. You can create a trend configuration while offline or online. You must be online to trend data.

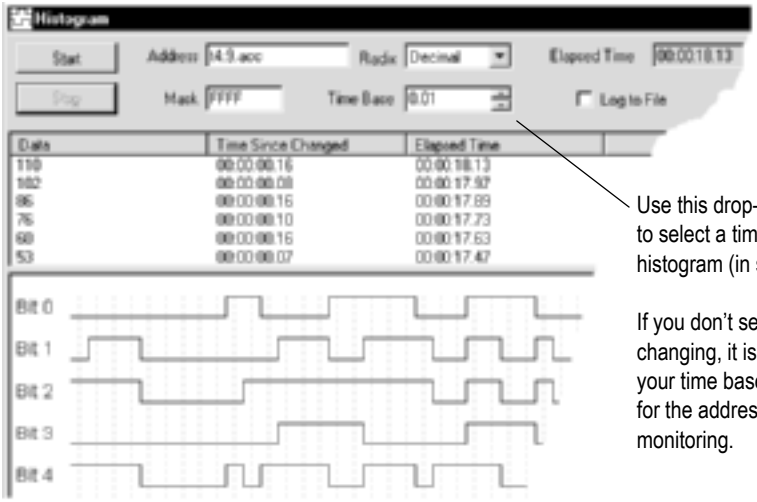
Histograms

Use the histogram functionality in RSLogix 500 to get information about how an address's data value changes over time.

You must be online with the SLC controller to access the histogram function. From the Comms menu, click Histogram to display the Histogram dialog.

By clicking Start on this dialog, the histogram function sends a message to the SLC controller to begin logging data. Each time the address value changes, the controller stores the value for the address in a histogram buffer, logging both the new value and the time interval between value changes. This data is represented in the top portion of the histogram display window.

If you frequently log certain data, you can save the configuration and simply load it without having to enter new parameters each time. Use Save and Load (accessible from the right mouse menu) for this functionality.



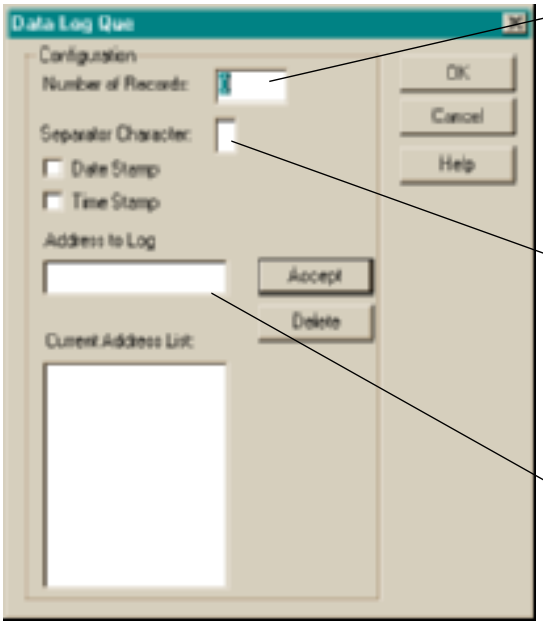
Use this drop-down list box to select a time base for the histogram (in seconds).

If you don't see data values changing, it is possible that your time base is incorrect for the addresses you are monitoring.

Data Logging (MicroLogix 1500LRP only)

Use the data logging feature to define and edit data sets for later retrieval by a communication device. The data is retentive in the controller through power cycles.

Access data logging from the project tree by clicking the Configuration icon in the Data Logging folder. Then right-click on Data Log Configuration and select New from the context menu



This is the number of samples that you would like for each record retained. When this limit is reached and a new sample is recorded the oldest record is dumped from the record.

By default the separator character is a space. Although it may look like there is nothing in this box, there is actually a space character.

Type an address here and then click Accept or press [Enter] to place it in the current address list.

Enable data logging for any queue when the DLG instruction in your ladder logic designating that queue goes from False to True.

Cross Reference

A Cross Reference report lists all logical addresses in your project and gives the location of every occurrence of each address. The report includes the following data: address, symbol, instruction mnemonic, file # (and name), and rung #. You can sort the Cross Reference report by symbol or by address.

As an alternative to a Cross Reference report, you can choose to display cross reference information right on the ladder view. To use this feature, select **View > Properties**, and click the Address Display tab. Make sure either or both check boxes are checked in the Cross Reference Display area of the dialog.

Tip

You can disable cross references to get online faster. Select **Tools > Options**. Click the XRef/Address Wizard tab and uncheck the **Enable Cross Reference Online** box.

Chapter 7

Saving and loading SLC libraries

Introduction

SLC library files are ASCII text files of the processor memory that contain the ladder logic, data table file, and force tables. By exporting (saving to file) and importing (loading into a new project) these SLC files, you can reuse existing work. SLC files can be opened in any ASCII text editor and modified for use in your projects.

