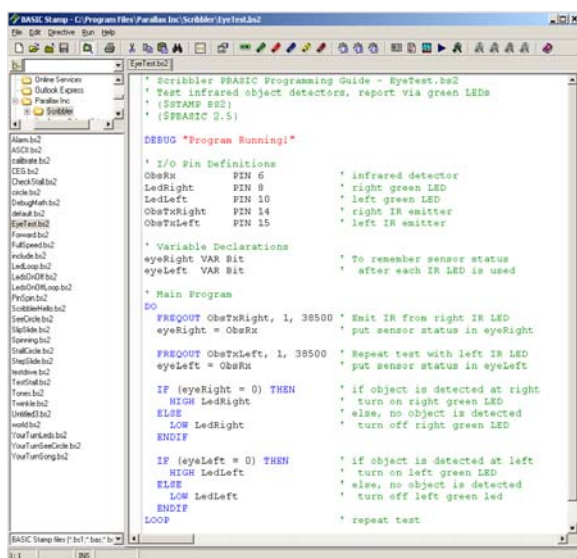


Scribbler PBASIC Programming Guide

Setting Up

Inside the Scribbler Robot is a small computer called a BASIC Stamp[®] microcontroller. With the BASIC Stamp Editor software and your PC or laptop computer, you can write your own programs for your Scribbler. Then, you can load them into the BASIC Stamp inside the Scribbler through a serial cable. This Guide contains software installation and hardware connection instructions you need to complete so you can begin programming.



This guide will take you through the computer system requirements for your PC or laptop, obtaining and installing the BASIC Stamp Editor software, and connecting your Scribbler Robot to your personal computer. There are tests to verify that your computer and the BASIC Stamp are communicating properly. If you run into difficulty, there are also troubleshooting tips to try, and contact information for Parallax Tech Support if you need individual help.

Once you have completed “Setting Up,” you will be ready for “Writing Programs,” the next module in this series. Its step-by-step instructions will get you started with PBASIC programming for your Scribbler Robot.

COMPUTER SYSTEM REQUIREMENTS	2
INSTALLING THE BASIC STAMP EDITOR SOFTWARE	2
CONNECTING THE SCRIBBLER ROBOT TO YOUR COMPUTER	9
TESTING THE PROGRAMMING CONNECTION	10
CLEARING THE FACTORY DEMO PROGRAM	11
RESTORING THE FACTORY DEMO PROGRAM	12
TROUBLESHOOTING TIPS	13
TECH SUPPORT FROM PARALLAX INC.	16

Computer System Requirements

You will need either a PC or a laptop computer to run the BASIC Stamp Editor software. Your computer will need to have the following features:

- Microsoft Windows® 2000, XP, or newer operating system
- A CD ROM drive, Internet access, or both
- An available serial port (DB-9)
- OR -
- A USB port with a USB to Serial Adapter (We only recommend using the FTDI US232B adapter. It is available from www.parallax.com, part #800-00030.)
- A mouse or other pointing device

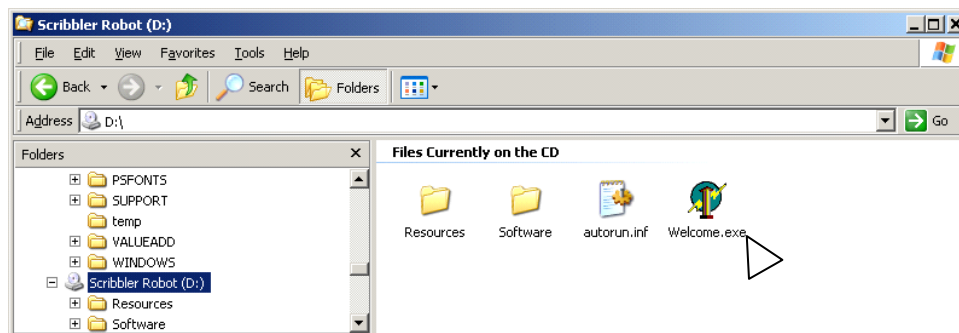
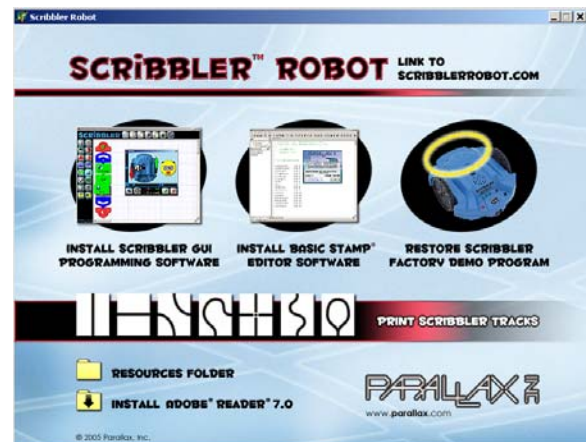
Installing the BASIC Stamp Editor Software

