

**MCU** *Scribe*™

**Serial Programmer for HC08**  
**User's Manual**



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## Before You Begin

This preface gives you background information about using MCUscribe information resources, and supplies contact numbers for customer support.

### Quick tips for using the manual online

Here are some quick tips for using the Acrobat Reader to view this manual.

#### Resizing the page

You can change the page size of the page with the **Zoom To** option. The Reader displays new pages at the most recent Zoom To preference you set during the current viewing session.



To open the **Zoom To** dialog, click the **Zoom Size** button at the bottom of the Reader, press **Ctrl-L**, or select **Zoom To** from the Reader's **View** menu. Enter a percentage in the **Magnification** box, or click the arrow and select from the list.



To choose a preset zoom magnification, click one of the **Zoom Preset** buttons: Actual Size, Fit Page to Window, or Fit Width to Window.

#### Searching for a text string



To search for a text string, click the **Binocular** button on the Reader toolbar, then enter the string.

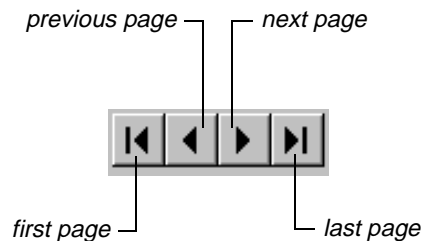
## Using interactive links



To switch between page view and bookmark-with-page view, click the view buttons. Bookmarks work like an interactive table of contents. Click a bookmark, and you jump to that page. There is also a complete interactive table of contents and index in the online manual.

## Using page navigation buttons

To move backward and forward through the manual, click the page navigation buttons. You can also press the arrow keys or Page Up and Page Down keys on the keyboard.



## Using the Go Back and Go Forward buttons



To retrace your steps backward or forward through the manual, click the double-arrow icons.



To view the manual again, click the **Acrobat Reader** button on the taskbar.

## Closing the manual



To close the manual, click the standard **Close** button.

## Contacting customer support

For technical support, contact the Motorola Customer Focus Center by telephone or fax:

**Telephone: 1-800-521-6274**

Telephone support hours are Monday through Friday, 9:00 a.m. to 5:00 p.m. (CST).

**FAX: (602) 302-8157**

## Terms and acronyms

These terms are used throughout this manual:

**base unit** The SPGMR08 hardware case. The base unit connects to the host system, and the programming adapter boards (PABs) are plugged into it.

**Control Panel** The main interface for the MCUscribe application. The Control Panel is the gateway to MCUscribe dialog boxes and operations.

**EPROM** Electrically Programmable Read Only Memory. A type of programmable semi-conductor memory. If the EPROM is in a device package that has a window, it can be erased with concentrated ultraviolet light. EPROM uses store and recall operations that retain data safely when power is turned off and on again. You can attempt to overwrite the values of some types of EPROM memory, but the new values of the individual bytes must be higher than the original values.

**EEPROM** Electrically Erasable Programmable Read Only Memory. A type of EPROM. EEPROM differs from EPROM in that bytes of programmed EEPROM memory can be overwritten with new values, regardless of whether the new values are higher or lower than the original values. EEPROM is not erased with ultraviolet light, but with software control or special hardware equipment.

**Flash EEPROM memory** Flash EEPROM differs from EEPROM in that the memory must be erased in large blocks. Note that this characteristic does not affect the MCUscribe Modify function. When you click the Modify button, the software attempts to overwrite the original values without erasing them.

**MCU** Microcontroller unit: A single-chip computer.

**MCUscribe software** The software that provides the integrated programming environment you use to run the Serial Programmer for HC08.

**MMDS** Motorola Modular Development System. You can use the Serial Programmer for HC08 with an MMDS08.

**OTPROM** One-Time Programmable Read Only Memory. A type of EPROM. OTPROM cannot be erased, because OTPROM devices do not have transparent windows to admit ultraviolet light.

**PAB** See programming adapter board.

**programming adapter board (PAB)** A circuit board that plugs into the SPGMR08 base unit, and has sockets to hold the target MCUs it supports. Personality files provide information the SPGMR08 needs to interface with specific MCUs.

**personality file** A file that supplies the MCU's specific memory map and other configuration data. Personality files have the extension **.mmp**.

**resident device** The MCU currently installed in the programming adapter board.

**Serial Programmer for HC08** The Motorola Serial Programmer for HC08 system: the base unit, a programming adapter board, and the MCUscribe software.

**SPGMR08** The Motorola Serial Programmer for HC08 system.

# 1

## Introduction

This chapter describes the features, components, specifications, and host computer requirements of the Serial Programmer for HC08.

### Introduction to the serial programmer

The Serial Programmer for HC08 (SPGMR08) is a reliable, flexible system for programming the EPROM, OTPROM, EEPROM, and Flash EEPROM memory of MCUs in the M68HC08 family. The SPGMR08 base unit accepts different plug-in programming adapter boards, so you can use the SPGMR08 to program a wide variety of MCUs.

## Features

The Serial Programmer for HC08 is a full-featured, cost-effective system for programming EPROM, OTPROM, EEPROM, and Flash EEPROM MCU memory through plug-in programming adapter boards (PABs). The PABs accommodate a wide range of MCUs. Features include:

- An easy to use Windows interface that provides a variety of programming-related functions
- Support for a variety of MCU-specific programming adapter boards. (Each board has programming sockets to support a range of MCU packages.)
- Memory map and configuration data supplied for each MCU through a personality file, with a supporting help file that includes:
  - Descriptions of the available mask sets, and a table that shows which personality files support the mask sets
  - Any special instructions needed for the programming adapter board, including programming instructions
  - An illustration of the programming adapter board
- A number of programming functions, as well as customized operations
- Status message boxes about software operations and results, including details about results of blank checks and verifications
- An on-board programming voltage circuit, so there is no need for an external 12-volt power supply
- LED indicators that show the status of power to the programmer and power to the PAB socket
- RS-232 operation speed of 9600 baud
- Compact base unit size: 6.6 in. long, 3.5 in. wide, 1.0 in. deep (168mm x 89mm x 25mm)
- Context-sensitive help and online documentation

## Operations

The SPGMR08 offers a number of programming functions, including the capability to:

- Program MCU memory arrays of EPROM, OTPROM, EEPROM, and Flash EEPROM memory
- View on-chip memory in the Memory dialog graphical display
- Edit bytes of memory contents displayed in the Memory dialog, or block fill memory ranges with new values
- Blank check programmable memory in the MCU, and set the SPGMR08 to restrict the blank check to selected types of memory
- Load S-records and upload MCU memory to a file in S-record format
- Verify the contents of MCU memory against a selected S-record
- Bulk erase Flash EEPROM memory ranges, or force-erase Flash EEPROM while programming
- Enable security to limit access to MCU memory (on securable MCUs)
- Pass security (for secured MCUs) by loading an S-record file that contains security data, or by entering the security key directly
- Change the target MCU and quickly begin a new programming session
- Customize display options for the memory map
- Choose to receive a notice before programming begins, if the MCU memory is not blank
- View an onscreen log of programming session events, and save the record of events as a log file

## SPGMR08 system components

### Basic components

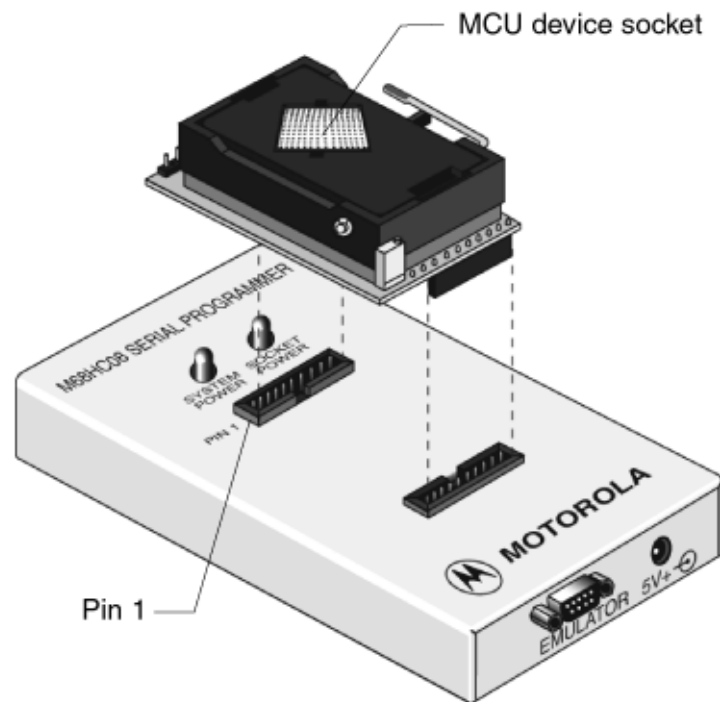
Your shipment of the Serial Programmer for HC08 consists of these items:

- Programming base unit
- RS-232 serial cable with 9-pin connectors
- 9-pin to 25-pin adapter, for use with a host computer that has a 25-pin serial port connector
- Power supply (5 volt DC)
- Power input adapters for the USA/Japan/Canada, the United Kingdom, Europe, and Australia
- MCUscribe software, with personality files and online documentation included
- Acrobat Reader software
- The *SPGMR08 QuickStart Guide*, which has SPGMR08 installation instructions and any restrictions that apply to the current release of MCUscribe software



## Programming adapter boards

Programming adapter boards and MCUs are purchased separately from the SPGMR08 base unit. The illustration below shows a base unit and a programming adapter board.



## Specifications

### Specifications for the SPGMR08

Characteristic	Specification
<b>Internal clock</b>	4.9152-MHz oscillator
<b>Communications ports</b>	RS-232 compatible
<b>Power requirements</b>	+5 V DC (+4.9 to 5.5 volts DC @ 200 mA [maximum])
<b>Temperature</b>	<b>Operating</b> 0° C to +25° C <b>Storage</b> 40° C to +85° C
<b>Relative humidity</b>	0 to 90% (noncondensing)
<b>Base unit dimensions</b>	6.6 x 3.5 x 1.0 in. (168 x 89 x 25 mm)
<b>Base unit weight</b>	7.4 oz. (210 g)
<b>Approximate programming adapter board dimensions</b>	2.0 x 2.0 x 1.0 in. (51 x 51 x 25 mm)
<b>Approximate programming adapter board weight</b>	2.0 oz. (57 g)

## Host computer requirements

To use the SPGMR08, the host computer must meet these requirements:

- IBM-compatible, running Windows 95 or Windows NT
- 6 MB of available hard disk space
- Available asynchronous communications port (COM1, COM2, COM3, or COM4) for communications between the SPGMR08 and the host computer.

# 2

## Installing the SPGMR08

This chapter explains how to install SPGMR08 hardware and software. Check these steps if you want to make sure you set up the SPGMR08 correctly.

### Checking your installation

If you encounter connection or communication problems, check to make sure you followed all the necessary installation steps. There are three installation steps, discussed in detail on the following pages.

- 1 Installing the software:** Install the MCUScribe software with its supporting files; and install or update the Acrobat Reader.
- 2 Connecting the base unit:** Attach the cables, and set up the power supply.
- 3 Installing a programming adapter board:** Insert a programming adapter board (PAB) and microcontroller unit (MCU).

## Installing the software

### Software included with your shipment

**MCUscribe** The MCUscribe diskette set includes:

- **MCUscribe.exe** — Windows executable file for the MCUscribe application—the interface you use to communicate with the SPGMR08, and to program MCU memory.
- **.mmp** files — The personality files (with the file name extension *.mmp*) that supply the SPGMR08 with MCU-specific configuration and memory map information.
- **MCUscribe.hlp** and **MCUscribe.cnt** — Online help
- **MCUscribe.pdf** — *Serial Programmer for HC08 User's Manual*. Instructions for using the MCUscribe application (the same information found in the help system, presented as an Acrobat PDF-format book).
- **QStart08.pdf** — This manual (*Serial Programmer for HC08 User's Manual*), in PDF format. A streamlined guide to setting up SPGMR08 hardware and software.
- **PAB pdf files** — User manuals for the programming adapter boards, in PDF format. Each PAB user's manual has instructions for setting up and using a particular programming adapter board.
- **readme.txt** — Release notes in ASCII format (text from *QStart08.pdf*).

**Acrobat Reader** With your SPGMR08 shipment, you receive the latest version of the Acrobat Reader. You must have the Reader installed on your system in order to view and print the PDF-format support documents that come with the MCUscribe software. Using the latest Reader software gives you full support for interactive elements in PDF-format documents.

## Installing MCUscribe software

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To install the MCUscribe software and supporting files:

- 1 Insert the first MCUscribe diskette in your floppy drive.
- 2 Enter **a:\setup.exe** in the Windows **Run** dialog box.  
The installation setup program opens.
- 3 Follow the instructions to install the software in a folder of your choice.  
The installation program places all the MCUscribe files in one folder.  
Using a single folder expedites selection of the MCU and S-record files, so you can start programming more quickly.

## Installing Acrobat Reader software

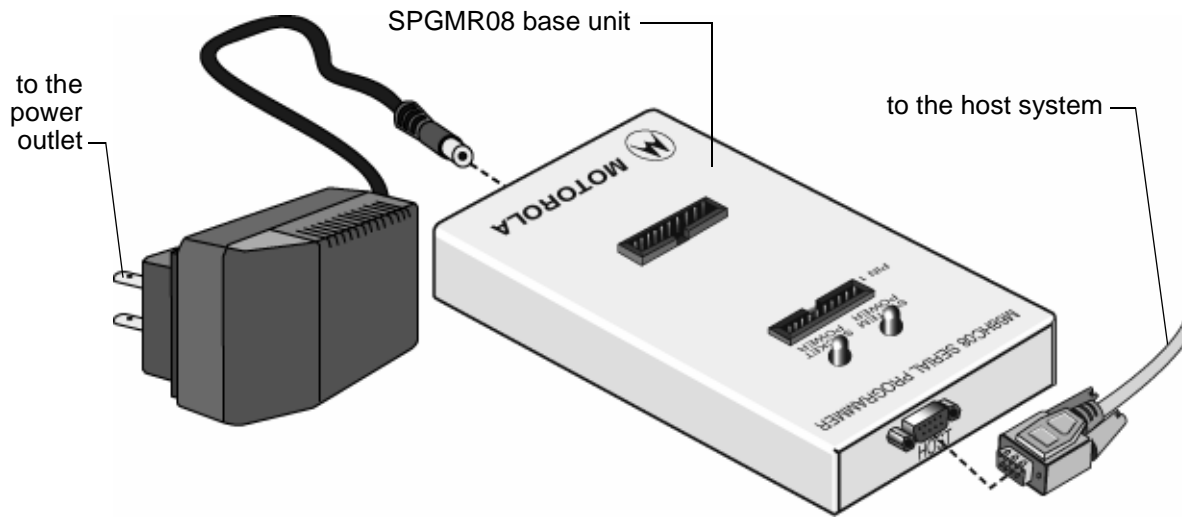
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To install the Acrobat Reader:

- 1 Insert the first Reader diskette in your floppy drive.
- 2 Enter **a:\setup.exe** in the Windows **Run** dialog box.  
The installation setup program opens.
- 3 Follow the instructions to install the software in a folder of your choice.  
The setup program gives you the option to update any Reader software that is already on your system.

## Connecting the base unit

The illustration below shows an overview of base unit connections for using the SPGMR08 without an MMDS.

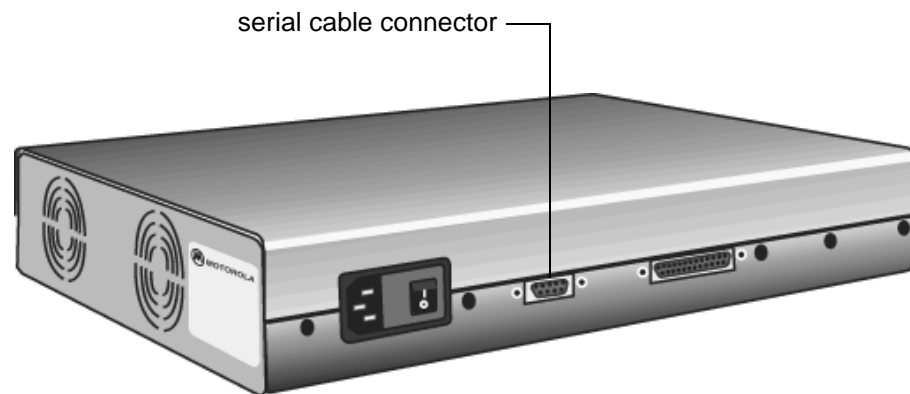


## Connecting the serial cable

To connect the SPGMR08 base unit to the host system:

- 1 Attach the serial cable's 9-pin female connector to the host computer's serial port connector. (Use the 9-pin cable provided, not a 3-pin cable.) If the host computer's serial port has a 25-pin connector, use the 25-pin to 9-pin adapter.
- 2 Attach the serial cable's 9-pin male connector to the base unit connector labeled **HOST**.

## Connecting the serial cable to an MMDS



To use the SPGMR08 with an MMDS, connect the serial cable in this way:

- 1 Attach the serial cable's 9-pin male connector to the MMDS serial port connector, shown in the illustration above. (Use the 9-pin cable provided, not a 3-pin cable.)
- 2 Attach the serial cable's 9-pin female connector to the base unit connector labeled **EMULATOR**.

## Setting up the power connection

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To set up power for the SPGMR08, use the 5-volt DC power supply provided with the SPGMR08, or use an alternate 5-volt DC power supply.

### To use the provided power supply:

- 1 Connect the power supply cable phono plug to the SPGMR08 base unit jack labeled **5V+**.
- 2 Complete your power supply by installing the appropriate input plug. Your shipment includes input plugs for the USA/Japan/Canada, the United Kingdom, Europe, and Australia.
- 3 Connect the power supply to a standard electrical outlet.

**To use an alternate power supply**, make the connection with the alternate power cable provided — the cable with phono plugs on each end:

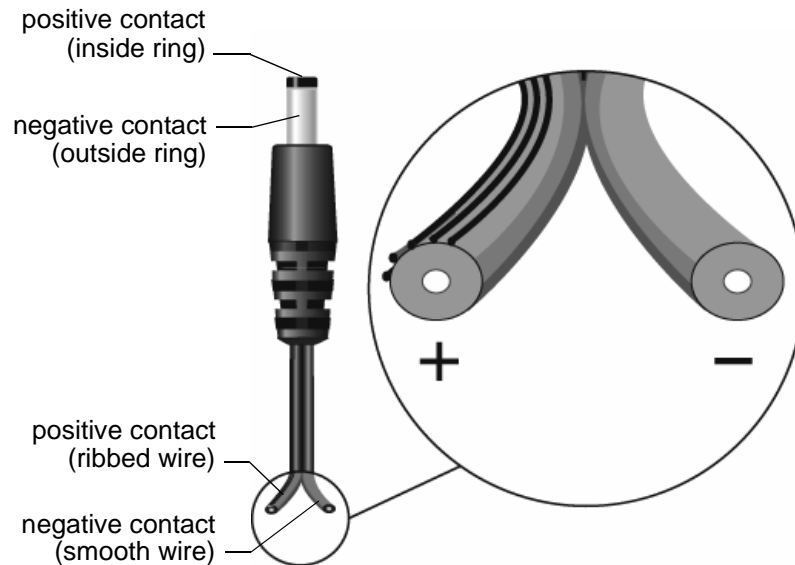
Connect one phono plug to the SPGMR08 base unit jack labeled **5V+**. Compare the remaining phono plug with the output connector of your alternate power supply. If the phono plug matches your output connector, insert it. If the plug does not match, modify the power cable as described in the next section.