Things to remember about library files

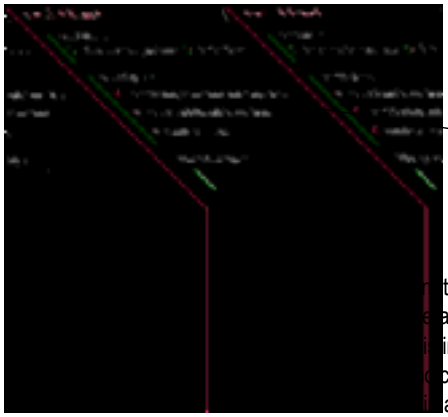
- Only verified project data can be saved to a .SLC file.
- Exported SLC libraries limit symbols to 15 characters. If you have a project file with database symbols that are 20 characters in length, exporting the project to a SLC library will truncate the symbols to 15 characters maximum.
- Graphics characters are not allowed.
- The file name of the ASCII file can contain up to eight characters consisting of (A-Z, 0-9, or the underscore character).
- The file extension of the ASCII processor memory file must be SLC.
- The text editor you use with an ASCII text file must produce only printable ASCII characters, with no control characters or hidden characters.

Tip

You can examine any error messages resulting after an import or export operation by examining the .LOG file. This file is stored in the folder named on the Preferences tab accessed by clicking the Tools menu and selecting Options. You can change this default folder.

Exporting libraries

You can save entire projects or partial libraries. To save a partial library, select the rungs you want to save in the library. If you select no rungs a complete save occurs. Then from the right mouse menu click Copy to SLC Library, and after supplying the path and filename, click Save.



If you choose Partial Save, make sure you selected the rungs before displaying this window.

tate Library places additional information about the rungs' position in the original information is used for troubleshooting a can help you if you intend to manually edit a text editor.

You can place a description in the SLC file by typing the description in the Library Description field. This description appears when you import the library.

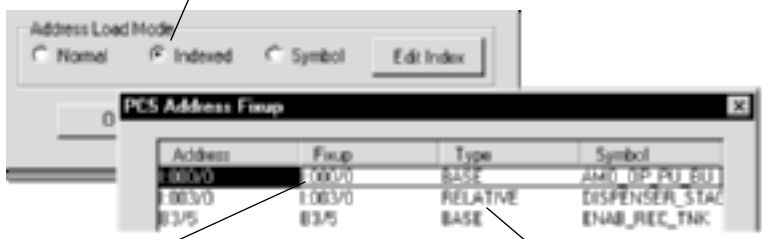
Importing libraries

To import a library file, open the project into which you want to load the library. Then from the right mouse menu click Paste from SLC Library.

If you are loading a complete program image into an existing project, data table values in the library will overwrite values in the base program, and incoming rungs will be appended to existing program files.

If you are loading a partial library, select the rung in your program that you want the library rungs to precede. The library rungs will always be placed before the rung you select. Data table values from the library will overwrite existing data table values for those addresses already present in the base project

Choose the indexed mode and then click the Edit Index button if you want to display a Fixup table from which you can adjust the addresses in the imported library so that there are no conflicts with the addresses in the base program.



If you change base address I:000/0 to I:016/00 (in the Fixup column) and press [Enter], the addresses that are relative to I:000/00 change to follow the change in the base. If there were more addresses relative to base address I:000/0, each one would be offset by the change applied to the octal base address. Relative addresses include all the addresses in the list of the same data file up to the next Base address.

You can change the type address. Double-click and select Base, Relative, or Global from the drop-down listbox. An address set to Global is not affected by indexing to a preceding base address.

Chapter

8 Features in RSLogix 500 Professional

RSLogix 500 comes in two editions: a Standard edition that provides basic ladder logic editing functions, and a Professional edition that provides additional functions to expand your automation solutions and make editing ladder logic simpler. This chapter briefly describes the features included in RSLogix 500 Professional.

Microsoft® Visual Basic for Applications® support

RSLogix 500 Professional allows you to expand your automation solutions through Microsoft Visual Basic for Applications (VBA). VBA allows you add and edit Visual Basic code within the RSLogix 500 development environment. RSLogix 500 Professional includes an object model that you can access through VBA. VBA code created through RSLogix 500 Professional is stored in your projects' .RSP files.

You can run VBA code with RSLogix 500 Standard – to create or edit VBA code you must use RSLogix 500 Professional.

See the manual titled *RSLogix Automation Interface Reference Manual* for more information about using VBA in your automation solutions. This manual is included with RSLogix 500 Professional.

Source Control

RSLogix 500 Professional has a source control feature that you can use to help you maintain version control on your projects.

For information about installing the source control feature, see *Installing the source control feature* on page 5.

For information about using source control, see *Source control* on page 63.

Custom Graphical Monitor

The Custom Graphical Monitor provides graphical data monitoring for your projects. In the Custom Graphical Monitor, you can place graphical buttons, sliders, gauges, charts, text, and imported images.

See *Custom Graphical Monitor* on page 49 for more information about using this feature.

Editing project databases using Microsoft® Excel®

RSLogix 500 Professional allows you to view and edit project databases with Microsoft Excel software. Microsoft Excel 97 (and later versions) comes with an ActiveX control that RSLogix 500 can use. You must have Microsoft Excel installed on the same computer as RSLogix 500 Professional to use this feature.

The Microsoft Excel ActiveX control gives you the powerful editing features of Excel, such as search/replace, and modifying multiple records at the same time. Using this control minimizes or eliminates the need for database import/export operations.