The BASIC Stamp Editor software is included on the Scribbler Software CD that came in the box with your robot. As expansions and updates are made to this software, new versions will be made available for free download from our official website, www.ScribblerRobot.com.

Installing the Software from the Scribbler CD

Follow these directions to install the BASIC Stamp Editor directly from the Scribbler Software CD:

- ✓ Place the **Scribbler Software CD** into your computer's CD drive.
- ✓ If the Welcome Menu displays automatically, skip the next two checkmarks.
- ✓ If the CD does not auto-run, browse to your computer's CD drive.
- ✓ Open "**Welcome.exe**" to view the Welcome Menu.

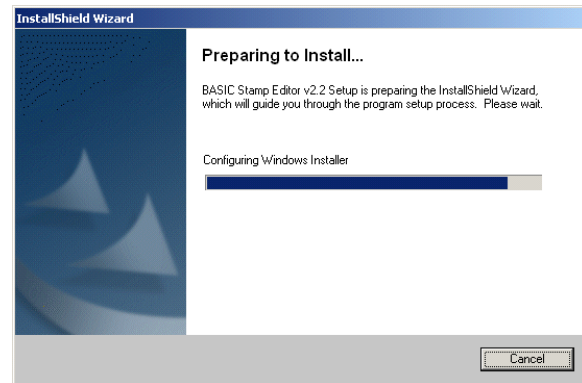


- ✓ In the Welcome Menu, click on “**Install BASIC Stamp Editor Software**” to begin the installation process.



A window with a progress bar may appear. When it closes, you are ready to continue.

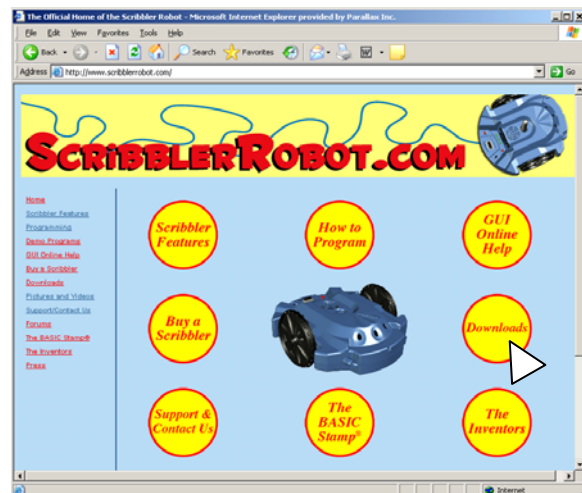
- ✓ Skip the next section, and begin again at **Software Installation Steps** on page 6.



Downloading the Software from the Internet

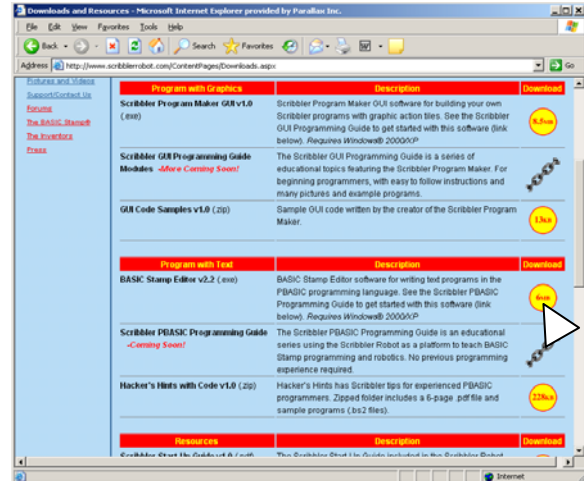
The very latest versions of the BASIC Stamp Editor software, educational Programming Guides, and other resources are always available as free downloads from www.ScribblerRobot.com.