## Modifying the power cable

If your alternate power supply does not have a standard output jack, modify the power cable. (Use the power cable that has phono plugs on both ends.) The illustration below shows the positive and negative contacts.



### To modify the power cable:

- 1 Cut the phono plug off of one end of the power cable.
- 2 Adapt the wire ends as needed, and attach them to your positive and negative power supply connectors. The positive wire has a ribbed edge; the negative wire is smooth.

**Caution:** Make sure you connect the positive and negative contacts correctly. Improper connections will damage the SPGMR08.

Now you are ready to connect the unmodified phono plug to the base unit power jack (labeled **5V+**).

## Installing programming adapter boards and MCUs

Before you can start using the SPGMR08, you must install a programming adapter board and an MCU. There are many programming adapter boards for the SPGMR08, each of which supports particular MCUs. The general instructions in this manual apply to all programming adapter boards and MCUs. Your programming adapter board may come with more specific instructions.

### Disconnecting power before handling components

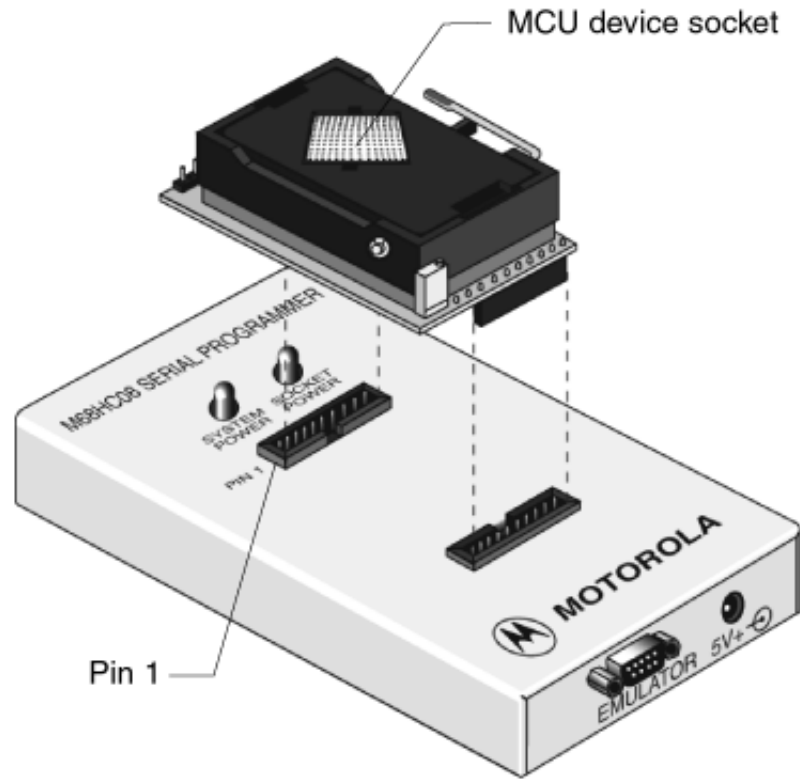
If power is disconnected, you can insert or remove MCUs and programming adapter boards freely. However, if you are in an MCUscribe session, make sure the yellow Socket Power light is off before you handle the MCU or switch out the programming adapter board. MCUs can be damaged by power surges during installation.



If the base unit's yellow Socket Power light is on, click the **Power Off** button in the MCUscribe Control Panel. Socket power is disconnected. You receive a confirmation message, and the Socket Power light goes off.

## Plugging in a programming adapter board

Plug the programming adapter board onto the SPGMR08 base unit. The PAB works when installed in either direction on the base unit. That is, the pin 1 base unit connector can accept either connector of the adapter board. The illustration below shows a programming adapter board about to be plugged onto the base unit.



## Inserting or removing an MCU

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After making sure socket power is disconnected, you can remove the MCU and insert a new device. Insert the MCU so that the MCU's pin 1 matches the socket's pin 1.

Make sure there is only one MCU installed on the programming adapter board at one time. Motorola recommends that you use a vacuum pen or other appropriate device to handle MCUs. Avoid bending the MCU's pins.

**Caution:** Attempting to program an incorrectly oriented MCU can damage it. Each MCU and socket have markings to show correct orientation. For more specific instructions, check your programming adapter board user's manual.

# 3

## Using MCUscribe Functions

This chapter tells you what you need to know to run an everyday programming session. The first section describes a typical MCUscribe session. The main body of the chapter explains how to perform basic MCUscribe tasks.

You also may want to read about all the possible options in the dialog boxes. For specific information about each option in the dialog boxes and status boxes, see Chapter 4, [Reference Guide](#), beginning on page 65.

## Overview: Running an MCUscribe session

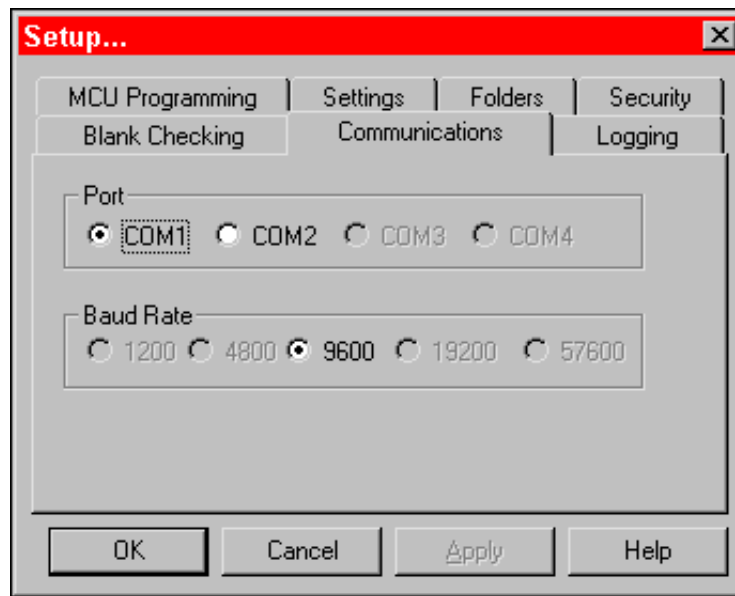
The steps below outline the progress of a programming session.

**Caution:**

*Before you insert a programming adapter board or MCU, make sure the yellow Socket Power light is off. MCUs can be damaged by power surges during installation.*

- 1 If this is the first time you are using the SPGMR08, make sure the base unit is connected to the host computer, and the power supply has been set up. Make sure you have also installed the personality file for the programming adapter board.
- 2 Plug a programming adapter board onto the base unit, and insert an MCU in the appropriate socket in the adapter board.
- 3 Launch the MCUscribe application.

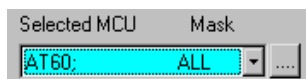
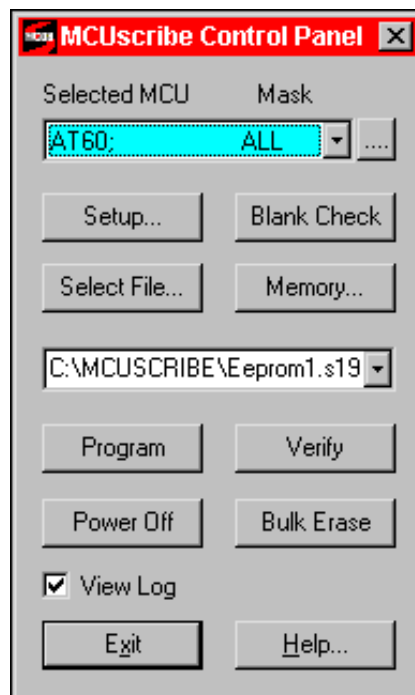
The Setup dialog opens with the Communications tab displayed, as shown below.



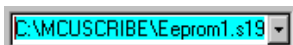
- 4 Check the setup options for establishing communications with the MCU:
  - Make sure the COM port selected is correct.
  - If you have installed the device personality files in a folder other than the root MCUscribe folder, specify the alternate path for the personality files.

When these options are correct, click **OK**.

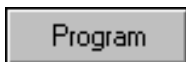
The Control Panel appears, as shown below.



- 5 Click the arrow next to the Selected MCU box, and select the MCU and mask from the drop-down list. If your MCU is not in the list, click the ellipsis button (at right) to select the personality file for your MCU.



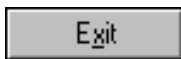
- 6** Specify which S-record file you want to use to program the MCU. If no file name appears in the **Selected S-record** box, click the **Select File** button in the Control Panel to open a dialog to locate the file.



- 7** Program MCU memory from data in the selected S-record file by clicking the **Program** button in the Control Panel.

Depending on the type of memory you are programming, the SPGMR08 may begin the programming operation by blank checking the MCU. The SPGMR08 then programs MCU memory from the selected S-record file, and verifies that the newly-programmed memory matches the S-record.

**If you receive a check-security message**, you have installed a secured MCU, and the security key in the Security tab of the Setup dialog is incorrect. Enter or load the correct security key for the MCU.



- 8** To close the MCUscribe application, click the **Exit** button, then disconnect power to the SPGMR08 base unit.

## Starting the SPGMR08

To start the SPGMR08, follow these steps:

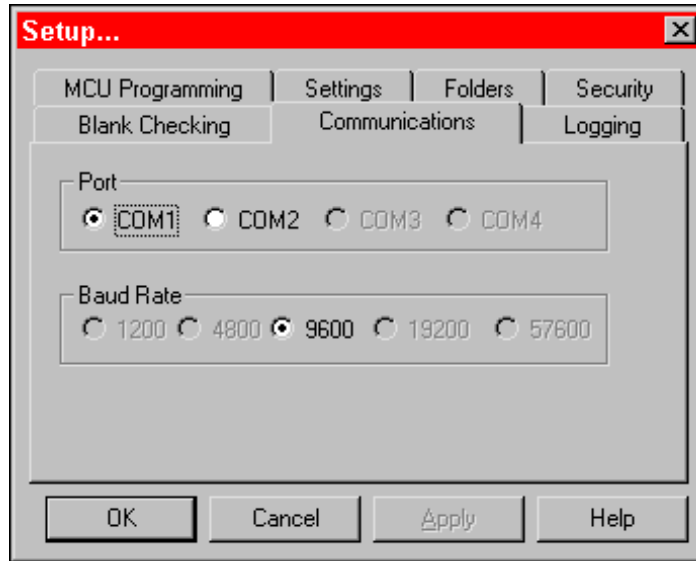
- 1** If this is the first time you have used the SPGMR08, make sure the base unit is connected to the host computer, and power is supplied properly. Make sure you have installed the necessary personality files.
- 2** Install the programming adapter board and MCU. (For more information, see [Installing programming adapter boards and MCUs](#) on page 26.)
- 3** Launch the MCUscribe application in one of these ways:
  - Double-click the **MCUscribe** icon on the desktop or in the Program Group.
  - Double-click the **MCUscribe.exe** file in Windows Explorer.
  - Select **MCUscribe** from the **Start** menu.

### Caution:

*To avoid damage to the MCU, make sure the yellow Socket Power light is off before you handle the programming adapter board or MCU.*



The MCUscribe application opens and displays the Communications tab of the Setup dialog, as shown below.



**Note:**

*If you are using a secured MCU, you must provide the security key before you begin programming operations. See [Using MCUscribe security](#) on page 57.*

- ◀ The COM port and personality file search path must be set up correctly in order for the software to communicate with the MCU. Once these options are set correctly, the Control Panel opens. Click the arrow next to the Selected MCU box to choose from the list of selectable MCUs and masks. You now have access to MCUscribe operations and dialogs.

**To close the MCUscribe application,** click the **Exit** button.

## Resetting the SPGMR08

If you are troubleshooting a communications problem, it is sometimes helpful to cycle power to the socket or to the entire SPGMR08 system:

### Cycle the socket power first:

- 1 Click the **Power Off** button in the Control Panel to disconnect socket power.

The yellow light goes off on the base unit, showing that socket power is disconnected. A message appears confirming that socket power is now disconnected, or saying that the Power Off operation failed.

- 2 Make the needed changes to hardware connections or setup options.

When communications are established, the yellow Socket Power light comes on.

- 3 Try the programming function again.

### As a further measure, cycle SPGMR08 system power:

- 1 Click the **Exit** button.

- 2 Disconnect power.

The green System Power light on the base unit goes off.

- 3 Reconnect power.

The System Power light comes on.

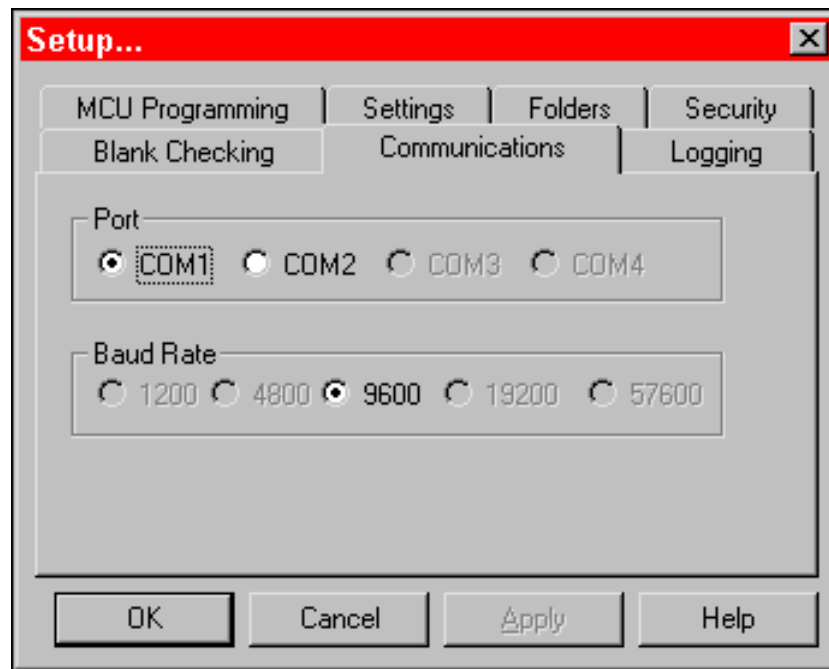
- 4 Open the MCUscribe application, and make the needed changes.

## Selecting communications options

When you launch the MCUscribe application, the Setup dialog appears with the Communications tab open, as shown in the illustration below. Use this tab to set the COM port for communications between the SPGMR08 and the host system. The tab also shows the baud rate (9600) the programmer uses to communicate with the host PC.

**Note:**

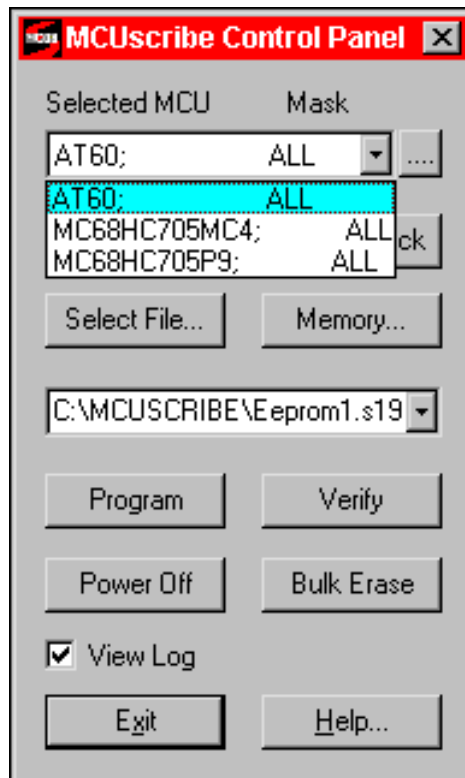
For full descriptions of the tabs in the Setup dialog, see the [Reference Guide](#) on page 65.



- 1 Verify the **Port** setting. Make sure the COM port selected is the one that connects the SPGMR08 to the host system.
- 2 When the startup configuration options are correct, click **OK**.  
The Control Panel appears.  
The next step is to select an MCU (described in the next section).

## Selecting an MCU

Once you have set communication options in the Setup dialog and the Control Panel opens, select an MCU from the **Selected MCU** list, as shown in the illustration below. The MCUscribe software has established communications with the MCU when the correct MCU appears in the Selected MCU box, and the yellow Socket Power light on the base unit is on.



## Locating personality files

---

If your MCU does not appear in the Selected MCU list, use one of these methods to locate the MCU's personality file:

- Click the **Selected MCU** ellipsis button. A dialog opens that allows you to locate the personality file directly.

or

- Set the search path for personality files in the **Folders** tab of the **Setup** dialog.

### Selecting a personality file directly

---

If your MCU is not in the Selected MCU list, you can locate the MCU's personality file directly:



- 1 Click the **Selected MCU** ellipsis button.

The Open File dialog appears.

- 2 Select the MCU's personality file. (Personality files have the extension **.mmp**.)

- 3 Click the **Open** button.

The Control Panel reappears with the MCU in the Selected MCU box. The personality file search path is reset to reflect your selection. The Control Panel opens with MCU names available in the Selected MCU list.

### Defining the personality file search path in the Setup dialog

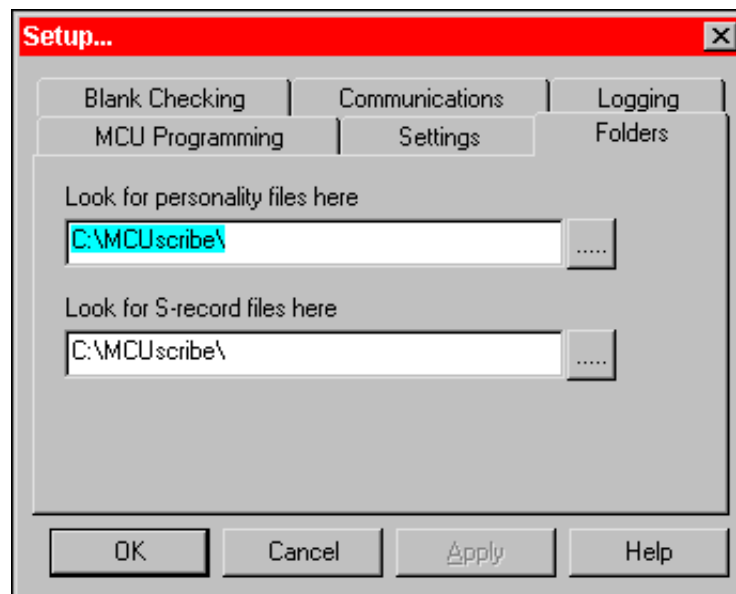
If the currently loaded MCU is not in the **Selected MCU** list, enter the path to the MCU's personality file:

- 1 In the Control Panel, click the **Setup** button.