To access the Excel editor, click **Tools > Database > Edit Using Excel**. The Address/Symbol Editor will open using Excel as the editing tool.

Pressing **[F1]** will access the Microsoft Excel Help system.

When the Excel editor is displayed and has focus, RSLogix 500 displays the Excel menus and toolbars. You can also access Excel functions by using the right-mouse button menus while working in the editor.

Keep the following information in mind when using Excel to edit the database:

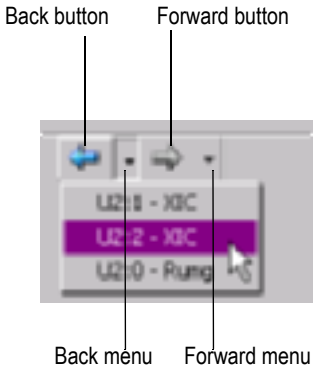
- When you open the Excel editor, the entire contents of the Address/Symbol database is automatically loaded into the control.
- Changes made within the Excel editor will not be applied to the Address/Symbol database until you click **Apply** or **OK**. When you apply changes, the entire Address/Symbol database will be overwritten with the contents of the Excel editor.
- Empty rows within the Excel editor are be ignored when applying the contents to the database.
- If records are added, removed, or moved within the Excel editor, they will be sorted when the contents are applied to the Address/Symbol database.
- When you click **Apply** or **OK**, all legal records will be written to the Address/Symbol database. Illegal records (records containing illegal characters, fields with too many characters, duplicate records, etc.) will not be written to the database.
- Any errors or illegal records encountered when applying the contents of the Excel editor to the database will be logged and displayed in a separate window. You have the option of saving this information to a file.

- If you close the Excel editor without clicking **Apply** or **OK** (by clicking **Cancel**), the editor closes without overwriting the database. Changes made in the editor since the last **Update Changes** operation will be lost.
- The Excel editor is limited to approximately 64,000 rows per sheet. Databases with more than 50,000 records will have their contents spanned to multiple Excel sheets.
- All standard features of the Excel Active X control will be available to manipulate the database. When the Excel editor has focus, these features are accessed through the menus or toolbars or from the right-mouse menu. Remember, you can always get help with the Excel editor by pressing the **[F1]** key.

Logic Trace

The Logic Trace feature lets you navigate through your ladder logic like using a Web browser. As you move your cursor through a ladder logic project, the Logic Trace feature keeps track of where you have been. You can then use the Logic Trace toolbar to navigate back to previous positions, or from earlier positions to later ones.

You can turn the logic trace toolbar on or off by clicking **View > Toolbars** and selecting or deselecting the Logic Trace toolbar.



How logic trace works

As you move your cursor through the ladder logic, the software records the positions of your cursor. When no back or forward history is available, the logic trace arrow buttons are disabled (grayed out).

Actions that create a "back" navigation history include cross reference navigation, program file display change, clicking your mouse on ladder logic rung/instruction elements, searching ladder logic, using the Goto Rung function, using dot commands, etc. Using the keyboard arrow keys will not generate a navigation history.

Actions that create a "forward" navigation history are limited to clicking an enabled "back" toolbar button or selecting a location from the "back" pull down menu.

When you click a "back" button, the cursor will move to the previous location in the navigation history. Once you have moved backward in the navigation history, clicking the "forward" button will move the cursor forward through your navigation history.

The pull down menus are limited to a maximum of 10 entries. Each entry lists a rung/instruction location. While the menus are limited to showing a maximum of 10 entries, the arrows allow you to go much farther back.

If you delete an instruction or rung that is in the history, that item is removed from the logic trace navigation history. If you edit a rung or instruction that is in the navigation history, it remains in the history.

Chapter

9 Source control

About source control

Tip

If you are using RSLogix 500 Standard, the source control feature is not available in the software.

If you are using RSLogix 500 Professional, you can install the source control features. See *Installing the source control feature* on page 5 for information about installing the feature. The source control feature requires that you run the software under Window 2000 or Windows XP.

Keeping track of changes to your projects can be a challenge. The source control system of RSLogix 500 Professional can help you manage changes to your projects.

The source control system acts as a project library, allowing you to "check out" and "check in" your project files. Project files are stored in a database. When you want to work on a project that is stored in the database, you check out the project. When you are finished working on it, you check it back into the database. When you check a project in or out of the Archive database, the database records that you have done so. You can also record comments when you check out or check in a project.

If you want a copy of the latest version of a project without checking it out (or if it has been checked out by someone else), you can "get" the project file. When you get a project, the system places a read-only version of the project onto your computer.

Configuring the source control database

You must configure the source control database to allow users to access it. Use the Archive Administration Utility to set permissions for the database.

Registering the source control database with the administration utility

Registering the source control database lets the administration utility know what database it is supposed to administer. To register the source control database with the administration utility:

1. Click **Start > Programs > Rockwell Software > RSMACC Server > RSMACC Archive Administration Utility**. This starts the Archive Administration Utility.
2. In the utility's window, click **RSMACC Archive Module Databases**.
3. Click **Action > New > New Database Registration**. This displays the New Server Registration window.
4. In the New Server Registration window, choose your computer from the **Server** drop-down list. Type the name of the Archive database in the **Database** field.
5. Click **OK**. The Archive database appears in the navigation tree. Right-click the database, then click **Connect**. If you get an error, it is likely that you misspelled the name of the Archive database. In this case, right-click the database, select **Properties**, and re-enter the database name.