- ✓ With your Internet browser, go to **www.scribblerrobot.com**.
- ✓ Click on the **Downloads** button.



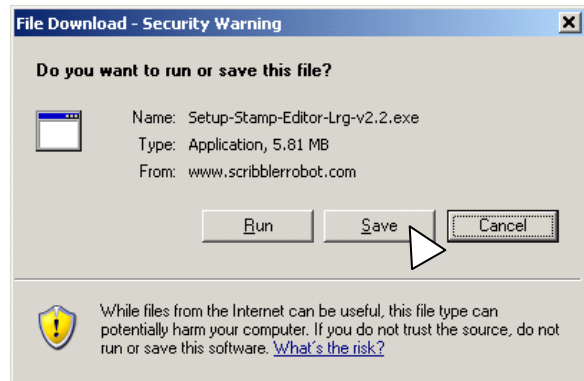
4 - Module Name

- ✓ Under **Program with Text**, locate **BASIC Stamp Editor**.
- ✓ Click on the button in the **Download** column.



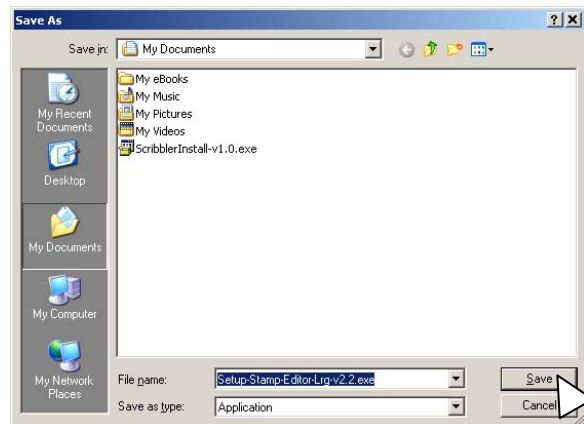
The File Download window will open. We recommend that you download the program and save it to your computer before launching the installation process.

- ✓ Click **Save**.



The Save As window opens next.

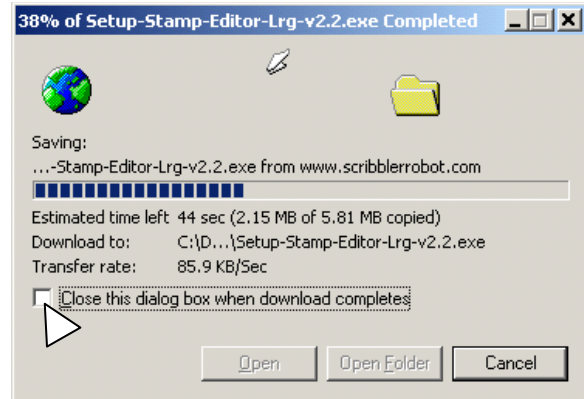
- ✓ Browse to the location where you want to save the file you are downloading.
- ✓ Click **Save**.



A window opens showing the download progress.

- ✓ Uncheck the “Close this dialog box” option.

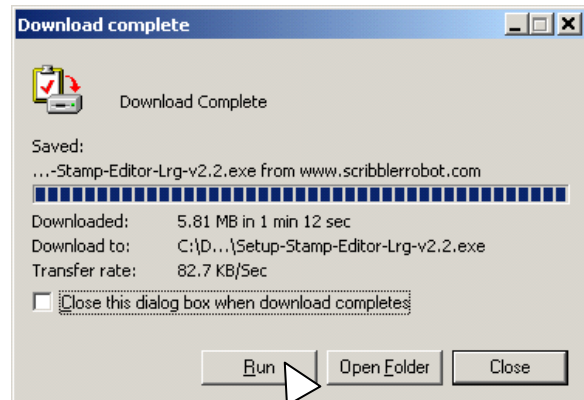
Downloading the file can take several minutes.



The Download Complete message will appear.

- ✓ Click **Run**.

(If this window did not open, browse to the location where you saved the downloaded program, and run it from there.)

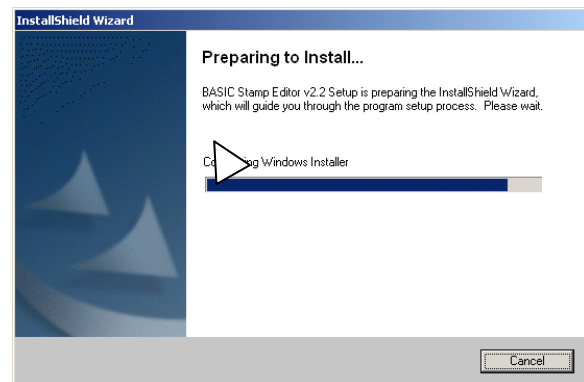


When you run the program, you may get a security warning.