The Setup dialog opens.

- 2 Click the **Folders** tab.

The Folders tab opens, as shown in the illustration below.



- 3 Enter the path in the **Look for personality files here** box. (The path must end with a backslash.)
- 4 Click **OK**.

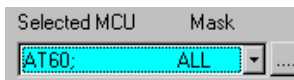
## Blank checking an MCU

Blank check an MCU's memory when you want to make sure its EPROM, OTPROM, EEPROM, or Flash EEPROM memory is not programmed. Depending on the type of memory you are programming, the MCUscribe software may automatically begin the programming operation with a blank check. For information about restricting the types of memory blank checked, see [Setup dialog: Blank Checking tab](#) on page 75.

Different types of MCU memory may have different blank state values. You can click memory ranges in the Memory Map status box to check the value that represents the blank state for that memory range. (See the topic [Memory Configuration status box](#) on page 93.)

### How to blank check an MCU

To blank check an MCU, follow these steps:



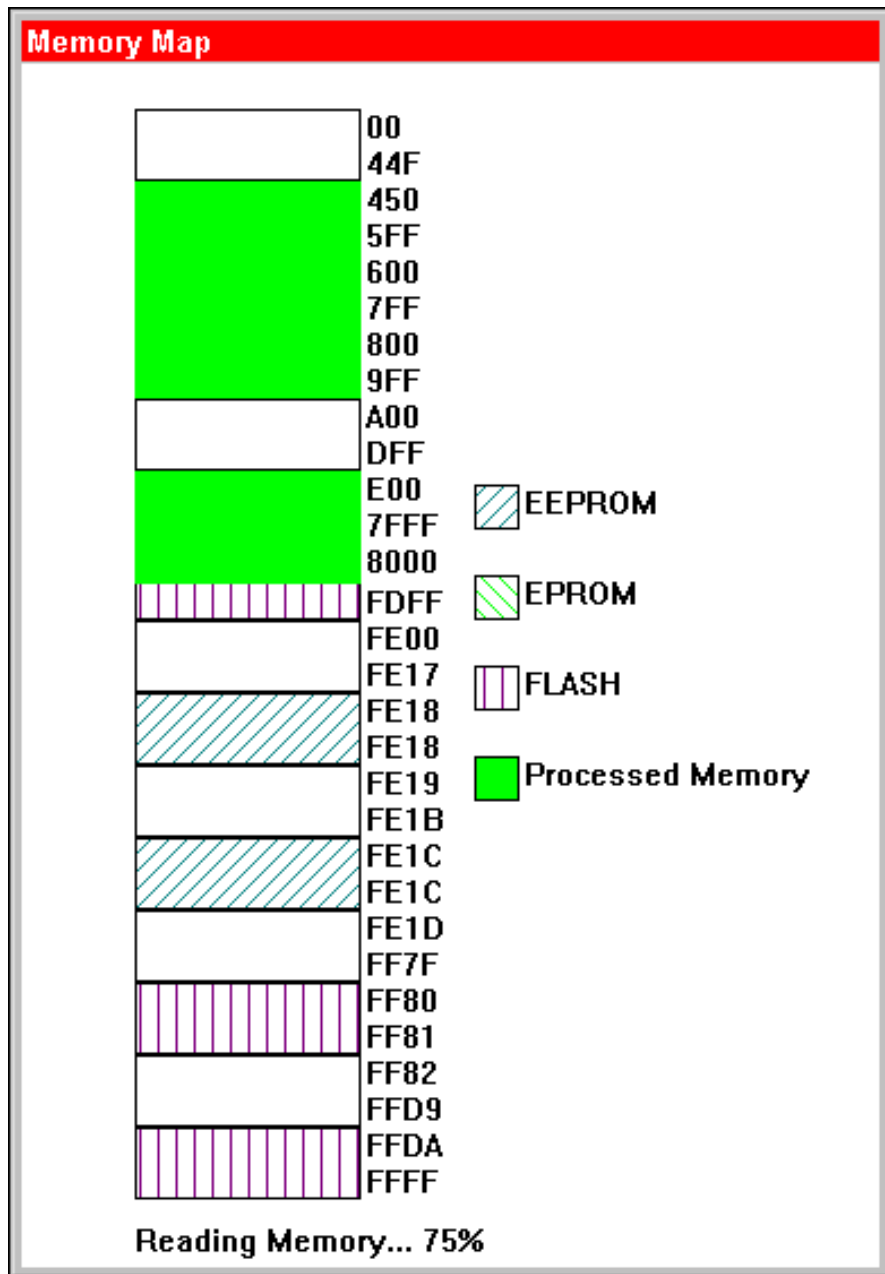
- 1 Check to make sure the **Selected MCU** box in the Control Panel displays the correct device name and mask set.
- 2 Click the **Blank Check** button.

If communications are not already established between the software and the MCU, the personality file is downloaded. You see the progress of the download in a status box.

The Memory Map status box opens (if Memory Map display is enabled), and shows the progress of the reading-memory operation. The illustration on the next page shows a reading-memory operation in progress.

**Note:**

The Memory Map status box displays only if you have selected setup options to enable the display. (See [Setup dialog: Settings tab](#) on page 80.)

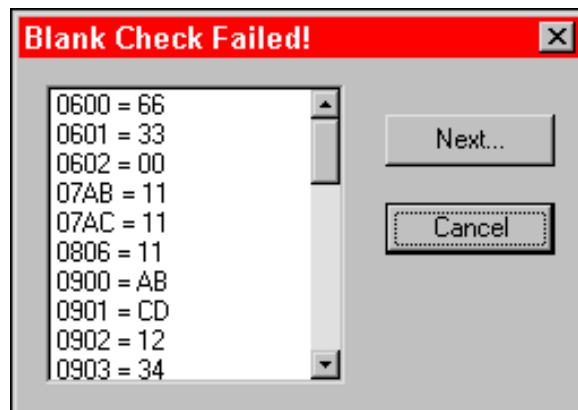




## Reading the results of the blank check

Once the memory is read, the result of the blank check appears:

- **If memory is verified as blank**, the **Blank Check Passed** message appears.
- **If the blank check fails**, the Blank Check Failed status box opens and shows data on the failure. (See the illustration below.)



The status box shows addresses and values of all memory bytes that are not blank, starting with the first programmed byte. The data is displayed in blocks of addresses. To see the next block of addresses that have non-blank (programmed) memory, click the **Next** button.

## Cancelling the blank check

To abort the blank check, click inside the Memory Map status box while memory is being read. A message appears to ask you to confirm that you want to abort the operation. To stop the reading-memory operation, choose **Yes**. To continue, choose **No**.

## Customizing blank check operation

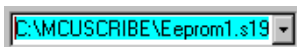
You can make choices in the Setup dialog that alter the way programming operations are performed, including which types of memory are included in the blank check. You can include all programmable memory in the blank check, or restrict the type of memory checked. (See the topic [Setup dialog: Blank Checking tab](#) on page 75.)

## Selecting an S-record file

Before you can program an MCU with data from an S-record file, you must select the S-record file.

### How to select an S-record file

You can use any of these methods to select the S-record file:



- **Choose an S-record from the drop-down list** in the Control Panel. This list shows files you selected recently.

- **Enter the file name and path** in the **S-record** box in the Control Panel.

or

- **Select a new S-record:**



- 1 Click the **Select File** button in the Control Panel.

The Open File dialog appears.

- 2 Locate the folder that contains your S-record files, and select a file.

The S-record name appears in the **File name** box.

**Note:** To change the types of files displayed, click the **Files of type** arrow, and choose to display files of all types or display only those files with S-record extensions (**.s19** or **.hex**)

- 3 Click the **Open** button.

You return to the Control Panel, which shows the new S-record file name and its path.

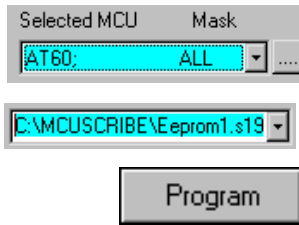
The validity of the selected file is not tested until you begin programming. If the selected S-record is invalid for the MCU, the programming operation fails, and an error message appears.

### Specifying the S-record folder

The default search folder for S-record files is the root MCUscribe folder. If you have placed the S-record files in a different folder, specify the path to that folder in the Folders tab of the Setup dialog.

## Programming memory from S-record files

To program the MCU's EPROM, OTPROM, EEPROM, and Flash EEPROM memory from an S-record file:

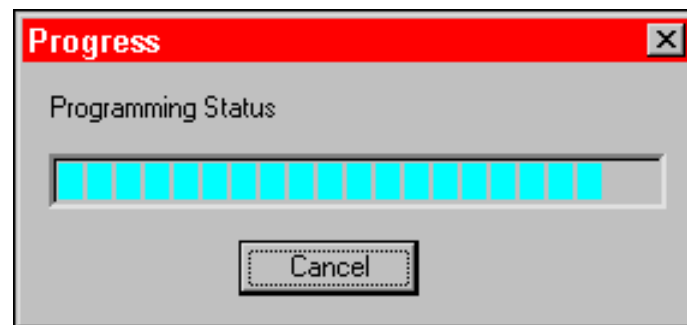


- 1 In the Control Panel, make sure the name in the **Selected MCU** box is correct.
- 2 Make sure the correct S-record file name is displayed.
- 3 Click the **Program** button.

If communications are not already established between the software and the MCU, the personality file is downloaded. You watch the progress of the download in a status box.

Programming begins. A programming operation can involve three events:

- **Blank Checking** Depending on the type of memory you are programming, programming may begin with a blank check. The Memory Map status box shows the progress of the blank check, if Memory Map display is enabled.
- **Writing to memory** Next, the contents of the S-record file are written to MCU memory. You see the progress of the writing-memory operation in the Memory Map status box or in the Programming status box, as shown in the illustration below.



- **Verifying** The contents of MCU memory are read once again and compared to the data in the selected S-record file.

A message appears that confirms programming is complete.

**Notes:**

- **S-record format:** If your MCU has memory arrays with long addresses, program those arrays from S-records that support long addresses. For more information, see the *General Release Specification* for your MCU.
- **Other programming methods:** In addition to programming from an S-record, you can use the Block Fill dialog box and the Modify function in the Memory dialog to alter the contents of MCU memory.

## Canceling programming

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You can cancel a programming operation in progress. However, if you cancel a writing-memory operation, you may leave the MCU in a partially programmed state. To cancel programming:

- Click inside the Memory Map status box (if Memory Map display is enabled).  
or
- Click the **Cancel** button in the Programming status box.

**Caution:** To safely remove an MCU, wait until programming operations are complete, then click the **Power Off** button before removing the MCU. MCUs can be damaged by power surges during handling.

## Programming different types of memory

You can program any blank EPROM, OTPROM, EEPROM, and Flash EEPROM MCU memory from S-record files. See the notes below about working with nonblank memory:

- **EPROM or OTPROM:** You can attempt to program nonblank EPROM and OTPROM memory. The new values must be higher than the original values. Check results carefully.
- **EEPROM:** You can program nonblank EEPROM memory, unless the affected memory range is block-protected.
- **Flash EEPROM:**

OVERWRITING or FORCE-ERASING — If you program nonblank Flash EEPROM memory with force-erasing disabled, the overwrite values must be higher than the original values. Even under these circumstances results vary, and should be checked carefully.

If you enable the force-erase option, each time you program Flash EEPROM memory from an S-record file, the already-programmed Flash EEPROM memory locations are erased. For more information about setting the force-erase option, see the topic [Setup dialog: MCU Programming tab](#) on page 78.

BLOCK PROTECTION — SPGMR08 block protection is available for EEPROM memory, but not for Flash EEPROM memory.

## Customizing S-record programming operations

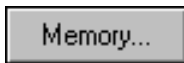
You can make choices in the Setup dialog about the way programming operations are conducted, including:

- Which types of memory are included in blank checks. (See [Setup dialog: Blank Checking tab](#) on page 75.)
- How to proceed if an EPROM blank check fails. (See [Setup dialog: MCU Programming tab](#) on page 78.)
- Whether to force-erase Flash EEPROM memory. (See [Setup dialog: MCU Programming tab](#) on page 78.)

## Viewing on-chip memory

You can use the Memory dialog to view the contents of EPROM, OTPROM, EEPROM, and Flash EEPROM memory on the currently installed MCU.

### Opening the Memory dialog

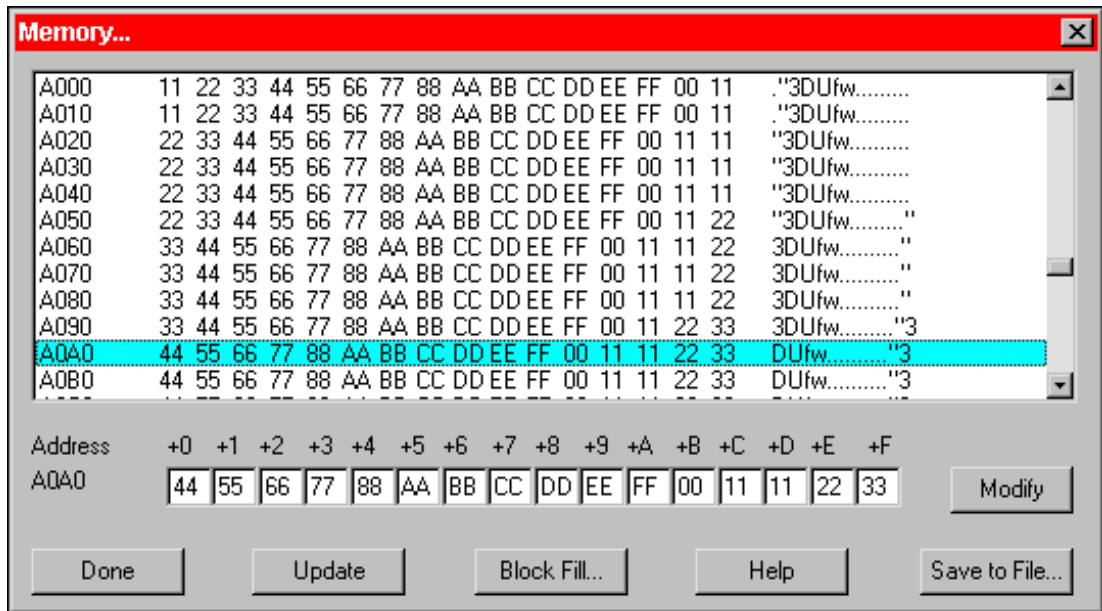


To view the contents of MCU memory, click the **Memory** button in the Control Panel.

If communications are not already established between the software and the MCU, the personality file is downloaded. You see the progress of the download in a status box.

The Memory Map status box appears while the contents of memory are read, if Memory Map display is enabled. To stop the reading-memory operation, click inside the Memory Map status box while the animated display is running.

When the reading-memory operation is complete, the Memory dialog box appears, as shown in the illustration that follows.



The Memory dialog box allows you to view and modify MCU memory.

The main memory display area shows the contents of programmable MCU memory in rows of 16 bytes. The start address of a row of memory is shown on the left. This is the address for the first byte in the row (shown in column +0).

To find the address of other bytes in the row, add the column designation to the initial address. For example, in the illustration above, the address of the first byte in the selected row is **A0A0**. To calculate the address of the third byte, add the column designation (+2) to **A0A0** to get the address (**A0A2**).

At the right side of the display area is a comment column.

To see more rows of data, use the scroll bar.

## Updating the Memory dialog display

The information in the Memory dialog reflects the last reading-memory operation — it does not update dynamically. The display is refreshed when you open the Memory dialog, or when you update the display on demand:



**To see an updated display of memory contents**, click the **Update** button.

If Memory Map display is enabled, the Memory Map status box appears again while memory is read.

**Note:** It is best to always update the display in the Memory dialog after block filling memory.

### For more information:

- To find out about using the Block Fill dialog, see the topic [Block filling memory](#) on page 49.
- To find out about modifying individual bytes of memory, see the topic [Modifying individual memory bytes](#) on page 52.
- To review a comprehensive list of the options of the Memory dialog, see the topic [Memory dialog](#) on page 86.



## Block filling memory

Use the Block Fill dialog to set a range of MCU memory to a specified value.

### Opening the Block Fill dialog

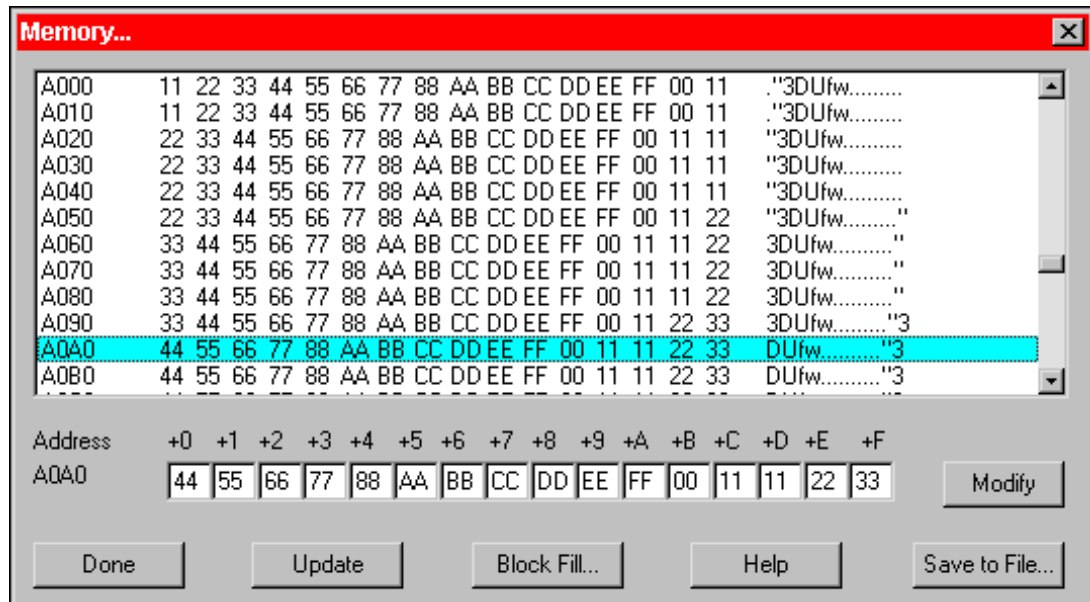



- 1 In the Control Panel, click the **Memory** button.

If communications are not already established between the software and the MCU, the personality file is downloaded. You watch the progress of the download in a status box.