Creating database users

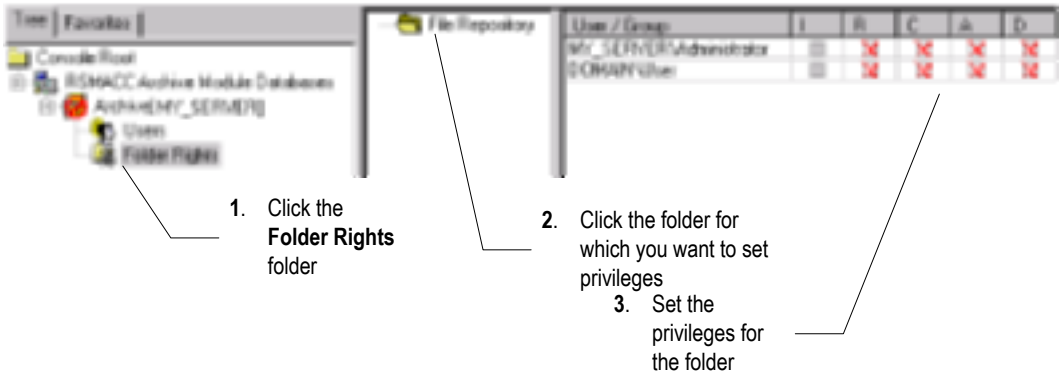
To create a database user with the Archive Administration Utility:

1. Log into the computer using an account that has administrative privileges.
2. Click **Start > Programs > Rockwell Software > RSMACC Server > RSMACC Archive Administration Utility**.
3. Open the Archive database.
4. Click the **Users** folder. The utility displays a list of the currently defined users for the database.
5. Right-click the **Users** folder, then click **New Login**. The utility displays the Add new database login window.
6. In the **Username** field, enter the name of the user or user group you want to add. You can browse for the name by clicking the browse button next to the field.
7. In the **Domain** field, enter the domain that authenticates the user or group (if you browsed for the user name, this field fills automatically).
8. Select the database role for the user. **Normal user** means that the user or group cannot modify folder privileges. **User can modify folder rights** means that the user or group can change folder access rights for other users (the user or group has administrative access to the database).

Assigning folder privileges to users

To assign folder privileges with the Archive Module database utility:

1. Log into the computer using an account that has administrative privileges.
2. Click **Start > Programs > Rockwell Software > RSMACC Server > RSMACC Archive Administration Utility**.
3. Open the Archive Module database.
4. Click the **Folder Rights** folder.
5. When you click the Folder Rights folder, the display shows the folders available in the archive (this should be only the File Repository folder at first). Click the **File Repository** folder. To the right of this folder, you will see a set of users and checkboxes. The checkboxes are privilege settings for the folder.



6. Click the checkboxes corresponding to the permissions you want to grant to the users.

This checkbox:	Means:
I	Inherit permissions from the parent folder. The top level folder (File Repository) cannot have this setting. If you choose this setting for a folder, no other setting is available for that folder. By default, any folder you create inherits its permissions from its parent folder.
R	Read. The user can read files contained in the folder.
C	Check in/Check out. The user can check files into and out of the folder. This setting implies the R permission.
A	Add/Remove/Delete. The user can add files to and delete files from the archive. This setting implies the R and C permissions.
D	Destroy. The user can destroy files (deleting them does not remove them permanently from the archive). This setting implies the R, C, and A permissions.

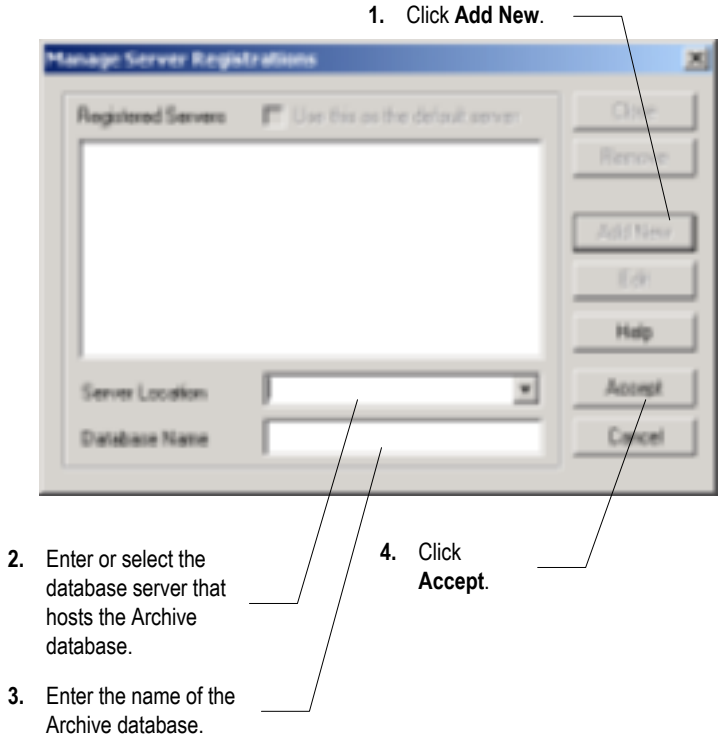
Registering the source control database with RSLogix 500

Before you can use the source control functions of RSLogix 500 Professional, you must register the source control database with RSLogix 500. Registration lets RSLogix 500 know how to access the archive.