- ✓ Click **Run**.



A window with a progress bar may appear. When it closes, you are ready to continue with **Software Installation Steps**, below.

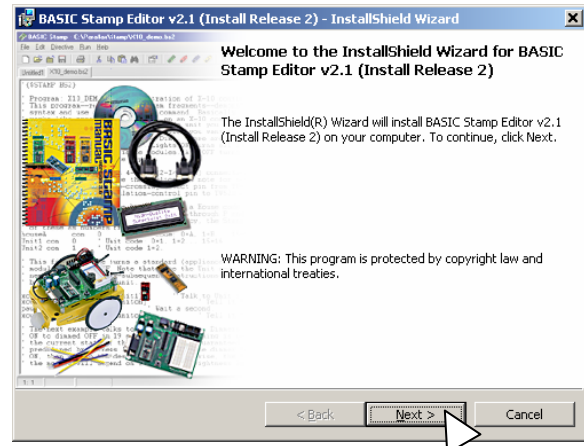


6 - Module Name

Software Installation Steps

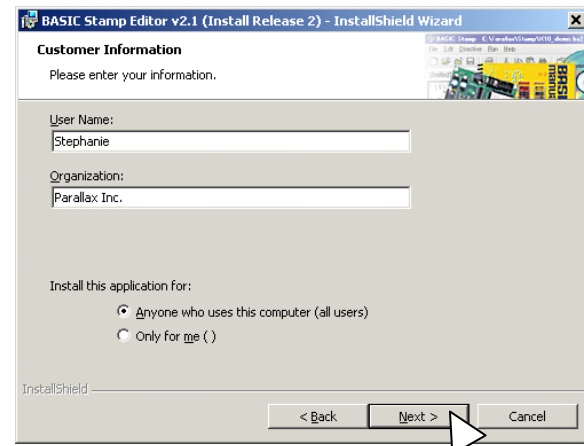
The Welcome window opens first.

✓ Click **Next**.



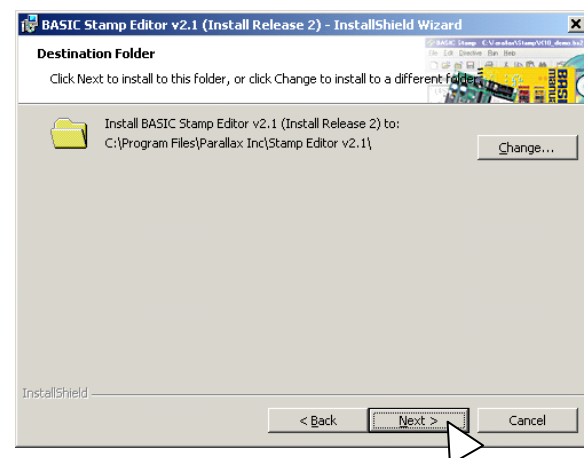
A window opens asking for customer information. You may fill in this information, or leave it blank.

✓ To continue, click **Next**.



The next window asks you where you would like the BASIC Stamp Editor files to reside on your computer. The default location is:
C:\Program Files\Parallax Inc\Stamp Editor.

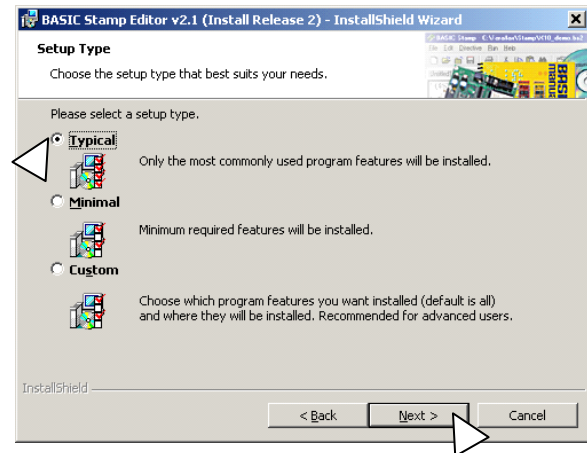
- ✓ If you want to install to the default location (recommended), click **Next**.
- ✓ If instead you want to install to another location, click **Change** and choose another folder, then click **Next**.