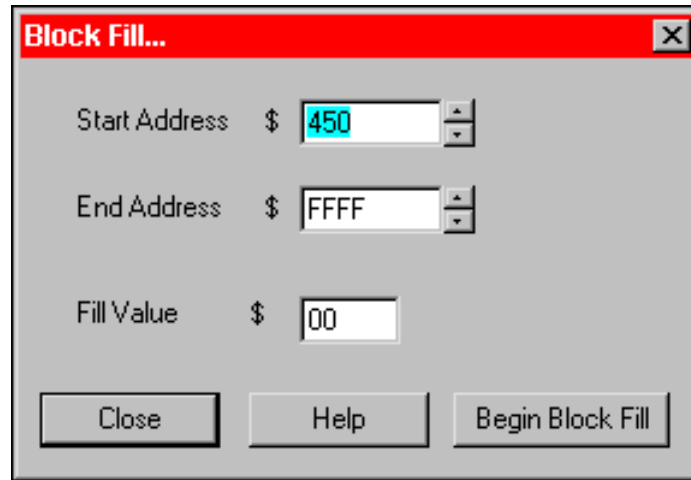
The Memory Map status box appears while the contents of memory are read, if Memory Map display is enabled.

When all programmable memory is read, the Memory dialog box appears, as shown in the following illustration.





- 2 Click the **Block Fill** button.
- 3 The Block Fill dialog opens, as shown in the illustration below.



## Using the Block Fill dialog

To assign values to a block of memory:

- 1 Enter the start and end address of the range of memory to be block filled. Use the spin buttons to advance forward and backward through available memory addresses.
- 2 Enter the new value in the **Fill Value** box.
- 3 Click the **Begin Block Fill** button.

When block filling some types of memory, the MCUscribe software first performs a blank check. The Memory Map status box appears (if Memory Map display is enabled), and the current contents of MCU memory are read. The software then programs the memory range with the new value, and verifies the changes against the value in the Fill Value box.

A message is displayed to confirm that the block fill was successful. The Memory dialog shows the results of the new reading in the specified range of memory. To check the results of the block fill, click the **Update** button. It is a good idea to always check programming results when block filling memory.

## Block filling different types of memory

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You can block fill any blank EPROM, OTPROM, EEPROM, and Flash EEPROM MCU memory range. See the notes below about block filling nonblank memory:

- **EPROM or OTPROM:** You can attempt to block fill nonblank EPROM and OTPROM memory. The new values must be higher than the original values. Update the Memory dialog display after programming, and check the results.
- **EEPROM:** You can block fill nonblank EEPROM memory, unless the affected addresses are block-protected.
- **Flash EEPROM:**

OVERWRITING or FORCE-ERASING — If you program nonblank Flash EEPROM memory with force-erasing disabled, the overwrite values must be higher than the original values. Even under these circumstances results vary, and should be checked carefully.

If you enable the force-erase option, each time you block fill Flash EEPROM memory, the already-programmed Flash EEPROM memory locations are erased. For more information about setting the force-erase option, see the topic [Setup dialog: MCU Programming tab](#) on page 78.

BLOCK PROTECTION — SPGMR08 block protection is available for EEPROM memory, but not for Flash EEPROM memory.

## Customizing block fill operations

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You can make choices in the Setup dialog about the way block fills are conducted, including how to proceed if a blank check fails.

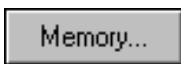
For more information about customizing programming operations, see the topic [Setup dialog: MCU Programming tab](#) on page 78.

## Modifying individual memory bytes

The Modify function has the capability to set individual bytes of memory to specified values.

### Using the Modify function

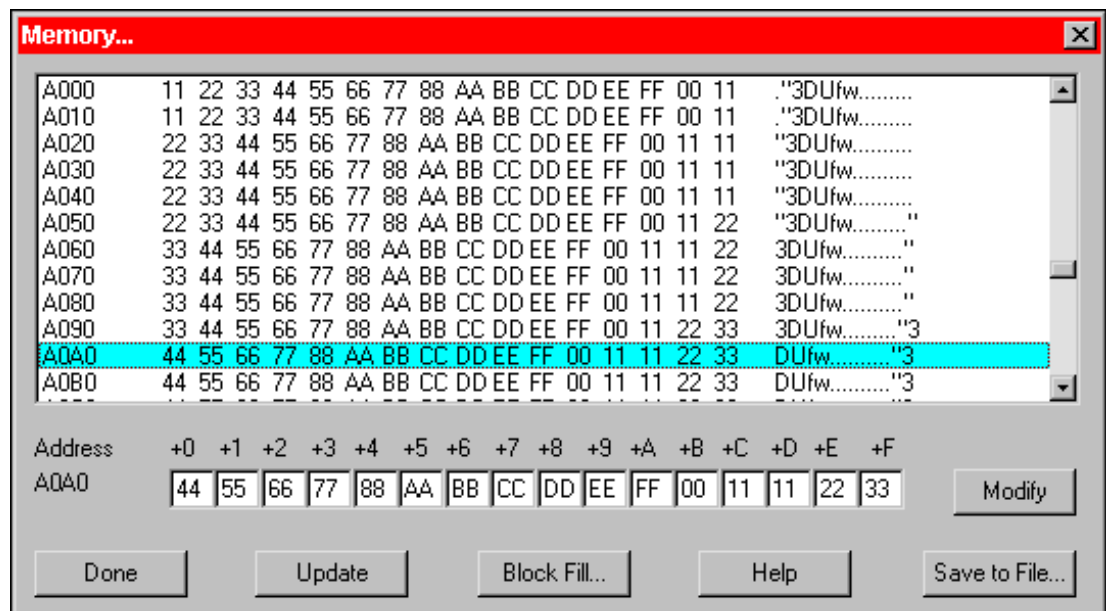
To modify a byte of memory:



- 1 In the Control Panel, click the **Memory** button.

If communications are not already established between the software and the MCU, the personality file is downloaded. You see the download progress in a status box.

The Memory Map status box appears while the contents of memory are read, if Memory Map display is enabled. When the reading-memory operation is complete, the Memory dialog box appears.



- 2 Select the row in the memory display that contains the byte or bytes you want to change.

The values for the selected row are displayed in the byte modification fields, as shown below.

Address	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
A0A0	44	55	66	77	88	AA	BB	CC	DD	EE	FF	00	11	11	22	33

- Use the mouse or Tab key to highlight the value you want to edit, and enter the new value. You can make changes in the values of all 16 bytes in the row at once.



- Click the **Modify** button.
- For most types of memory, the MCUScribe software first runs a blank check, then programs the bytes with the new values.

A status box appears while the current contents of MCU memory are read. When programming is complete, the Memory dialog shows the new contents of memory.

#### Determining the address of a specific memory byte

The 16 byte modification fields show the values of the currently selected row of memory. Each byte is shown below its column designation. To find the address of an individual byte, add the column designation to the starting address on the left. For example, the address of the first byte in the selected row in the illustration above is **A0A0**. To calculate the address of the third byte, add the column designation (**+2**) to **A0A0** to get the address (**A0A2**).

## Modifying different types of memory

---

You can use the Modify function to program any blank EPROM, OTPROM, EEPROM, and Flash EEPROM MCU memory. See the notes below about modifying nonblank memory.

- **EPROM or OTPROM:** You can attempt to modify nonblank EPROM and OTPROM memory. The new values must be higher than the original values. Check the results carefully.
- **EEPROM:** You can modify nonblank EEPROM memory, unless the affected bytes are block-protected.
- **Flash EEPROM:** You can attempt to modify nonblank Flash EEPROM memory. The new values must be higher than the original values. Even under these circumstances, results vary. Update the Memory dialog display after modifying, and check the results carefully.

**FORCE-ERASING SUSPENDED** — When you use the Modify function, the software does not attempt to erase the memory bytes before programming. This means that already-programmed Flash EEPROM memory ranges are not erased, regardless of the status of the force-erase option. For more information about the force-erase option, see the topic [Setup dialog: MCU Programming tab](#) on page 78.

**BLOCK PROTECTION** — SPGMR08 block protection is available for EEPROM memory, but not for Flash EEPROM memory.

## Customizing the Modify function

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You can make setup choices about how to proceed if a blank check fails—whether to cancel the operation or open a dialog box that allows you to continue. (See the topic [Setup dialog: MCU Programming tab](#) on page 78.)

## Verifying MCU memory

You can verify the contents of MCU memory at any time (that is, compare the contents of the MCU's EPROM, OTPROM, EEPROM, and Flash EEPROM memory to the contents of an S-record file).

### To verify memory contents:

**1** Make sure the Control Panel displays the correct S-record file name.



**2** Click the **Verify** button.

If communications are not already established between the software and the MCU, the personality file is downloaded. You watch the download progress in a status box.

The Memory Map status box appears (if Memory Map display is enabled) while the contents of memory are read and compared with the specified S-record file.

**If the MCU memory verifies successfully**, a confirmation message appears.

**If memory did not match the S-record or if an error occurs**, the Verify Failed status box appears, and lists the addresses and values for all the memory locations that did not match the selected file.

**To stop the verify operation**, click inside the Memory Map status box. (If you click in the Memory Map status box during programming, the MCU may be left in a partially-programmed state.)

## Erasing MCU memory

There are several ways to erase some types of programmable MCU memory. (Note that you cannot reset EPROM memory to a blank state.)

- **Bulk erasing:** To erase the contents of all Flash EEPROM memory, click the Bulk Erase button in the Control Panel.
- **Block filling:** To set a specified EEPROM memory range to its blank-state value, use the Block Fill dialog.
- **Modifying:** To set individual bytes of EEPROM memory to their blank-state value, use the modification fields and Modify button in the Memory dialog.
- **Force-erasing:** If you enable the force-erase option, you choose to erase all programmed Flash EEPROM memory locations in these circumstances:
  - Before block filling Flash EEPROM memory
  - Before programming Flash EEPROM memory from an S-record file

For more information about the force-erase option, see the topic [Setup dialog: MCU Programming tab](#) on page 78.

**Note:** You can set Block Protection registers to prevent erasure of EEPROM memory ranges, but Flash EEPROM block protection is not available in the SPGMR08. For more information, see your MCU's *General Release Specification*.



## Using MCUscribe security

When you start a programming session, first the software attempts to establish communications with the installed MCU. At this point, the Setup dialog displays only six tabs — the Security tab is not visible. Once communications are established, the software checks security. The Setup dialog displays the Security tab after security is cleared.

If you begin a programming session with a blank, securable MCU installed, the MCU's security addresses are set to blank-state values (the default state). You can program values at the security addresses. The new security location values become the security key. For information about your MCU's security key location, check the MCU's *General Release Specification*.

You can use any programming method to program the security addresses. If you program the security key location with data from an S-record file, the file acts as a security key record. This makes it easy to load the security key in future programming sessions.

If you begin an MCUscribe session with a secured MCU, you must provide the security key before you can pass the security check. Load or enter the security key in the Security tab of the Setup dialog. If the security key is incorrect, an error message (like the one below) appears.

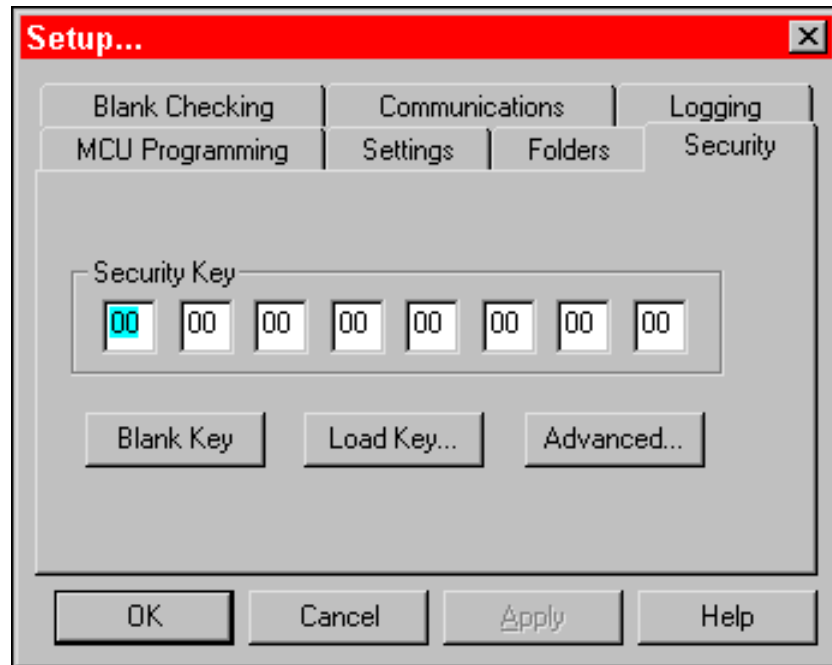


## Opening the Security tab



- 1 Click the **Setup** button in the Control Panel.
- 2 Click the **Security** tab.

The Security tab appears, as shown below.



## Loading a security key from an S-record file

If the currently loaded MCU's security information is contained in an S-record file, use the **Load Key** button:



- 1 Click the **Load Key** button.

The Open File dialog opens.



- 2 Locate and select the S-record file that contains the security information for the currently installed device.

- 3 Click the **Open** button.

The file is selected, and you return to the Setup dialog.

- 4 Click **OK**.

The security key downloads to the MCUscribe software, and the security check passes. You are now ready to begin programming operations.

## Loading a security key directly in the Security Key fields

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You can enter the security data directly in the **Security Key** fields. There are eight Security Key fields, which correspond to the eight bytes of the security key.

- 1 Use the mouse or Tab key to select each field, and enter the new values.

The Security Key fields display values.

- 2 Click **OK**.

The security key downloads to the MCUscribe software, and the security check passes. You are now ready to begin programming operations.

**Note:** To reset the display of Security Key field values back to the blank (memory-erased) state, select the **Blank key** button.

**For information** about resetting the security key location and number of bytes, see the topic [Advanced Security Options dialog](#) on page 84.

## Copying MCU memory contents to a file

You can copy the contents of EPROM, OTPROM, EEPROM, and Flash EEPROM MCU memory, and write the data to a file in S-record format.

### To upload MCU memory to an S-record file

**1** Make sure the correct MCU and mask name is selected in the Control Panel.



**2** Click the **Memory** button.

If communications are not already established between the software and the MCU, the personality file is downloaded. You see the download progress in a status box.

The contents of programmable memory are read. The Memory Map status box is displayed during this operation, if you have set options to enable its display.

When the reading-memory operation is complete, the Memory dialog box appears.

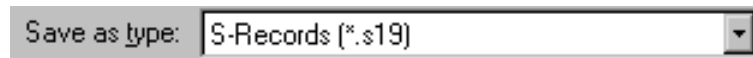


**3** Click the **Save to File** button.

The Save As dialog opens.

**4** In the Save As dialog:

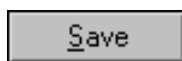
- Make sure that **S-Records** appears in the **Save as type** box (as shown below).



- Enter a name in the **File name** box (as shown below).



- Select a folder in which to save the file.



When these settings are complete, click **Save**.

The MCUscribe software saves the data to the specified file in S-record format, and the Memory dialog is activated again.

## Viewing a log of your session

You can choose setup options to view programming session events in an onscreen log. You can display or hide the log at any time during the session. You can also choose to save session events to a log file. (See [Opening a log file](#) on page 62.) The logging options are independent of each other — you can choose both logging options.

### To view a session log:

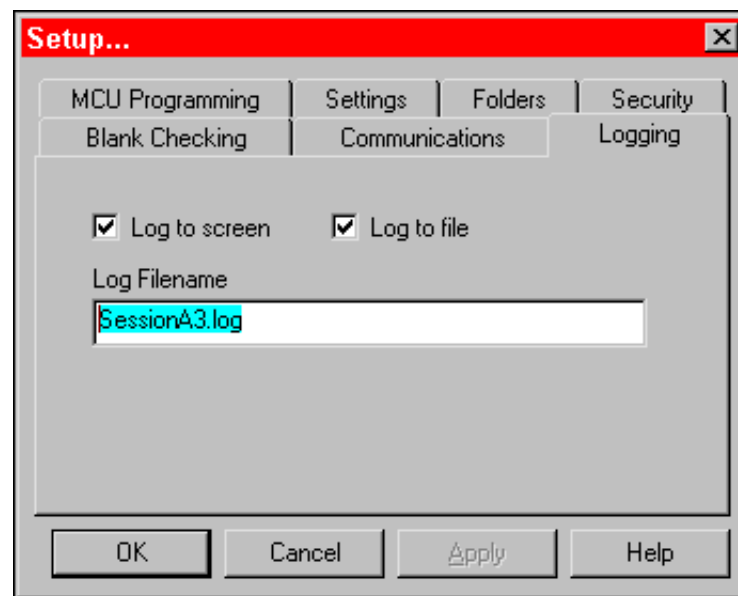


- 1 In the Control Panel, click the **Setup** button.

The Setup dialog opens with the Communications tab displayed.

- 2 Select the **Logging** tab.

The Logging tab appears, as shown in the illustration below

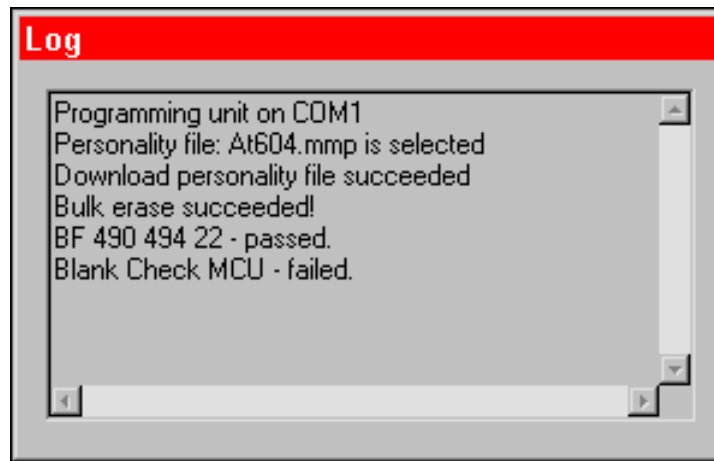


- 3 Select the **Log to screen** check box, and click **OK**.

You return to the Control Panel.

- View Log **4** Select the **View Log** check box.

The Log status box appears (as shown below), and shows the commands you issue, the results of the commands, and various kinds of status information.



**To close the Log status box**, clear the **View Log** check box in the Control Panel.

## Opening a log file

You can save a record of MCUscribe session events as a log file. The log file is an ASCII text file that records programming session events that occur after the log file is opened.