To register the database:

1. In RSLogix 500, click **Tools > Source Control Utility**. This opens the Archive module tool.
2. In the Archive tool, click **Database > Server Registrations**.
3. The Manage Server Registrations window opens. Click **Add New**.
4. In the **Server Location** field, enter the computer name. You can browse for the name by clicking the down arrow button next to the field.
5. In the **Database Name** field, enter the name of the Archive database.

6. Click **Accept**. This registers the server.



Adding a project to the archive

When you want to perform source control on an RSLogix 500 project, you must add it to the source control archive. Once it is added to the archive, you can then track the modifications people make to it.

To add a project to the archive:

1. Open the project you want to store in the archive.
2. Click **File > Source Control > Add Project to Source Database**. The software logs into the default Archive database and displays the **Select folder in which to add file** window. This window allows you to select or create a folder into which you want to save the project.
3. If you want to store the project in a previously created folder, double-click the folder to open it, then click **OK**. If you want to create a new folder into which to store the project, click **Create New Folder**. (If you cannot create a new folder or store a new project, it is because you do not have the access rights necessary to do so. See your RSMACC administrator for more information.)

“Getting” and checking out projects

There are two ways to open a project that is stored in the Archive database. You can *get* the project, which opens a read-only copy of the project for viewing, or you can check out the project, which opens a writable copy of the project so you can modify it. Only one user can check out a project at one time. If you check out a project, no one else can check it out until you check it in. Other people can *get* the project while you have a project checked out, but no one else can modify it.

To get or check out a project:

1. In RSLogix 500, click **File > Open**. This displays the Open/Import SLC500 Program window.
2. In this window, click the **Source Control** tab. This displays the source control options for getting or checking out projects.
3. Select the project you want to check out.

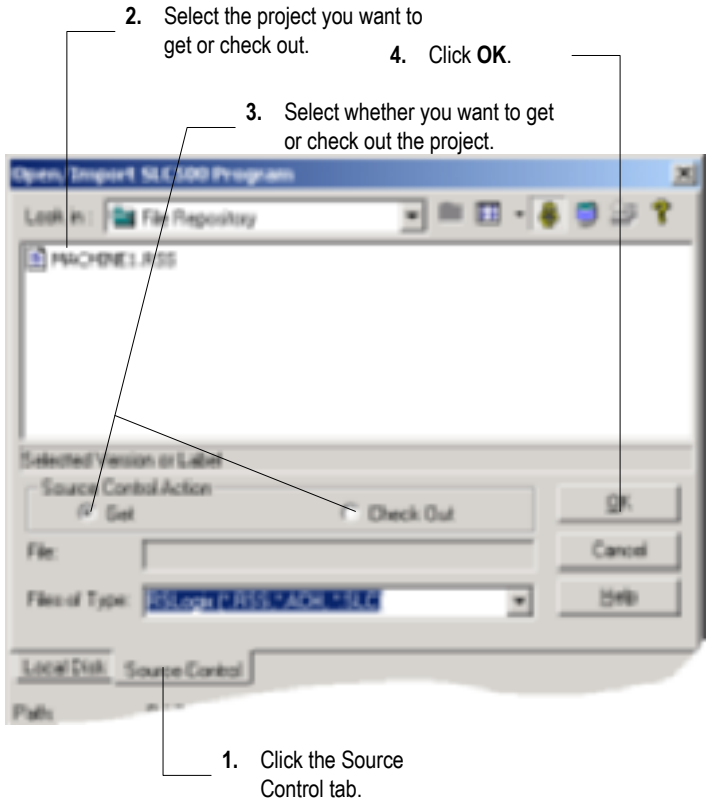
   If nothing appears in the Open/Import SLC500 Program window, there are two possibilities:

   a. The Archive database is not registered. The database much be registereed before you can use the source control features of RSLogix 500. See See *Registering the source control database with RSLogix 500* on page 66 for more information.

   b. You need to log onto the Archive database. click the **Login** icon to select an Archive database. (The Archive database must be registered before you can select it.) The Login icon looks like this:

4. Choose whether you want to get or check out the project by clicking the **Get** or **Check Out** buttons.

5. Click **OK**.



6. The Get window or Check Out window opens (depending on whether you chose to get or check out the project).
   a. Enter the path to which you want to get or check out the project in the **To** field.

b. If you are getting the project, you can make the project writable by checking the **Make Writable** box. If you are checking out the project, you can check it out without copying the project to your computer by checking the **Don't get local copy** box.

Tip

Check the **Don't get local copy** box if you want to keep other users from checking out a project or if you have performed a get on a project, made changes, and want to save the changes you made in the archive.