The next window asks whether you want a minimal, typical, or custom installation. For Scribbler programming, Typical is recommended.

✓ Choose **Typical**.

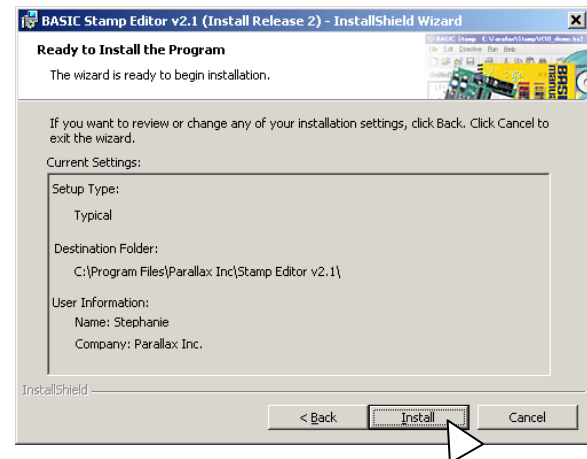
✓ Click **Next**.



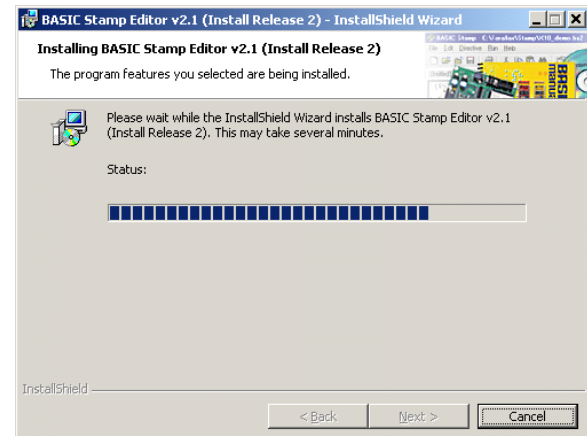
This window reviews all of your preferences before continuing.

✓ If you want to change any of this information, you can click **Back** and redo those choices.

✓ When you are satisfied with your choices, click **Install**.



The program file installation progress is shown with a status bar. Installation may take several minutes.

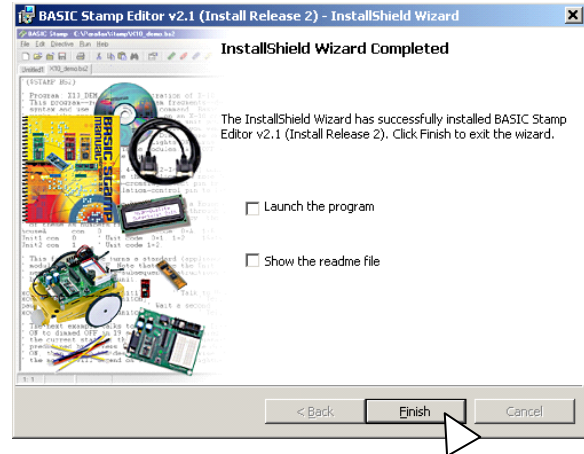


8 - Module Name

When the setup is complete this window opens. Checking “Yes” in this window will automatically open the BASIC Stamp Editor. You may also open the program from:

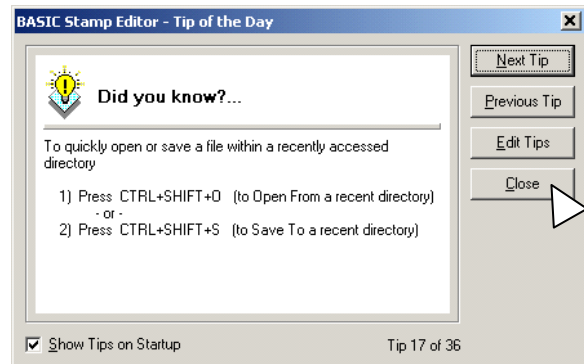
Start > All Programs > Parallax Inc > BASIC Stamp Editor > BASIC Stamp Editor

- ✓ Uncheck “**Show the readme file.**”
- ✓ Click **Finish.**
- ✓ Open the program.