### To open a log file:

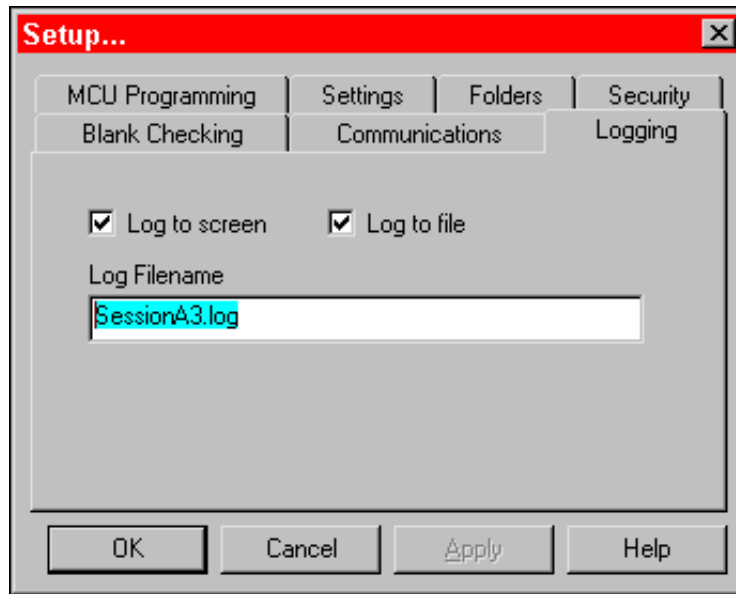


- 1** In the Control Panel, click the **Setup** button.

The Setup dialog opens with the Communications tab displayed.

- 2** Select the **Logging** tab.

The Logging tab appears at the front of the Setup dialog, as shown in the illustration below.



- 3 Click to select the **Log to file** check box.
- 4 Enter the full path and file name for the log file in the **Log Filename** box. You can create a new file, or add to an existing file.
- 5 Click **OK**.

The Control Panel appears again, and the log file is created. The log file records commands, the results of the commands, and various kinds of status information. You can open the log file for viewing after the log is closed. Close the log file by clearing the **Log to file** check box and **Log Filename** box.

## Customizing MCUscribe sessions

You can change the way many of the MCUscribe functions operate.

The list below is an overview of the options available, with the associated topics in the [Reference Guide](#). By selecting setup options, you can:

- Enable or disable animated display of the Memory Map status box during reading-memory operations, and choose whether to display the Memory Map at all times. (See [Setup dialog: Settings tab](#) on page 80.)
- Choose which types of memory are included when a blank check takes place. (See [Setup dialog: Blank Checking tab](#) on page 75.)
- Choose how to proceed if an EPROM blank check fails, and choose whether to force-erase Flash EEPROM before memory-writing operations take place. (See [Setup dialog: MCU Programming tab](#) on page 78.)
- Enable the onscreen display of programming session events, and save the session log as a file. (See [Setup dialog: Logging tab](#) on page 76.)
- Specify the folder the software searches for personality files, and set the search folder for S-record files. (See [Setup dialog: Folders tab](#) on page 73.)



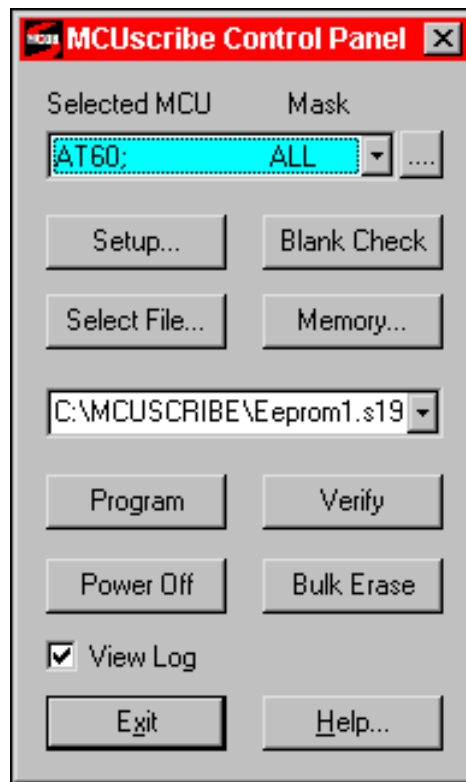
# 4

## Reference Guide

The topics in this chapter give you details about each option in the dialog boxes and other GUI elements. For information about error messages, see [Error messages and status boxes](#) on page 108. You can find instructions for everyday programming tasks in Chapter 3, [Using MCUscribe Functions](#).

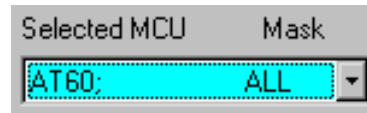
## Control Panel

The Control Panel (shown below) is the main access point to MCUscribe dialog boxes and operations.



## Selected MCU box

---



The Selected MCU box (illustrated above) shows the MCU and mask set that you have selected to correspond to the currently installed MCU. Click the arrow to see the list of available choices. Most MCUscribe operations are inactive if there is no MCU selected, or the wrong name is showing in the Selected MCU box.

The contents of the Selected MCU list reflects the personality files installed in the personality file search path folder. (For more information, see [Selecting an MCU](#) on page 36.)

## Selected MCU ellipsis button

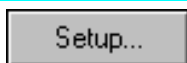
---



Use the Selected MCU ellipsis button as a quick way to select an MCU that does not appear in the Selected MCU list. The **Selected MCU** ellipsis button opens an Open File dialog box, which you use to locate and select the personality file for your MCU. The personality file search path is reset to reflect your selection.

## Setup button

---



To open the Setup dialog, click the **Setup** button. The tabs in the Setup dialog give you access to configuration options.

To get your programming session started, set the options in the Communications and Folders tabs. If you receive a message about checking security bytes, you also must set the security key in the Security tab. Other setup options customize programming operations.

## Blank Check button

---



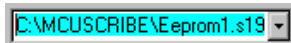
To run a blank check on the currently installed MCU, click the **Blank Check** button. The extent of MCU memory covered by the blank check is controlled by options in the Blank Checking tab of the Setup dialog. (See [Setup dialog: Blank Checking tab](#) on page 75.)

## Select File button



Click the **Select File** button to open an Open File dialog and select an S-record file to program into MCU memory, and to use for comparison when the contents of MCU memory are verified. The currently selected S-record file is shown in the S-record file box (below the **Select File** button).

## S-record file box

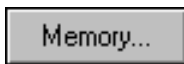


The S-record file box displays the name of the currently selected S-record. This file is used for programming data into the MCU's EPROM, OTPROM, EEPROM, and Flash EEPROM memory. The selected S-record file is also used for comparison when the contents of MCU memory are verified.

Click the arrow to see a list of recently selected files.

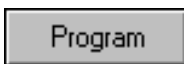
You can enter the name and path of the file, or click the **Select File** button to open a dialog for locating and selecting an S-record file. (For more detailed instructions, see [Selecting an S-record file](#) on page 42.)

## Memory button



To open the Memory dialog, click the **Memory** button. Before the Memory dialog opens, the MCUscribe software reads the contents of memory. The Memory dialog shows the contents of the MCU's EPROM, OTPROM, EEPROM, and Flash EEPROM memory. This dialog also has controls to modify individual bytes of memory and update the display. The **Block Fill** button opens a dialog to block fill a range of memory with a specified value. The **Save to File** button opens a dialog to save the contents of memory to a file in S-record format. (See [Memory dialog](#) on page 86.)

## Program button



To start programming operations, click the **Program** button. For some types of memory, programming begins with a blank check, then the MCUscribe software programs the MCU from the selected S-record file, and verifies the result. (For more instructions, see [Programming memory from S-record files](#) on page 43.)

## Power Off button

---



To disconnect socket power, click the **Power Off** button. To avoid damaging the MCU, always disconnect socket power before handling the MCU or removing the programming adapter board. (See [Inserting or removing an MCU](#) on page 28.)

## Bulk Erase button

---



To erase the entire contents of Flash EEPROM memory, click the **Bulk Erase** button.

## Verify button

---



Click the **Verify** button to compare on-chip MCU memory with the contents of the selected S-record file. (For more instructions, see [Verifying MCU memory](#) on page 55.)

## View Log check box

---



To open the Log status box, select the **View Log** check box. To close the Log status box, clear the check box. (For more information, see the topic [Viewing a log of your session](#) on page 61.)

## Exit button

---



To close the MCUscribe application, click the **Exit** button.

**Note:** When you close the MCUscribe application, the SPGMR08 is forced into reset. This enables you to re-open the application without cycling power.

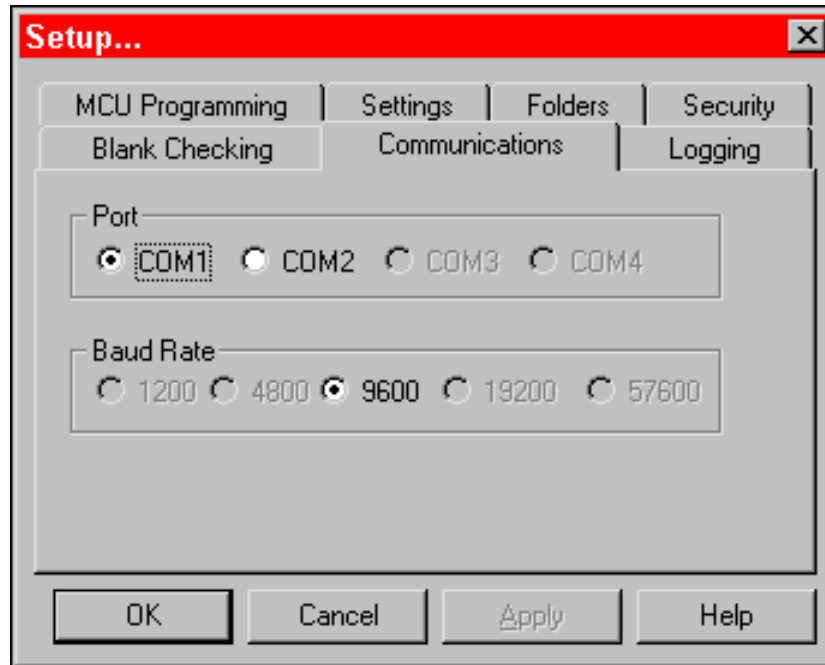
## Help button

---



To open online help, click the **Help** button.

## Setup dialog



There are fixed buttons at the bottom of the Setup dialog (illustrated above) that apply to all of the Setup tabs. The tabs in the Setup dialog control the configuration of the SPGMR08 system. To display a tab, click on it. The Security tab does not appear until the MCUscribe application establishes communications with the MCU.

## OK

---

To confirm all the changes made in the dialog box, click the **OK** button. The changes take effect, the Setup dialog closes, and you return to the Control Panel.

## Cancel

---

To exit the Setup dialog without saving changes, click the **Cancel** button. The changes are discarded, the Setup dialog closes, and you return to the Control Panel.

## Apply

---

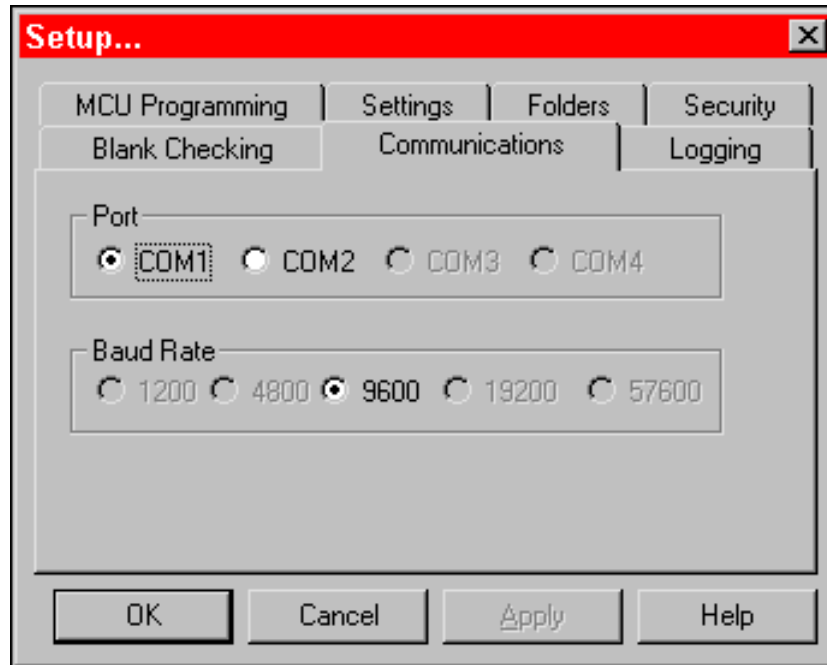
The **Apply** button is not implemented for this MCUScribe release.

## Help

---

To launch the online help system, click the **Help** button.

## Setup dialog: Communications tab



The Communications tab of the Setup dialog (illustrated above) has settings for the serial communications port, and shows the baud rate the SPGMR08 uses.

### Communications Port

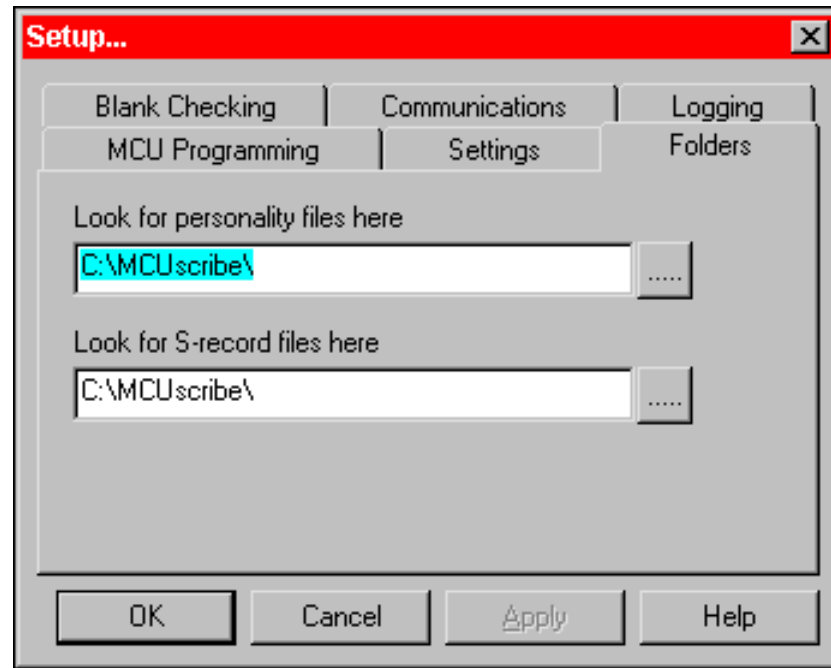
Select the communications port that connects the SPGMR08 to the host system.

### Baud Rate

The baud rate for the SPGMR08 is 9600.



## Setup dialog: Folders tab



Use the Folders tab of the Setup dialog (illustrated above) to change the search path for personality files and S-record files. The default search path is set for the root folder (the folder that holds the MCUscribe executable).

### Look for personality files here field

Enter the full path to the personality file folder. If the search path for personality files is invalid, you are not able to select a target MCU and establish communications for your programming session. The search path must end with a backward slash ( \ ).



**Note:** Instead of changing the personality file search path in the Folders tab, you have the option to locate the personality file directly. To locate the personality file directly, click the **Selected MCU** ellipsis button in the Control Panel. A standard dialog opens that allows you to locate and select the personality file you need.

### **Look for personality files here ellipsis button**

Use this button to open the Personality File Search Path dialog. The Personality File Search Path dialog allows you to browse through drives and set the search path by selecting a folder. (For more information, see [page 98](#).)

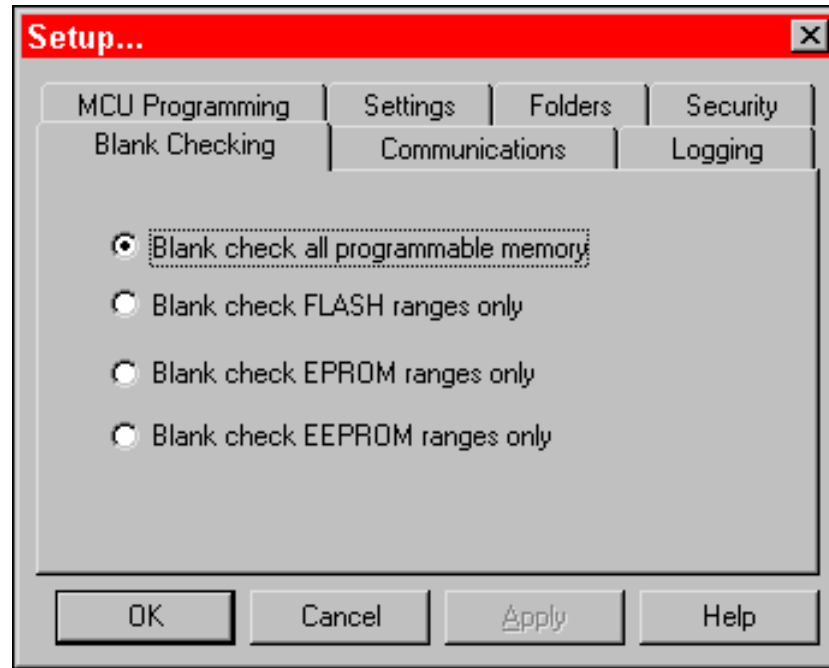
### **Look for S-records here field**

Enter the full path to the S-record file folder. End the search path with a backward slash ( \ ).

### **Look for S-records here ellipsis button**

Use this button to open the S-Record File Search Path dialog. The S-Record File Search Path dialog allows you to browse through drives and set the search path by selecting a folder. (For more information, see [page 99](#).)

## Setup dialog: Blank Checking tab



The options in the Blank Checking tab of the Setup dialog set the types of MCU memory map that undergo blank checks. For example, you can use these settings to avoid checking the blank state of EEPROM memory before reprogramming it. (See [Blank checking an MCU](#) on page 39.) The Blank Checking tab is illustrated above.

### Blank check all programmable memory

Select this radio button if you want to check all types of programmable memory (EPROM, OTPROM, EEPROM, and Flash EEPROM) when you run a blank check.

### Blank check FLASH ranges only

Select this radio button to check only Flash EEPROM memory when you blank check an MCU.

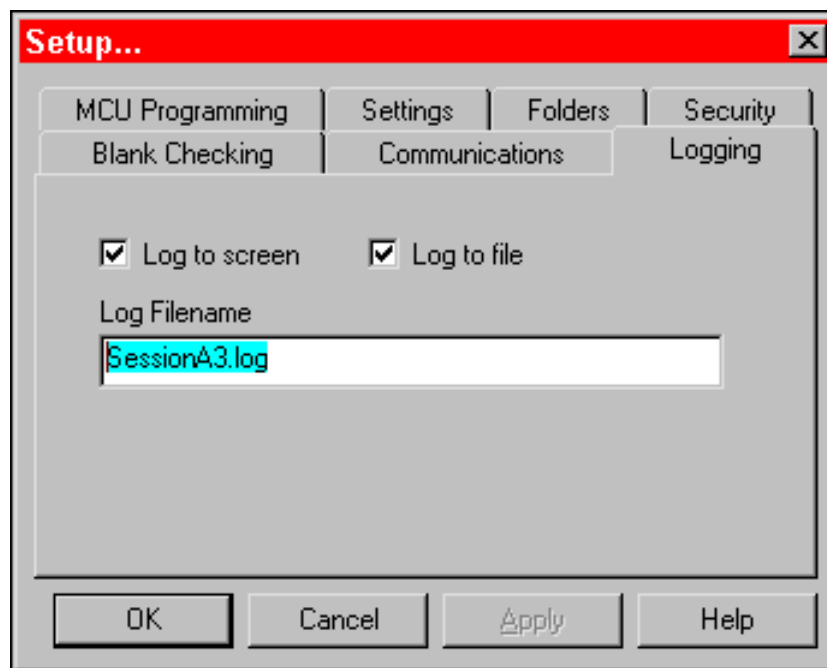
## Blank check EPROM ranges only

Select this radio button to check only EPROM memory when you blank check an MCU.