If you choose to check out a project without getting a local copy, and you do not already have a local copy of the project on your computer, RSLogix 500 creates a new project with the same name as the project you checked out.

c. In the **Action comments** field, enter a comment regarding what you intend to do with the project.

d. Click **OK**. The project is copied to your computer (unless you checked out a project without getting a local copy), and the project opens.

Undoing a check out

Undoing a check out resets the "checked out" flag on the project in the database, allowing other users to check out the project. Changes you made to the project while it was checked out are not saved to the database when you undo the check out.

To undo a check out:

1. Click **File > Source Control > Undo Check Out**.
2. The Undo Check Out window appears.
   a. If you want to simply undo the check out, type a description of why you are undoing the check out in the **Action Comments** field, then click **OK**.
   b. If you would like to undo the check out to a different source control database, click **Change Location**. You can then select a different database into which to undo the check out. (This works only if you have checked out the project from more than one database.).

Checking in projects

When you check in a project, the project file stored in the database is overwritten with the project file you have checked out. The changed project is then available for other users to check out.

To check in a project:

1. Click **File > Source Control > Check In**.
2. The Check In window appears.
   a. To simply check in the project, type a description of your changes to the file in the **Action Comments** field, then click **OK**.
   b. To save the project in the database but keep it checked out, check the **Keep Checked Out** box before clicking **OK**.
   c. If you want to change the database into which you are checking in the project, click **Change Destination**. You can then select a different database into which to check in the project. (This works only if you have checked out the project from more than one database.)

Chapter

10 Getting the information you need

Introduction

Use this chapter to review the sources of additional information on RSLogix 500 software, including online help, RSLogix 500 training, and technical support.

You can find out more information about RSLogix 500 software by consulting:

- RSLogix 500 online help
- RSLogix 500 training
- Technical support services

RSLogix 500 online help

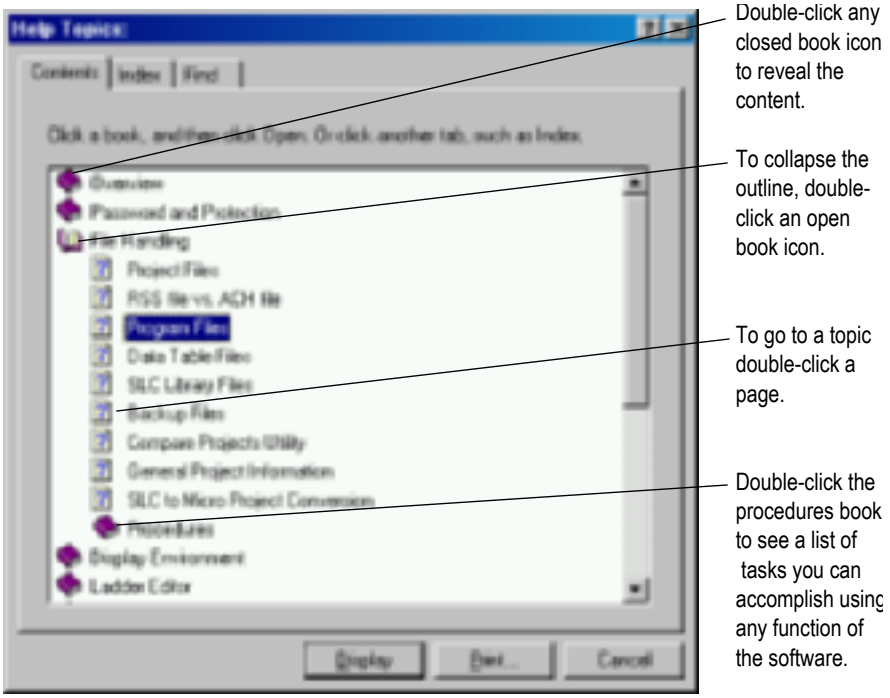
RSLogix 500 online help provides general overview information, a description of the fields on every dialog box, and step-by-step procedures for working with all of the features of RSLogix 500. To open online help while running RSLogix 500 you can:

- choose Help from the menu on the RSLogix 500 main window
- click the Help button on any RSLogix 500 dialog box
- press F1 on any instruction, dialog box, or window view
- expand the Help folder in the project tree and then double-click on any informative file listed to launch a help file.

Opening an expandable table of contents

To open an outline of the entire RSLogix 500 online help system:

- click Help on the menu bar and then click Contents
- click the Help folder in the project tree and then double-click Contents



Index

The index tab provides a list of guide words or subjects just like the index of a book. This is a quick way to find information about a specific topic. Follow the directions on the Index tab.

Find

If you don't see what you are looking for in the contents or index, you can search the entire help file for all occurrences of a word. follow the directions on the dialog to find a word.

The first time you click the find tab you will see a message about building a word list. Follow the directions on the screen. The default selection is generally sufficient. For information refer to Microsoft's online help (**Start > Help**).

Learning RSLogix 500 step-by-step

Click this book icon to get more background reference material associated with any procedure.

Once you have completed reading the "How To" window, you can select another task from this list.

In Help you will find a Step-by-Step topic that asks what you want to do and lets you select from many of the tasks you might want to perform.