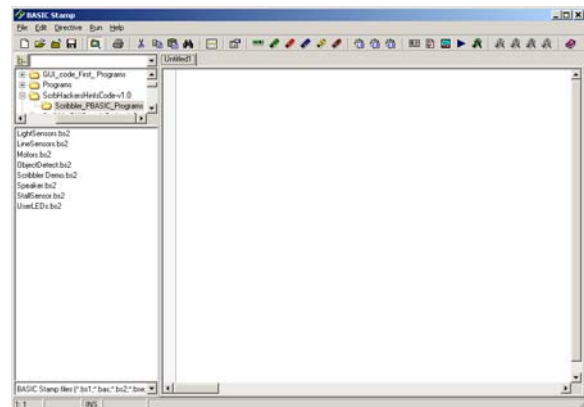
Every time you run the BASIC Stamp Editor, a Tip of the Day opens with a helpful fact. You can disable this feature by unchecking “Show Tips on Startup”

- ✓ Click **Close.**



The BASIC Stamp Editor installation is complete, and a blank program opens.

- ✓ Leave this window open while you connect your Scribbler Robot to your computer.



Connecting the Scribbler Robot to your Computer

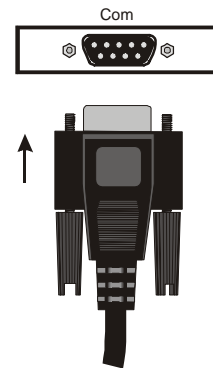
Your Scribbler Robot came packaged with a programming cable. This is a standard 9-pin serial cable (DB-9). To program your Scribbler, you will need to connect it to your computer with this cable.



If you do not have a serial port, only a USB port, you will need to install a USB to Serial Adapter before continuing. At the time of this writing, we only recommend using the FTDI US232B (Part #800-00030).



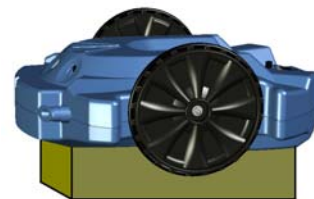
- √ Connect the 9-hole end of the serial cable to the serial COM port on your computer (or, the serial end of the USB-to-Serial Adapter.)



- √ Then, connect the other end of the serial cable to the Programming Port on the Scribbler Robot.

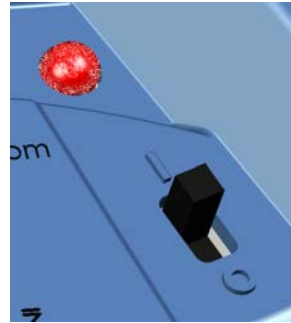


- √ Place your Scribbler Robot on a small box or book so its wheels are not touching anything. Remember, the factory-loaded Demo program is already inside the Scribbler, so the motors might start when you turn it on.



10 - Module Name

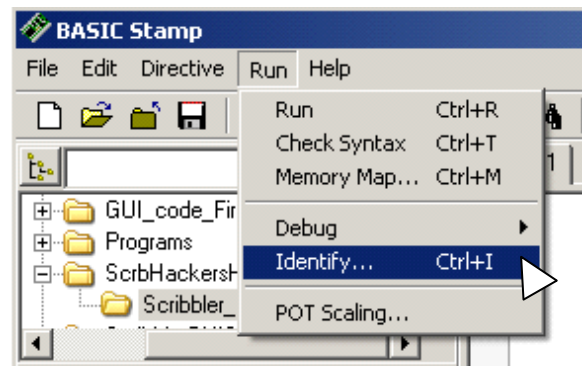
- ✓ Place the Scribbler power switch in the “on” position.
1 = ON 0 = OFF
- ✓ Make sure the red power light is on. If it is not, or if it blinking, your Scribbler may need new batteries. See the *Scribbler Start-up Guide* for instructions.



Testing the Programming Connection

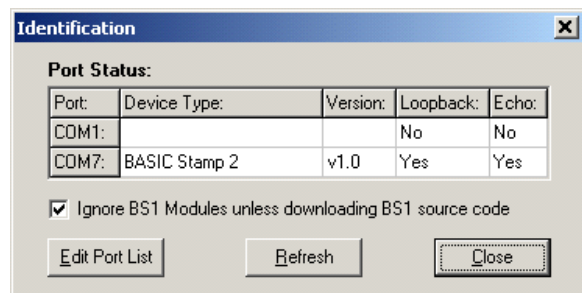
Now we will use the Identify function to see if the BASIC Stamp Editor can detect the BASIC Stamp microcontroller inside the Scribbler Robot.