## Blank check EEPROM ranges only

Select this radio button to check only EEPROM memory when you blank check an MCU.

## Setup dialog: Logging tab



Use the Logging tab of the Setup dialog (illustrated above) to enable or disable the onscreen log of programming session events, and to open a log file. The logging options are independent of each other — you can choose one, none, or both types of logging.

## Log to Screen check box

---

To enable display of the onscreen log, select the **Log to screen** check box. With this option selected, you can display the onscreen log by selecting the **View Log** check box in the Control Panel. To hide the log, clear the **View Log** check box in the Control Panel.

## Log to File check box

---

To open a log file, select the **Log to file** check box, and specify a path and file name in the **Log Filename** box. You can open the log file for viewing after the log is closed. To close the log, clear the **Log to file** check box and **Log Filename** box, or exit the application.

## Log Filename field

---

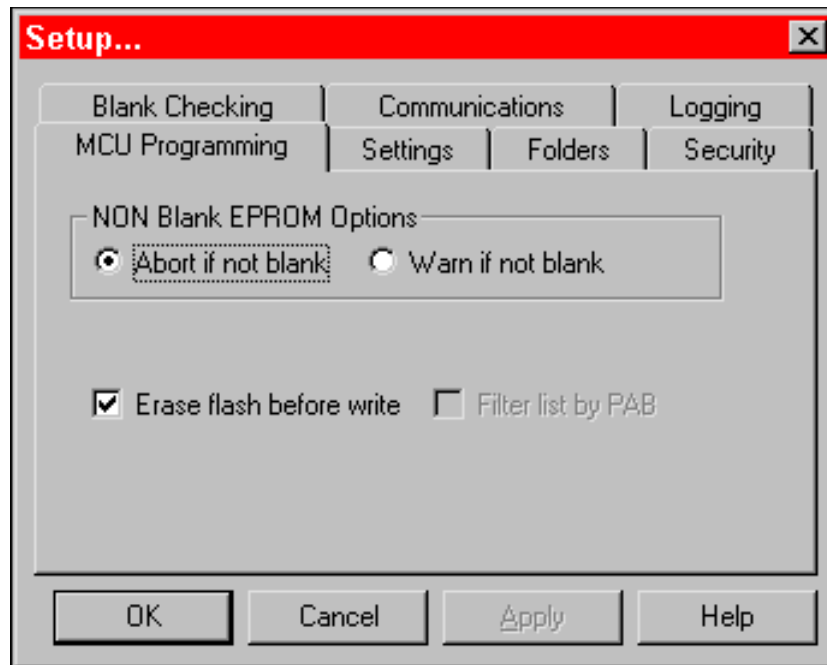
Specify a path and file name for the log in the **Log Filename** box. The log file is an ASCII text file that records programming session events that occur after the file is opened.

You can create a new file, or use an existing text file.

**If you create a new file**, you must close the log before you can view the log file.

**If you append log information to an existing file**, you can view the log file without closing the log.

## Setup dialog: MCU Programming tab



Use the MCU Programming tab of the Setup dialog (illustrated above) to control the way programming operations are performed. Choose how to proceed if a blank check fails and whether to force-erase Flash EEPROM memory.

### NON Blank EPROM Options

You can choose to stop programming immediately if EPROM or OTPROM memory is not blank, or receive a warning first.

#### Abort if not blank

Select the **Abort if not blank** radio button to set the software to stop programming operations whenever an initial blank check of EPROM or OTPROM fails. An EPROM or OTPROM blank check failure causes the programming operation to stop without a warning.

## Warn if not blank

---

Select the **Warn if not blank** radio button to set the software to issue a warning whenever an initial blank check of EPROM or OTPROM fails during a programming operation. An EPROM or OTPROM blank check failure results in a warning message, then programming is cancelled.

## Erase flash before write

---

You can speed up programming by selecting the **Erase flash before write** option, especially when you also choose to limit the range of memory covered in the blank check. You should clear the **Erase flash before write** option if you are programming Flash EEPROM memory arrays in series, and want to avoid erasing the already-programmed Flash EEPROM memory.

### When you program nonblank memory from an S-record or with the Block Fill dialog:

- With the **Erase flash before write** check box **selected**, the already-programmed sections of Flash EEPROM are erased.
- With the **Erase flash before write** check box **cleared**, the MCUscribe software cancels the programming operation.

### When you program nonblank memory with the Modify function:

- The software attempts to overwrite the affected bytes of Flash EEPROM memory, whether the **Erase flash before write** check box is selected or cleared. The operation may be a success, or may have unexpected results.

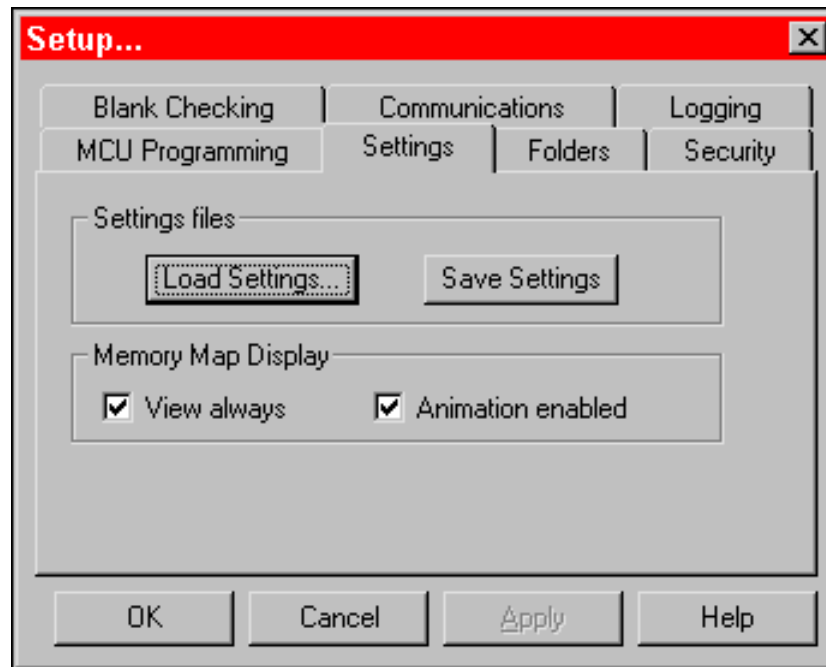
**Note:** You can also bulk erase Flash EEPROM memory. (See [Erasing MCU memory](#) on page 56.)

## Filter list by PAB

---

The **Filter list by PAB** option is disabled. SPGMR08 does not support this option.

## Setup dialog: Settings tab



Use the Settings tab of the Setup dialog (illustrated above) to select options for display of the Memory Map.

## Settings files

The **Load Settings** button and **Save Settings** button are not implemented in the current release of the SPGMR08.



## Memory Map Display

---

### View Always check box and Animation enabled check box

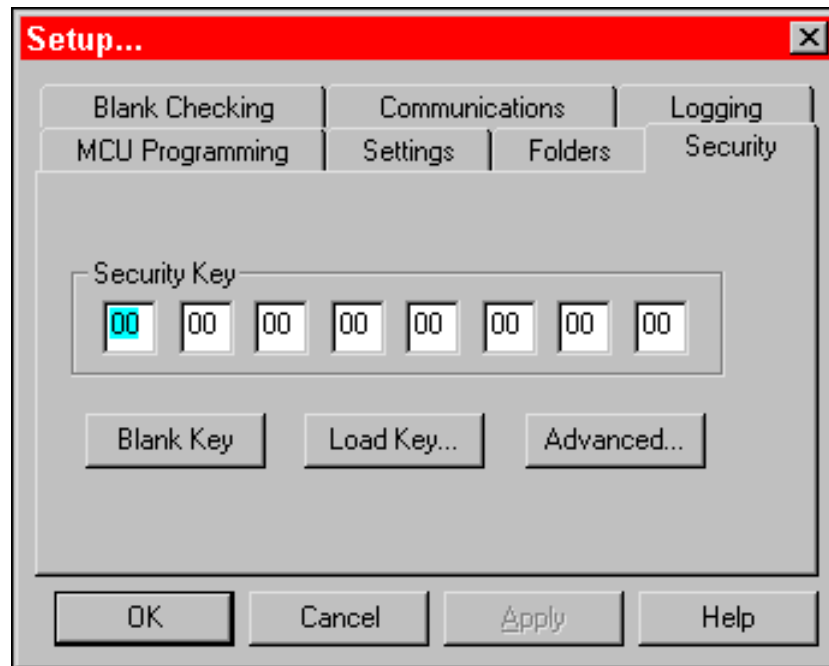
---

- To display the Memory Map status box at all times, select the **View always** check box and the **Animation enabled** check box.

Select the **View always** check box if you want to resize the Memory Map status box. You can move the Memory Map status box at any time by grabbing the title bar. Be careful if you click inside the Memory Map status box during a reading-memory or writing-memory operation, the operation stops. Interrupting a writing-memory operation can leave the MCU in a partially programmed state.

- To display the Memory Map status box only during a reading-memory or writing-memory operation, clear the **View always** check box, and select the **Animation enabled** check box.
- To disable display of the Memory Map status box, clear the **View always** check box, and clear the **Animation enabled** check box. If you disable display of the Memory Map status box, the progress of writing-memory operations is shown in the Programming status box.

## Setup dialog: Security tab



Until the MCUscribe software establishes communications between the SPGMR08 and the currently installed MCU, the Setup dialog displays only six tabs — the Security tab is not visible. Once communications are established, the software checks for security clearance. The Setup dialog displays the Security tab (shown above) after security is cleared.

When you open the MCUscribe application with a securable, unprogrammed MCU installed in the programming adapter board, the security addresses have blank-state values (the default state). If you program the MCU's security addresses, the values in that location become the MCU's security key. To start an MCUscribe session with a secured MCU, you must supply the security key in the Security tab before you have access to the MCU's memory.

### Blank key button

To reset the display of Security Key field values to the memory-erased state, click the **Blank key** button.

## Load Key button

---

When you open the MCUscribe application, the Security Key fields contain blank-state values (the default state). These values remain at the blank state until:

- You click the **Load Key** button and select an S-record that contains data in the security key location.
- or
- You change the values directly in the **Security Key** fields.

If the security data is contained in an S-record file, click the **Load Key** button. The Open File dialog opens, allowing you to locate and select the S-record file that contains the MCU's security information. When you click the **Open** button, the security address values from the S-record file appear in the Security tab of the Setup dialog.

The software compares the security address values on the MCU with the values in the Security tab of the Setup dialog. If the values match, security clears and you have access to the MCU's memory.

## Security Key fields

---

You can enter the security data directly in the Security Key fields. There are eight Security Key fields, which correspond to the eight bytes of the security key.

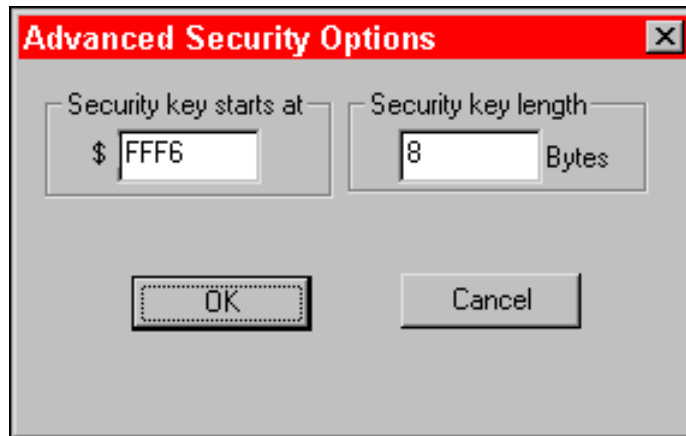
To change the values in the Security Key fields, use the mouse or Tab key to select fields, and enter the new values. When the values are correct, click the **OK** button. The security key downloads to the software, security clears, and you return to the Control Panel, ready to begin programming.

## Advanced button

---

The **Advanced** button opens the Advanced Security Options dialog box. Use the Advanced Security Options dialog box to verify or change the security key starting address or key length. (See the topic [Advanced Security Options dialog](#) on the next page.)

## Advanced Security Options dialog



The Advanced Security Options dialog (illustrated above) enables you to review and change the starting address and length of the security key. Under ordinary circumstances, it is best to use the standard security configuration. The options in the Advanced Security Options dialog box are emergency application configuration features, and are not intended for everyday use.

### Opening the Advanced Security Options dialog

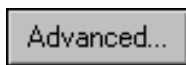


- 1 Click the **Setup** button in the Control Panel.

The Setup dialog opens.

- 2 Select the **Security** tab.

The Security tab appears at the front of the Setup dialog.



- 3 Click the **Advanced** button.

The Advanced Security Options dialog appears.

### Security key starts at field

The **Security key starts at** field displays the starting address for the security key values. To change the location of the security key address, edit this field, and click **OK**.

**Notes:**

- For information about your MCU's security key address, refer to the MCU's *General Release Specification*. The address you see in the **Security key starts at** field does not necessarily correspond to the security key for your MCU.
- Click the **Cancel** button to close the Advanced Security Options dialog without saving changes.

### Security key length field

---

The **Security key length** field displays the number of bytes of the security key. To change the length of the security key, enter a new number in this field, and click **OK**.

**Note:** Click the **Cancel** button to close the Advanced Security Options dialog without saving changes.

### OK button

---

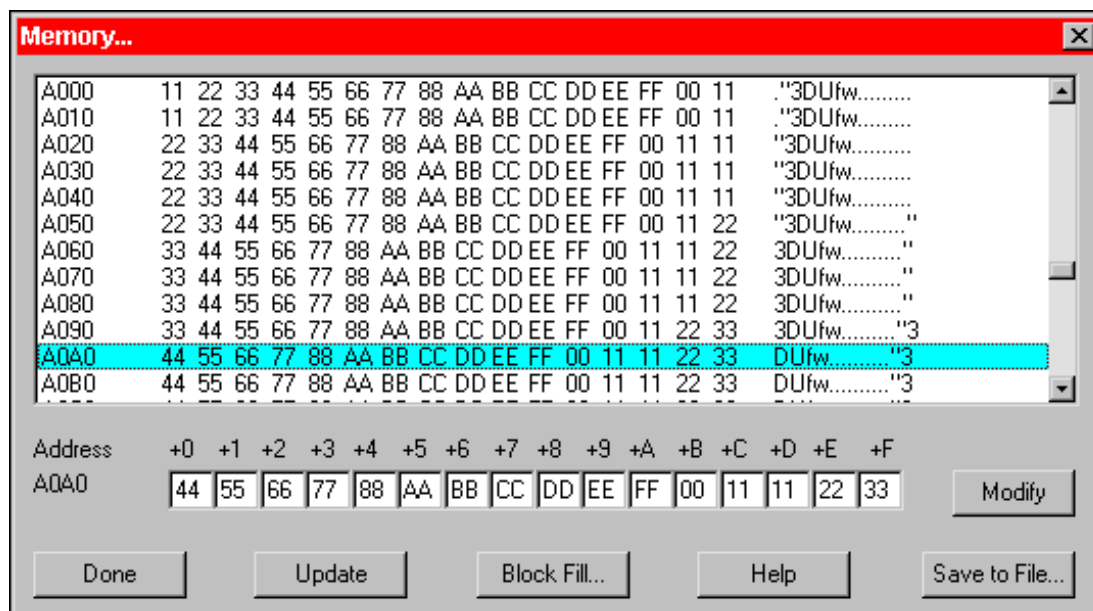
Click the **OK** button to reset the security key to the new values you have entered. The MCUScribe software makes the changes, and closes the Advanced Security Options dialog box.

### Cancel button

---

Click the **Cancel** button to close the Advanced Security Options dialog box without saving changes.

## Memory dialog



The Memory dialog (shown above) displays the contents of the MCU’s EPROM, OTPROM, EEPROM, and Flash EEPROM memory, as it existed during the most recent reading-memory operation. The Memory dialog also enables you to modify individual bytes of memory, fill blocks of memory with specified values, update the display, and save the contents of MCU memory as a file in S-record format. The Memory dialog displays only the memory Motorola defines as programmable. This does not normally include RAM.

## Memory contents display area

The main memory display area shows the contents of programmable MCU memory in rows of 16 bytes. The start address of a memory row is shown on the left. This is the address for the first byte in that row (shown in column +0).

To find the address of other bytes in the row, add the column designation to the initial address. For example, in the illustration above the address of the first byte in the selected row is **A0A0**. To calculate the address of the third byte, add the column designation (+2) to **A0A0** to get the address (**A0A2**).

At the right side of the display area is a comment column.

To see more rows of data, use the scroll bar.

### Modify button and byte modification fields

Address	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
A0A0	44	55	66	77	88	AA	BB	CC	DD	EE	FF	00	11	11	22	33

The 16 byte modification fields (illustrated above) show the values of the currently selected row of memory. Each byte appears below its column designation. To find the absolute address of the byte, add the column designation to the starting address on the left.

Edit the values, and click the **Modify** button. (For more detailed instructions and information about how the Modify function works with different types of memory, see the topic [Modifying individual memory bytes](#) on page 52.)

## Save to File button

---



To copy the contents of the MCU's EPROM, OTPROM, EEPROM, and Flash EEPROM memory to a file in S-record format, click the **Save to File** button. The Save As dialog opens. Specify a file name, destination folder, and file type (*S-records*). For more details, see [Copying MCU memory contents to a file](#) on page 60.

## Help

---



To launch the help for the Memory dialog, click the **Help** button.

## Block Fill button

---



Click the **Block Fill** button to open the Block Fill dialog, and set an MCU memory range of to a specified value. (See [Block Fill dialog](#) on page 89.)

## Update button

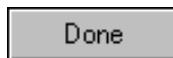
---



To start a new reading of MCU memory contents, click the **Update** button. After the reading, the new information appears in the Memory dialog. You should update the display whenever you want to ensure that the memory display matches the current contents of memory. It is always a good idea to update the display when you attempt to overwrite nonblank memory.