To quickly step through the major tasks associated with creating a project, going online, and monitoring data, click on the check boxes. If you want more information about some of the other things that you can do associated with a major task, click the specific procedure.

Quick tips about Windows operating systems and RSLogix 500

Windows operating systems provide some functionality you may not be familiar with. The RSLogix 500 online help can point out some shortcuts and navigational techniques that can make your work easier. Just select Understanding the Operating Environment from the contents page of the online help.

Keyboard shortcuts

A list of hot keys (keyboard shortcuts) that enable you to maneuver the software without a mouse can be found in a help file that you can print out. To access this file, select **Help > Using the Keyboard**. To print any of the keyboard help topics, just click the **Print** button at the top of the window.

Some of these keyboard shortcuts (sometimes called Ctrl-key accelerators) are standard to the Windows operating system and work across all Windows-based products. Other shortcuts will only work with the RSLogix 5 and 500 products.

User Application help

The User Application Help feature allows you to add your own reference source (document, web page, etc.) to the RSLogix 500 project. You can use whatever format you want for the source as long as the computer running RSLogix 500 can open and read that source. For example, you could use a Microsoft Word .Doc file, provided that you had Word on your computer. Or you could use an HTML file if you had a browser that could read the file.

Your User Application Help file is saved with the project in RSLogix 500. You can specify one User Application Help file per project.

To set up your User Application Help file:

1. Create the source file for your User Application Help.
2. From the project tree in RSLogix 500, right-click **User Application Help** (under the **Help** folder) and select **Properties**. The User Application Help dialog appears.
3. Enter the path and file name (you can Browse for the file), or the URL for your source file and click **OK**.

To specify a different source file, go back to the Properties dialog and enter the new path and name.

To display the User Application Help file, double-click on **User Application Help** (under the Help folder in the project tree) or click **Help > User Application Help** from the main toolbar menu.

Instruction Set help

All of the instructions available to you in RSLogix 500 have context-sensitive help. You can click an instruction in your ladder logic for help about the parameters required or for information about why you might use one type of instruction instead of another.

Each topic in the instruction set online help also gives you information about which processors can use the instruction and an example of the instruction with sample parameters.

RSLogix 500 Training

Rockwell Software offers both classroom and computer-based training for RSLogix 500.

Classroom training

One of the best ways to increase your proficiency at using Rockwell Software products is to attend a Rockwell Software training program. Our training programs can help you master the basics and show you how to unleash the full potential of our software.

We offer a wide range of training programs, from regularly scheduled classes conducted at Rockwell Software facilities to custom-tailored classes conducted at your enterprise. The size of each class is kept small intentionally to maximize student engagement.

For more information about our training programs:

- visit our web sit at http://www.software.rockwell.com/training/
- view the Support and Training help file either from Help on the menu bar or from the Help folder in the project tree.
- contact the Rockwell software Training Coordinator at **877-724-7864**.

Interactive training

Rockwell Software's new RSTrainer 2000 Self-Paced Training programs provide multimedia lessons and interactive practice exercises designed with student objectives in mind. Features include animated graphics, professional audio and content written by Rockwell Training and Tech Support Specialists. Courses are based on the latest shipping release of the software product and include links to the software help files.

RSTrainer 2000 for RSLogix 500 contains four lesson modules and over 35 individual multimedia lessons. You'll learn to install and configure RSLogix 500 and to use it's powerful features to efficiently develop and maintain ladder logic programs.

A demo of the training program is included on the RSLogix 500 CD-ROM. To run the demo, insert the RSLogix 500 CD_ROM into the CD-ROM drive. When the menu appears, select **Try RSTrainer 2000 for RSLogix 500**.

If the CD-ROM does not autorun, open the Start menu and select **Run**. Type `x:\autoplay` (where x is your CD-ROM drive), and click **OK**. Select **Try RSTrainer 2000 for RSLogix 500** from the menu.

Technical support services

If you cannot find answers to your questions in this publication or in the online help you can call Rockwell Software technical support.

Telephone: **440-646-7800**

Fax: **440-646-7801**

World Wide Web: **http://www.software.rockwell.com/support/**

Support staff are available Monday through Friday 8 a.m. to 5 p.m. EST, CST, MST, and PST, except during U.S. holidays.

When you call

When you call you should be at the computer running the Rockwell Software product and be prepared to provide the following information:

- product serial number on the Activation disk labels (You can find the serial number online. On the RSLogix 500 menu, click **Help**, and then click **About**.)
- product version number
- hardware you are using
- Microsoft Windows operating system and service pack you are using
- exact wording of any messages that appear on the screen
- description of what happened and what you were doing when the problem occurred
- description of how you tried to solve the problem

Appendix

A Activation

Rockwell Software's products are copy-protected. Only a computer with access to the activation key can run the software. The key is located in an activation file, which is originally located on the Master disk supplied with the RSLogix 500 product. The activation file contains one activation key per product. Each key contains one or more licenses depending on how many copies of the product you have purchased.

Tip

Store your Master disk in a safe place. If your activation becomes damaged, the Master disk may be the only means to run your software in an emergency.

During the setup process, the setup program gives you the opportunity to move the activation file from the Master disk to the root folder of the drive on which you're installing the software.