- ✓ In the BASIC Stamp Editor, choose **Run**, then **Identify**.



If the programming connection is working, You will see “BASIC Stamp 2” detected on one of your computer’s COM ports, with a ‘Yes’ in the Loopback and Echo columns.

- ✓ If the connection is working, click **Close**, and continue on to **Clearing the Factory Demo Program**.
- ✓ If your connection is not working, leave this Identification window open and try the **Troubleshooting Tips** on page 13.

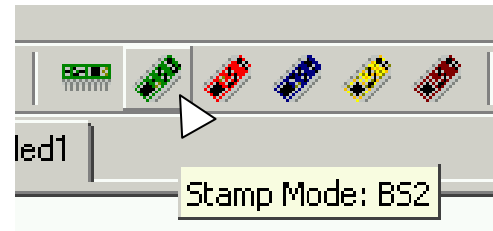


Clearing the Factory Demo Program

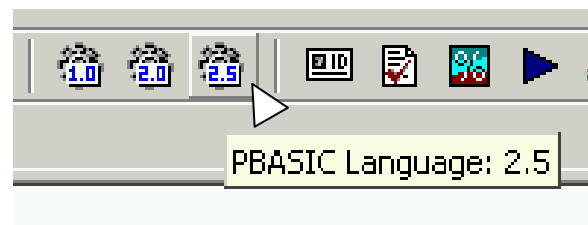
Before moving on to the Writing Programs, the next module in this series, let's try loading one "empty" program. This program will not make the Scribbler do anything, but it serves two purposes.

1. It will confirm that the programming connection is working properly.
2. It will overwrite the Factory Demo program so it does not interfere with the beginning programming activities in Writing Programs.

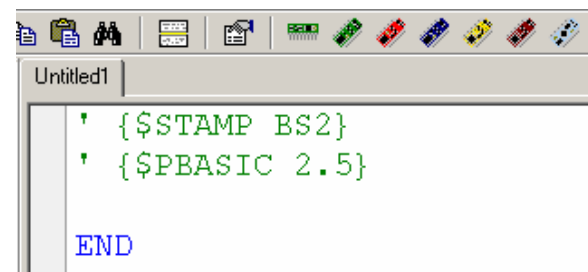
- √ Begin by clicking on the BS2 icon on the top tool bar (the diagonal green one), since the Scribbler contains a BASIC Stamp 2. This inserts
`' {$STAMP BS2}` into the program.



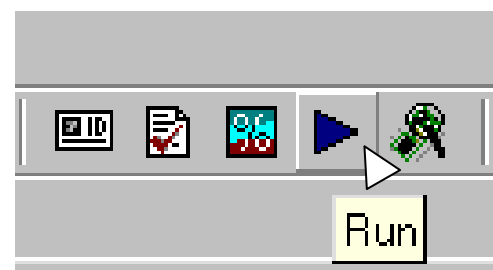
- √ Next, click on the PBASIC 2.5 icon, for language we will be using in all our Scribbler programs. This inserts
`' {$PBASIC 2.5}` into the program.



- √ Below the first two lines, type END. Your program should look like the picture to the right.



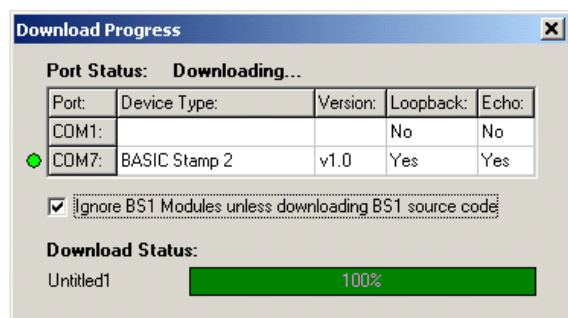
- √ Click on the Run icon to load this program into the BASIC Stamp inside the Scribbler.



12 · Module Name

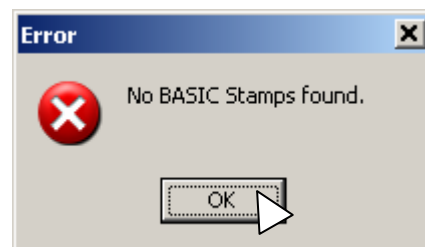
A progress window may appear briefly as the program is transferred from your computer to the BASIC Stamp.