## Done button

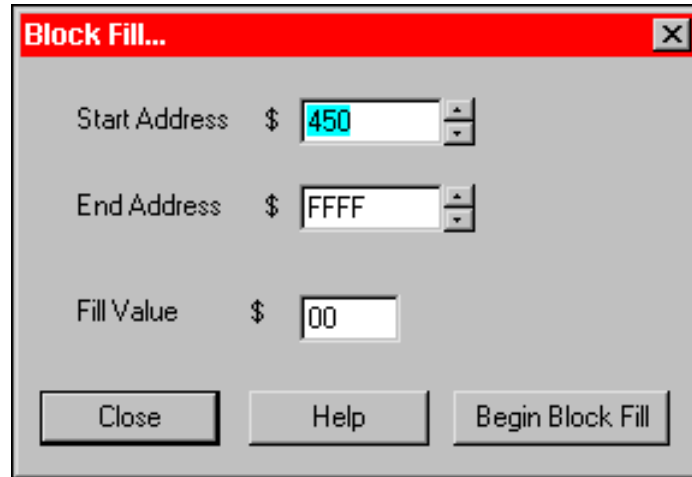
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To close the Memory dialog box, click the **Done** button.

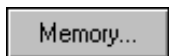



## Block Fill dialog



Use the Block Fill dialog (illustrated above) to set a range of MCU memory to a specified value.

### Opening the Block Fill dialog

-  **1** Click the **Memory** button in the Control Panel.  
The Memory dialog appear.
-  **2** Click the **Block Fill** button.  
The Block Fill dialog opens.

## Start Address field

---

Use the **Start Address** field to specify the starting address for the memory range to be block filled. Use the spin buttons to move the address values forward or backward.

## End Address field

---

Use the **End Address** field to specify the ending address for the memory range to be block filled. Use the spin buttons to move the address values forward or backward.

## Fill Value field

---

Use the **Fill Value** field to specify the new value for the defined memory range.

## Begin Block Fill button

---



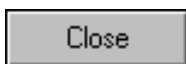
When you have defined the memory range starting and ending addresses, and the fill value, click the **Begin Block Fill** button. The MCUscribe software attempts to program the selected range of memory, and the Block Fill dialog closes.

- **If programming is successful**, the Block Fill Passed message appears, and the display of the newly programmed range is updated in the Memory dialog.
- **If the block fill fails**, a status box shows the bytes that failed to program correctly.

For information about how the Block Fill dialog works with different memory types, see the topic [Block filling different types of memory](#) on page 51.

## Close button

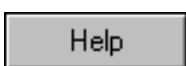
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To cancel the block fill and close the Block Fill dialog, click the **Close** button.

## Help button

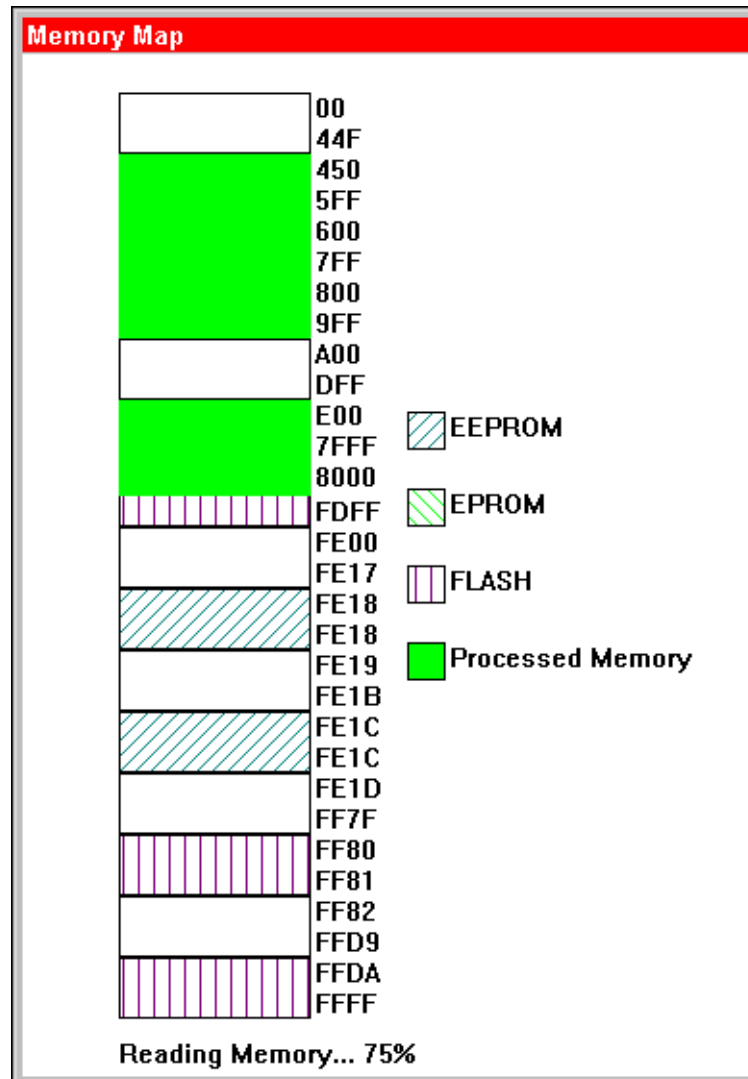
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To open online help for the Block Fill dialog, click the **Help** button.

## Memory Map status box

Whenever you start a programming or verification operation, the operation may begin with a reading of the MCU's memory contents. (The MCUscribe software always reads the contents of MCU memory when running a blank check.) If you enable Memory Map display, the Memory Map shows the progress of the reading-memory operation (as illustrated below).



The memory ranges are shown in a graphical display, with starting and ending addresses for each range of memory. The percentage of memory read is updated periodically as the operation progresses. The legend on the right shows the color or pattern for each type of programmable memory. The display shows only those types of memory that Motorola defines as programmable—the memory displayed does not ordinarily include RAM.

## Setting display options for the Memory Map status box

---

**To display the Memory Map ONLY** during reading-memory and writing-memory operations, select the **Animation enabled** check box in the Settings tab of the Setup dialog. Clear the **View always** check box, and click **OK**. If both check boxes are cleared, the Memory Map status box never displays.

**To display the Memory Map at ALL times**, select the **View always** check box in the Settings tab of the Setup dialog, and click **OK**. If you want to see the animated progress of reading-memory operations, you must also select the **Animation enabled** check box.

**To resize the Memory Map status box**, select the **View always** check box, and click **OK**. While no reading-memory or writing-memory operation is taking place, use the mouse to drag a status box corners or edges. If you try to resize the Memory Map status box during a reading-memory or writing-memory operation, you interrupt the operation. (See [Setup dialog: Settings tab](#) on page 80.)

**To move the Memory Map status box**, grab the title bar with the mouse. Moving the Memory Map status box in this way does not interrupt any ongoing operations.

## Displaying memory configuration data

---

To display information about a memory range shown in the Memory Map, click anywhere in the memory range. The Memory Configuration status box opens and shows data for the selected range.

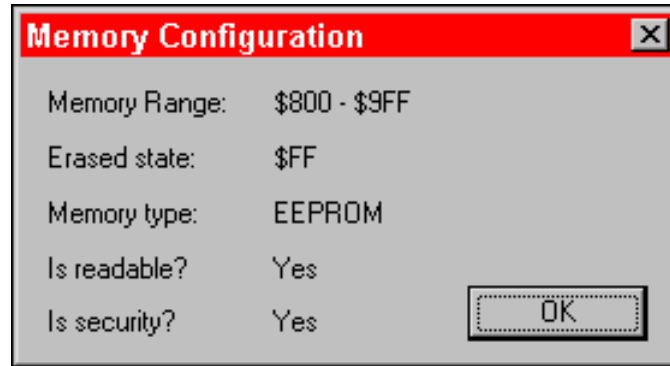
## Aborting a memory read or write operation

---

To stop an ongoing reading-memory or writing-memory operation, click inside the Memory Map status box.

**Note:** If you abort the programming operation while a writing-memory operation is in progress, the MCU may be left in a partially-programmed state.

## Memory Configuration status box



The Memory Configuration status box (illustrated above) displays information about the specific range of memory you have selected in the Memory Map status box.

## Opening the Memory Configuration status box

To open the Memory Configuration status box:

- 1 Open the Memory Map status box, by selecting the **View always** check box in the Settings tab of the Setup dialog, and clicking **OK**.
- 2 Click anywhere within a range of memory in the Memory Map status box.

The Memory Configuration status box appears and shows data for the selected range of memory.

## Information in the Memory Configuration status box

---

**Memory Range** – The starting and ending address of the memory range

**Erased state** – The value of erased (blank) memory in this memory range

**Memory type** – **EPROM, OTPROM, EEPROM, FLASH, or Undefined.**  
The memory type in the selected memory range. Memory that is not programmable by the SPGMR08 is shown as Undefined. For definitions of the other types of programmable memory, see [Terms and acronyms](#) on page 11.

**Is readable** – **Yes** indicates that the MCUScribe software can read and verify the selected memory type. Readable memory ranges can be displayed in the Memory dialog.

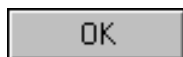
**No** indicates that the MCUScribe software cannot read or verify the selected memory type.

**Is security** – **Yes** indicates that the memory type is capable of being security-enabled. That is, you can program values into the security key location to restrict memory access. If you are using a secured device, all programmable memory is protected.

**No** indicates that the memory type is not capable of being security-enabled. That is, you cannot restrict memory access by programming data at the security key location.

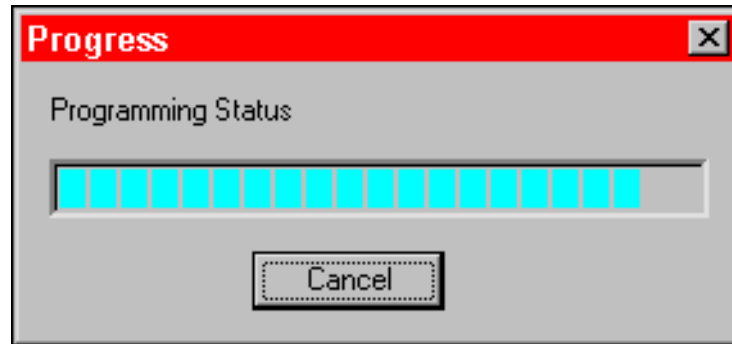
## Closing the Memory Configuration status box

---



To close the Memory Configuration status box, click **OK**.

## Programming status box



When the contents of an S-record file are written to MCU memory, you see the progress of the writing-memory operation in the Memory Map status box (if enabled) or in the Programming status box (if Memory Map status box display is not enabled). The Programming status box is shown in the illustration above.

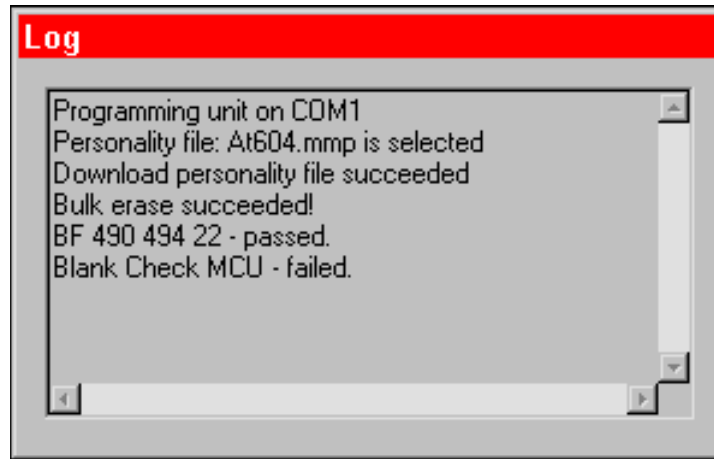
### Programming Status bar

The Programming Status bar shows the progress of the writing-memory operation.

### Cancel button

To cancel the programming operation while it is in progress, click the Cancel button. Note that canceling programming can leave the MCU in a partially-programmed state.

## Log status box



You can view the progress of your programming session in the Log status box (illustrated above), once you enable the log display.

## Enabling onscreen log viewing

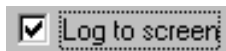


- 1 Click the **Setup** button in the Control Panel.

The Setup dialog opens with the Communications tab displayed.

- 2 Select the **Logging** tab.

The Logging tab appears.



- 3 Select the **Log to screen** check box.

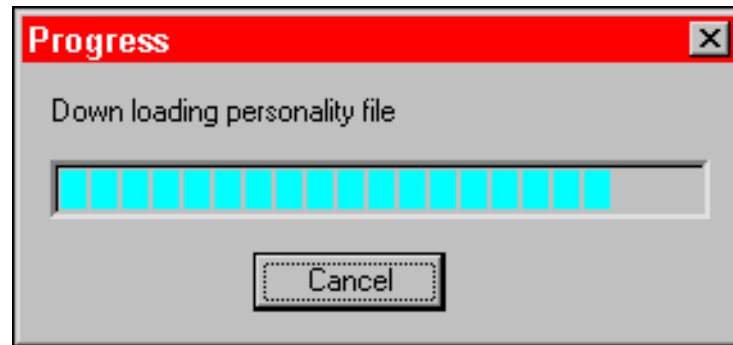
- 4 Click **OK**.

- 5 The Setup dialog closes, and the Control Panel appears again.

**To display or hide the Log status box**, select or clear the **View Log** check box in the Control Panel.



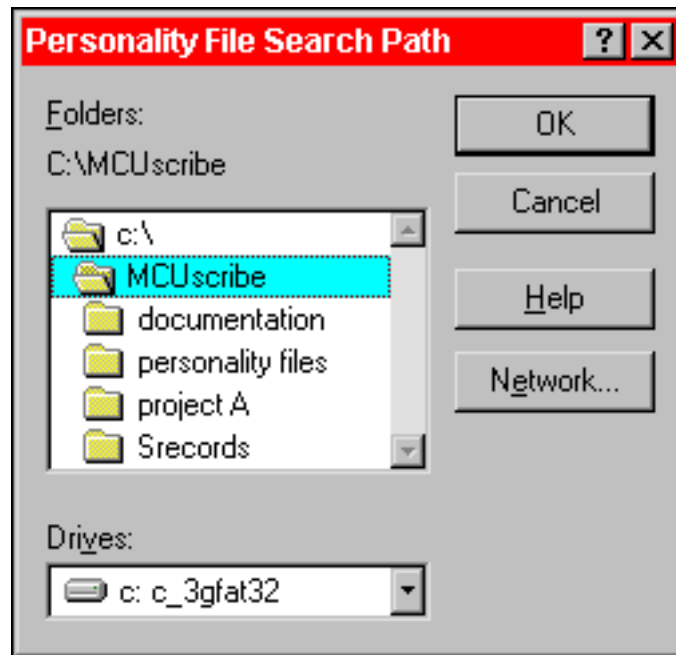
## Downloading Personality File status box



When the MCUscribe software establishes communications with the MCU, the Downloading Personality File status box appears (illustrated above) and shows the download progress. The MCUscribe software establishes communications when you start a programming operation, such as blank checking, programming, or opening the Memory dialog.

To cancel the operation, click **Cancel**. An error message appears, and the personality file is not downloaded.

## Personality File Search Path dialog



Use the Personality File Search Path dialog to set the personality file search path. This dialog allows you to set the path by selecting a folder rather than by entering the path manually.

### Folders area

Use the Folders area to choose the folder you want to appear as the path destination.

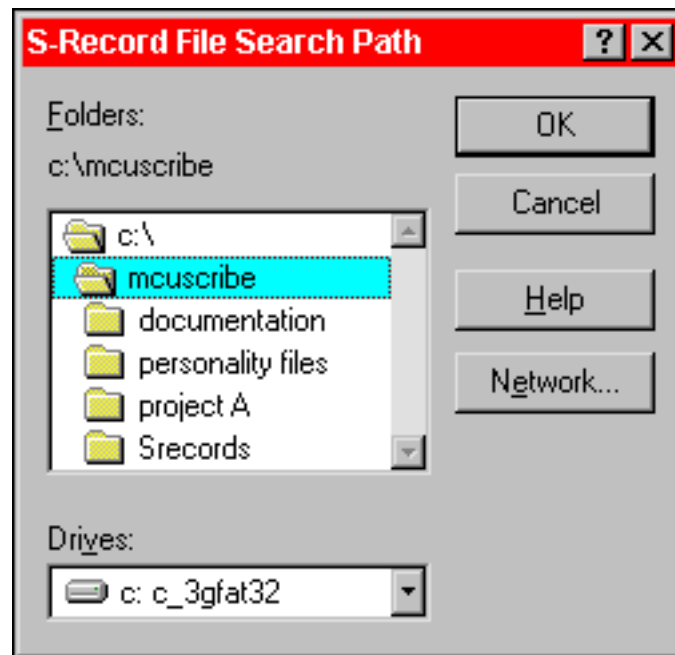
### Drives list

Use the Drives list to choose the drive you want to appear in the Folders area.

### Network button

Click the Network button to open the Map Network Drive dialog. This dialog allows you to add network drives to the Drives list. (For more information, see [Map Network Drive dialog](#) on page 100.)

## S-Record File Search Path dialog



Use the S-Record File Search Path dialog to set the S-record file search path. This dialog allows you to set the path by selecting a folder rather than by entering the path manually.

### Folders area

Use the Folders area to choose the folder you want to appear as the path destination.

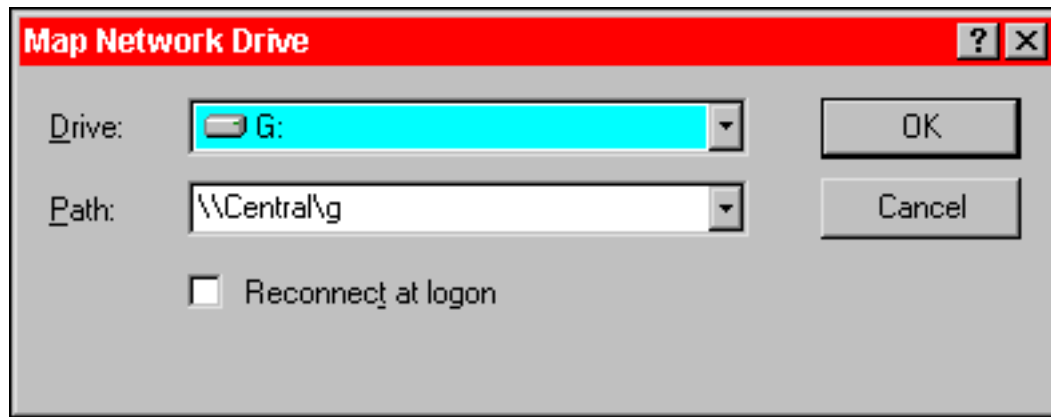
### Drives list

Use the Drives list to choose the drive you want to appear in the Folders area.

### Network button

Click the Network button to open the Map Network Drive dialog. This dialog allows you to add network drives to the Drives list. (For more information, see [Map Network Drive dialog](#) on page 100.)

## Map Network Drive dialog



The Map Network Drive dialog allows you to map a network drive to your local computer. Once mapped, the drive is accessible in the Personality File Search Path dialog and the S-Record File Search Path dialog.

### Drive

Use the Drive list to select the network drive you want to map.