When you launch RSLogix 500, the software first checks your local hard drives, then network hard drives, and finally local floppy drives for activation. If the system fails to detect either the activation file or the Master disk, you will receive an error message stating that activation is required to run the RSLogix 500 software.

Tip

Systems attached to extensive networks can take quite a while to search for activation files on all available drives. You can use the CHECKDRIVES environment variable to specify and/or limit the drives your software checks for activation files and to specify the order in which they are checked. Refer to the activation utilities online help file by selecting **Help > Copy Protection**.

Protecting your activation files

Caution

Certain anti-virus software packages, such as Norton Anti-virus, can corrupt the activation files. Configure your anti-virus software to avoid checking the files EVRSI.SYS and 386SWAP.PAR.

To avoid damaging your activation files, do not perform the following operations with activation files on the hard drive.

- Restore from backup
- Upgrade the operating system
- Compress or uncompress the hard drive

Defragmentation utilities will not harm activation files.

Before running any type of utility that may modify the structure or organization of the hard drive, remove activation from the hard drive:

1. Use the Move Activation utility (EvMove) to move activation files from the hard drive to an activation disk.

Caution

Do not use the the Move Activation utility if Rockwell Software products are currently running. Ensure all software programs are closed before initiating the EvMove utility.

   Run EVMOVE.EXE from your hard drive (located in C:\Program Files\Rockwell Software\RSUtil if you accepted the default folder location during installation).

2. Perform the hard disk operation.
3. Move the activation files back to the hard drive.

Caution

You must use the move utility, EvMove, to move activation files. Attempts to copy, move or e-mail an activation file by other means will damage the file.

Activating RSLogix 500

Depending on your needs, you can activate RSLogix 500 from any of the following:

Hard drive. The activation key resides on your computer's hard disk. Use this method if you will typically use RSLogix 500 on only one computer. This is the default method if you activate RSLogix 500 during installation. To run RSLogix 500 on a different computer, move the activation key back to the Master disk, and then to the hard drive of the new computer.

Diskette drive. The activation key resides on a floppy disk (activation disk). Use this method if you will typically use RSLogix 500 on more than one computer, for example, if you want to run RSLogix 500 on a desktop computer at some times and a portable computer at others.

Network drive. The activation keys reside on a network drive. Use this method if you have purchased multiple licenses of the software and want several users to be able to activate the software over a network. Refer to the online help for instructions on moving activation to a network drive (refer to the "Finding more information about activation" section in this chapter to access online help).

Running the activation utilities

The utilities for moving and resetting activation are called EvMove and Reset respectively. Reset is used when an activation file has been damaged. The EVMOVE.EXE and RESET.EXE files are located on your hard drive (located in C:\Program Files\Rockwell Software\RSUtil if you accepted the default folder location during installation). To run these programs, select **Start > Progams > Rockwell Software > Utilities > Move Activation** or **Reset Activation**.

Finding more information about activation

The online help (COPYPROT.HLP) provides more extensive information on activation including subjects such as:

KEYDISK. Set this environment variable to tell your computer to look for activation on floppy drives

CHECKDRIVES. Specify which drives to search for activation

network activation. Move activation to a network server to allow multiple users access to the activation

moving activation. See detailed instructions for moving activation

resetting activation. See detailed instructions for using the Reset utility to repair a damaged activation file

troubleshooting. Look up error messages, get problem-solving suggestions

You can access online help:

- from the **Help** button on one of the EvMove or Reset dialog boxes.
- from RSLogix 500 by selecting **Help > Copy Protection** from the main menu.
- without running either RSLogix 500 or the activation utilities. From the Windows Start menu, select **Programs > Rockwell Software > Utilities > Activation Help** (if you accepted the default folder location during installation).

Some common questions

Following are some common problems that people encounter with activation and their solutions.

My activation files were damaged. What should I do?

If you have lost the activation because the activation file is damaged, you need to reset activation. Follow the Reset Codes instructions on the Rockwell Software Technical Support web page, or call the technical support telephone number. The web page and telephone number are both listed on the inside front cover of this guide.

If you cannot obtain a reset code immediately, follow these instructions to use the Master disk to activate the software as a temporary solution.

To use the Master disk to activate software:

1. Set the KEYDISK environment variable to TRUE. (Please refer to the online help.)

2. Insert your Master disk in the floppy drive.
3. Run your software as usual. Your software will find the activation on the Master disk.

I accidentally deleted the software folder on my hard drive. Do I need to call Rockwell Software for replacement activation files?

No. Deleting the program files does not delete your activation. The activation files are not stored in the program folder; they are located in the root folder. Your activation files will not be lost unless you format the hard drive, tamper with hidden files in the root folder, or perform certain other hard drive operations (refer to the "Protecting your activation files" section in this chapter for more information).

To get the software running again, simply reinstall the software, but do not move the activation when given the opportunity.

Why can't I move activation to a new floppy disk on a Windows NT system?

It has to do with a disk modification that NT does not allow. If you have access to a Windows 95 or 98 machine, you can create a disk that will work under NT. Format a floppy and move any activation file to it under Windows 95 or 98. (You can move the activation back off the disk if you want to keep it where it was.) Then take that disk to your Windows NT machine and move the activation to it.

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