### Path

Enter the path to the drive, or select the drive path from the drop-down list. To map a drive for the first time successfully, you must provide a path for it. Use this syntax:

```
\\computer\drive
```

where

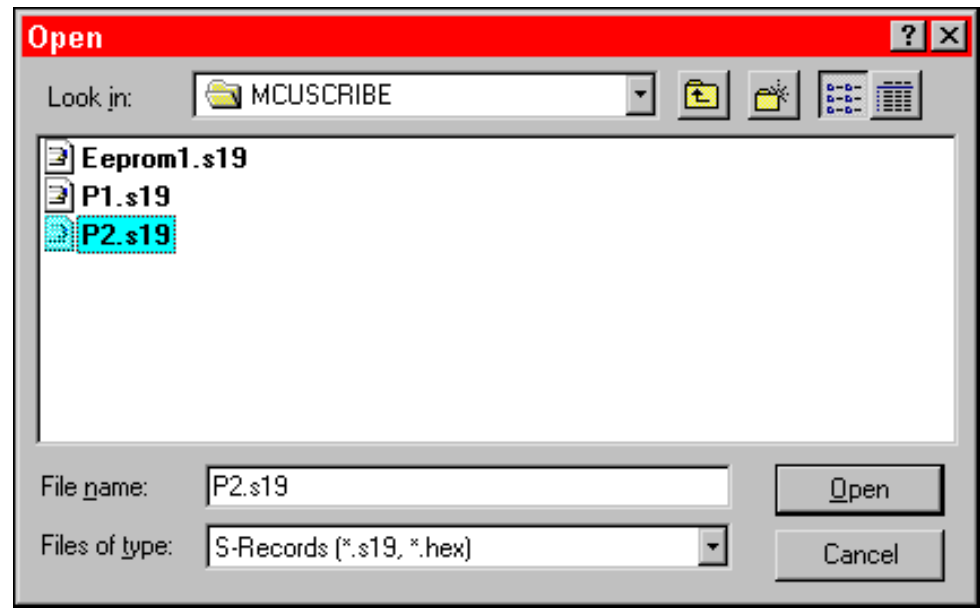
**computer** is the name of the network computer

**drive** is the drive letter

### Reconnect at logon

- **Select** this option for long-term access to the network drive. With the **Reconnect at logon** option selected, when you log off and on to the network, Windows attempts to reestablish the connection to the network drive. If the network drive is available at logon, it appears in the root path of Windows Explorer, and in the Drives list of the Personality File Search Path dialog and the S-Records File Search Path dialog.
- **Clear** this option to limit network drive mapping to the duration of your current networking session.

## Open File dialog

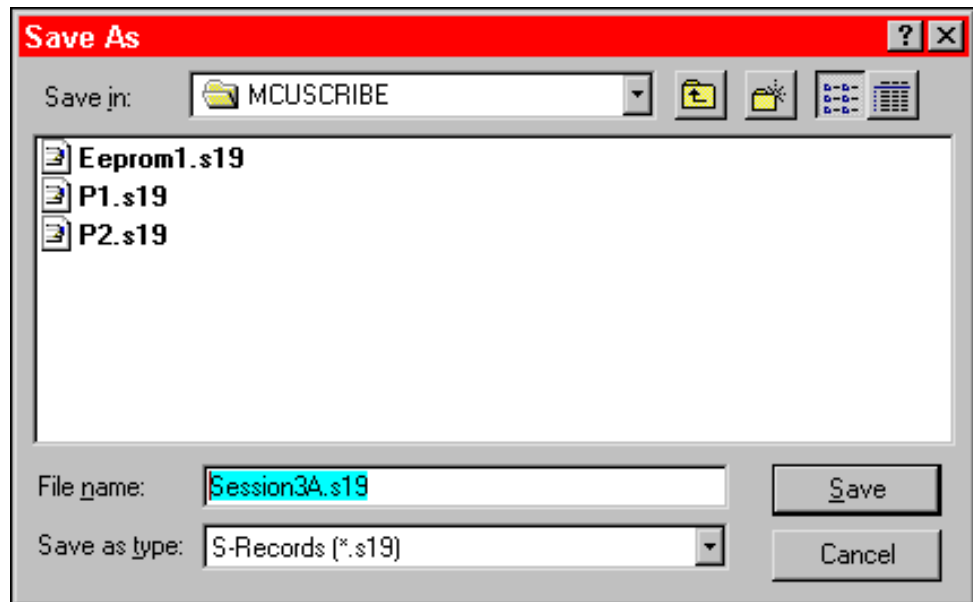


The Open File dialog (illustrated above) allows you to locate and select a folder or file.

- 1 Locate and select the folder or file you want to open.
- 2 Click **Open**. (Click **Cancel** to exit without saving changes.)

The folder or file is selected, and the Open File dialog closes.

## Save As dialog



The Save As dialog box (illustrated above), allows you to save the contents of MCU memory as a file:

- Select the folder you want to use as the destination. The destination folder appears in the **Save in** box.
- Select or enter a file name in the **File name** box.
- Choose the type of file:

**To save the file in S-record format**, make sure **S-records** appears in the **Save as type** box.

When the settings above are correct, click **Save** to save the file. (Click **Cancel** to exit without saving changes.)

If you choose to overwrite an existing file, a message appears asking you to verify the replacement. Choose **Yes** to overwrite the file, or choose **No** to return to the dialog box and specify a different file name or location.

The file is saved in the folder you have chosen, and the Save As dialog closes.

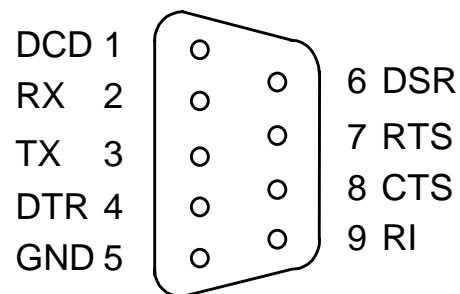
# 5

## Support and Troubleshooting

This chapter has information about troubleshooting and host and emulator cable connectors.

### Host and emulator connectors

The SPGMR08 host and emulator connectors are 9-pin D-shell connectors that have identical pin assignments and signal descriptions. The illustration below shows the host and emulator pin assignments.



## Host and emulator connector signal descriptions

The pin number, mnemonic, and signal descriptions for the 9-pin serial cable connectors are listed below.

### Connector Signal Descriptions

Pin Number	Mnemonic	Description
Pin 1	<b>DCD</b>	<b>Data Carrier Detect</b> — Output signal (held high) that indicates detection of an acceptable carrier signal
Pin 2	<b>RX</b>	<b>Receive Data</b> — Serial data output line
Pin 3	<b>TX</b>	<b>Transmit Data</b> — Serial data input line
Pin 4	<b>DTR</b>	<b>Data Terminal Ready</b> — Input signal that indicates on-line/in-service/active status
Pin 5	<b>GND</b>	<b>Ground</b> — Signal ground or common return connection between the SPGMR08 and the computer
Pin 6	<b>DSR</b>	<b>Data Set Ready</b> — Output signal (held high) that indicates on-line/in-service/active status
Pin 7	<b>RTS</b>	<b>Request To Send</b> — Input signal that requests permission to transfer data
Pin 8	<b>CTS</b>	<b>Clear To Send</b> — Output signal that indicates a ready-to-transfer data status
Pin 9	<b>RI</b>	<b>Ring Indicator</b> — Not used for the SPGMR08



## Troubleshooting guide

### Communications and connection problems

If you have trouble establishing communications with the MCU, check the following list for possible causes and solutions:

- **Personality files are not installed** — Make sure you have installed the necessary personality files. (See [Installing the software](#) on page 20.)
- **Incorrect search path for personality files** — Correct the personality file search path. (See [Selecting an MCU](#) on page 36.)
- **Incorrect security key** — Provide the security key for the currently installed MCU in the Security tab of the Setup dialog. (See [Using MCUscribe security](#) on page 57.)
- **Inappropriate cable** — Make sure you are using the *straight-through* cable supplied with the SPGMR08 to connect the base unit to the host computer. (See [Connecting the base unit](#) on page 22.)
- **Insecure hardware connections** — Check to make sure the serial cable connections are secure, and all hardware and power connections are properly made. (See [Connecting the base unit](#) on page 22.)
- **Incorrect COM port** — Make sure the communications settings are correct in the Communications tab of the Setup dialog. (See [Selecting communications options](#) on page 35.)
- **Incorrect voltage** — If you are using a programmer adapter board that has adjustable voltage, make sure you are using the correct programming voltage for the target MCU. For details, check the MCU's *General Release Specification*.

---

## Entering a security key

---

For general information about how MCUscribe security operates, see [Using MCUscribe security](#) on page 57.

For a description of each security-related option in the dialog boxes, see the topics [Setup dialog: Security tab](#) on page 82 and [Advanced Security Options dialog](#) on page 84.

---

## Unexpectedly force-erasing Flash EEPROM memory

---

Before you program sections of Flash EEPROM memory in a series, check the force-erase option setting. For more information about setting the force-erase option, see [Setup dialog: MCU Programming tab](#) on page 78.

---

## Block protection problems

---

If you have set Block Protection registers to prevent alteration of memory ranges, but the ranges are altered anyway, make sure you are setting the Block Protection registers in **EEPROM** memory. Block protection is available in the SPGMR08 for EEPROM memory, but not for Flash EEPROM memory. For more information, see the MCU's *General Release Specification*.

---

## Handling the MCU

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To avoid damaging or temporarily disabling an MCU:

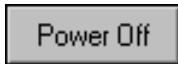
- Before you insert or remove an MCU, make sure the base unit Socket Power light is off. A power surge can damage the MCU.
- Before you begin programming, make sure the MCU is seated properly in the socket, with the correct orientation. Programming an incorrectly inserted MCU can cause damage. If you need orientation advice, check the programming adapter board user's manual.
- Do not bend the pins. Use a vacuum pen or a similar device to handle MCUs.
- Take measure to keep the socket contacts clean, particularly when using open-face sockets.
- If your programming adapter board has multiple sockets, make sure you have only one MCU installed at a time. The SPGMR08 cannot establish communications with any MCU if there are multiple MCUs installed.
- Observe standard electrostatic precautions.



## Resetting the SPGMR08

When you are troubleshooting a communications problem, you may find it helpful to try cycling power.

### Cycle socket power first:



- 1 Click the **Power Off** button in the Control Panel to disconnect socket power.

The yellow Socket Power light goes off on the base unit, and socket power is disconnected.

- 2 Make the needed changes in hardware connections or setup options.

When communications are established, the yellow Socket Power light comes on.

- 3 Try to use the programming function again.

### As a further measure, cycle SPGMR08 system power:



- 1 Click the **Exit** button to close the MCUscribe application.

- 2 Disconnect the power supply.

The green System Power light on the base unit goes off.

- 3 Reconnect power.

The System Power light comes on.

- 4 Open the MCUscribe application again, and make the needed changes.

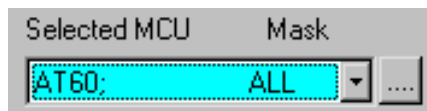
## Error messages and status boxes

The remainder of this chapter contains information about specific error messages and error status boxes.

### MCU Setup: Please select specific MCU message



If the **MCU Setup: Please select specific MCU** message (shown above) appears, click the arrow next to the Selected MCU box, and select an MCU from the list.



If there are no MCUs in the Selected MCU list (shown above), check these possible causes and solutions:

- **Personality files are not installed** — Make sure you have installed the necessary personality files. (See [Installing the software](#) on page 20.)
- **Incorrect search path for personality files** — Correct the personality file search path:
  - Click the **Setup** button to open the Setup dialog. Click the **Folders** tab, and check the path in the Look for personality files here box.
  - or
  - Click the **Selected MCU** ellipsis button. A dialog opens that allows you to locate and select your MCU's personality file.



### MCUSCRIBE: Power Off failed message



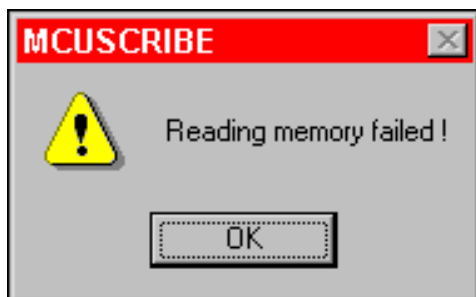
The **MCUSCRIBE: Power Off failed** message (shown above) appears when the SPGMR08 has lost communication with the MCU during programming operations.

To re-establish the communications link, check the following possible causes and solutions:

- **Insecure hardware connections** — Check to make sure the serial cable connections are secure, and all hardware and power connections are properly made.
- **Faulty cable, power supply, or other hardware component** — Try using another cable, power supply, and other hardware parts that you know are good.

You may find it helpful to cycle power while troubleshooting communications problems.

### MCUSCRIBE: Reading memory failed message



The **MCUSCRIBE: Reading memory failed** message (shown above) appears when the SPGMR08 has lost communication with the MCU during a reading-memory operation.

To re-establish the communications link, check the following possible causes and solutions:

- **Insecure hardware connections** — Check to make sure the serial cable connections are secure, and all hardware and power connections are properly made.
- **Faulty cable, power supply, or other hardware component** — Try using another cable, power supply, and other hardware parts that you know are good.
- **Incorrect COM port** — Make sure the communications settings are correct in the Communications tab in the Setup dialog.
- **Personality files are not installed** — Make sure you have installed the necessary personality files.
- **Incorrect search path for personality files** — Click the **Setup** button to open the Setup dialog. Click the **Folders** tab, and check the path in the **Look for personality files here** box.

You may find it helpful to cycle power while troubleshooting communications problems.



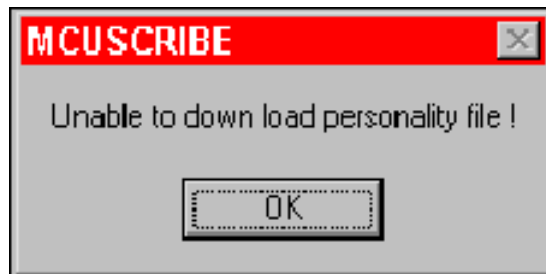
### MCUSCRIBE: Unable to break the security message



The message shown above appears when you start an MCUscribe session with a secured MCU installed in the programming adapter board, and the MCU's security key is incorrect. Enter the security key in the Security tab of the Setup dialog.

For more information, see the topic [Using MCUscribe security](#) on page 57.

### MCUSCRIBE: Unable to down load personality file message



If you receive the **MCUSCRIBE: Unable to down load personality file** message (shown above), check these possible causes:

- **Personality files are not installed** — Make sure you have installed the necessary personality files.
- **Incorrect search path for personality files** — Correct the personality file search path in the Folders tab of the Setup dialog.
- **Incorrect security key** — Provide the security key for the currently installed MCU in the Security tab of the Setup dialog.
- **Incorrect COM port** — Make sure the communications settings are correct in the Communications tab of the Setup dialog.
- **Insecure hardware connections** — Make sure the serial cable connections are secure, and all hardware and power connections are properly made.
- **Inappropriate cable** — Make sure you are using the straight-through cable supplied with the SPGMR08 to connect the base unit to the host computer.

You may find it helpful to cycle power while troubleshooting communications problems.





### Program: Please select a file... message

---



The **Program: Please select file** message (shown above) appears when there is no S-record file selected in the Control Panel.

For information about selecting an S-record file, see the topic [Selecting an S-record file](#) on page 42.

### Verify MCU: Error - File error encountered message

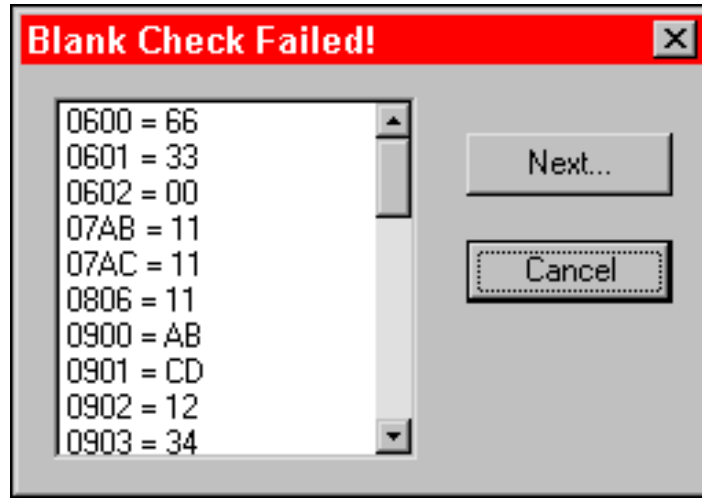


The **Verify MCU: Error - File error encountered** message (shown above) appears when the S-record file displayed in the Control Panel is not valid for the currently loaded MCU.

Click the **Select File** button and make a new S-record selection.



**Blank Check Failed status box**



The **Blank Check Failed** status box (shown above) appears when a reading of memory shows that some contents of the MCU’s EPROM, EEPROM, OTPROM, and Flash EEPROM memory are programmed (not blank).

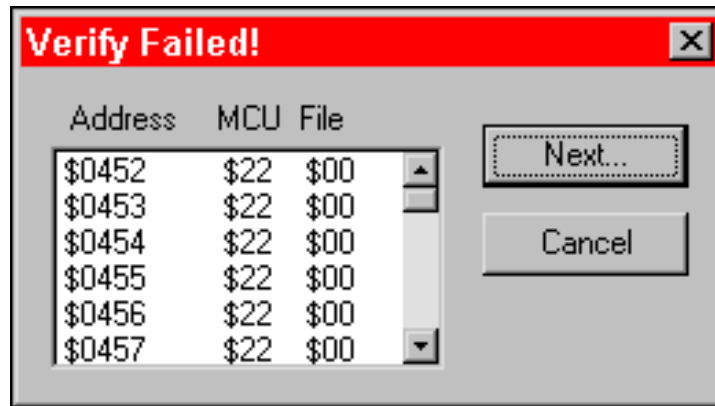
The status box shows the addresses and values of all nonblank memory bytes, starting with the first programmed byte. The data is displayed in blocks of addresses.

**To see the next block of affected addresses**, click the **Next** button.

**To close the status box**, click **Cancel**.

**To attempt to program nonblank memory**, before you begin programming, select the **Warn if not blank option** in the MCU Programming tab of the Setup dialog. (See [Setup dialog: MCU Programming tab](#) on page 78.)

### Verify Failed status box



The **Verify Failed** status box (shown above) appears when a reading of memory shows that some contents of EPROM, OTPROM, EEPROM, and Flash EEPROM memory of the currently loaded MCU do not match the contents of the selected S-record.

The status box shows the addresses of all the memory bytes that failed the verification, starting with the first mismatched byte. There is an entry for each failed byte, showing the address, the value of the byte on the MCU, and the value of the byte in the selected S-record file. The data is displayed in blocks of addresses.

**To see the next block of affected addresses,** click the **Next** button.

**To close the status box,** click **Cancel**.

**If you encounter consistent problems with programming or verification:**

- Make sure the memory range you are preparing to program is blank.
- Try programming a different device.
- Make sure the SPGMR08 power is supplied properly.

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