- ✓ If this window closes and no new messages appear, you are ready to start Writing Programs, a free download from www.ScribblerRobot.com.



You might instead get a message saying “No BASIC Stamps found.”

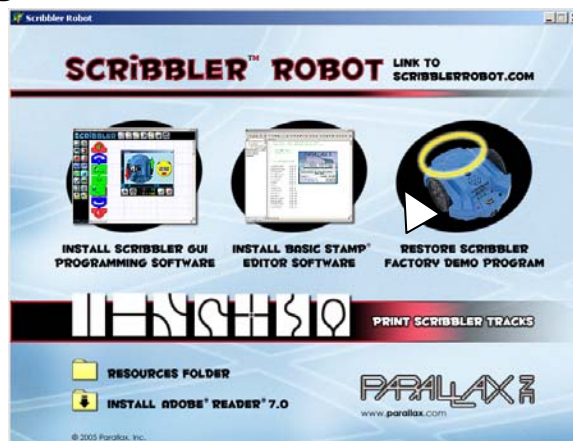
- ✓ Click **OK** to close this message, then try the **Troubleshooting Tips** on page 13.



Restoring the Factory Demo Program

You can easily restore the Factory Demo Program that came installed in your Scribbler Robot. Restoring this program will overwrite any custom program you may have loaded into your Scribbler.

- ✓ Go back to the **Scribbler Software CD Welcome menu**.



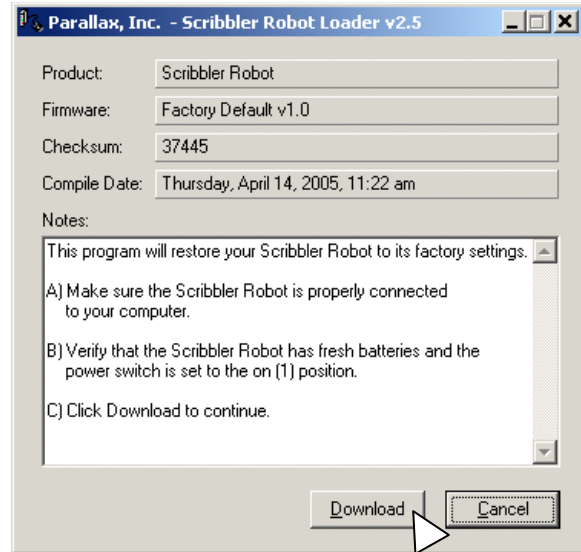
- ✓ Click on “**Restore Scribbler Factory Demo Program.**”



The Scribbler Robot Loader window will open.

- ✓ Follow the directions in the **Notes** section.

The newest versions of this program can also be found in the Resources section of the Downloads page at www.ScribblerRobot.com.

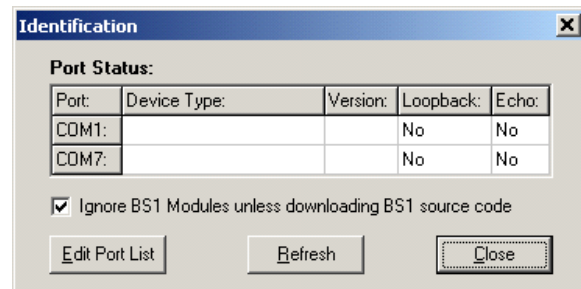


Troubleshooting Tips

Here is a list of things to try to quickly fix any difficulties getting the BASIC Stamp Editor to communicate with the BASIC Stamp inside the Scribbler Robot:

- ✓ Rule out dead batteries by using six new AA batteries of the same type.
- ✓ Make sure the serial cable is firmly connected to both the computer's COM port and the DB-9 connector on the Scribbler Robot.
- ✓ Make sure that you use the serial cable that came in your package, which is a normal DB-9 serial cable. **DO NOT USE A NULL MODEM CABLE.** Most null modem cables are labeled NULL or Null Modem; visually inspect the cable for any such labeling. If you find that label, do not try to use it to program your Scribbler Robot.
- ✓ Disable any palmtop (PDA) communication software.

If your Identification window shows “No” in both the Loopback and Echo columns, the BASIC Stamp Editor cannot find your BASIC Stamp on any COM port. If you have this problem, try the following:



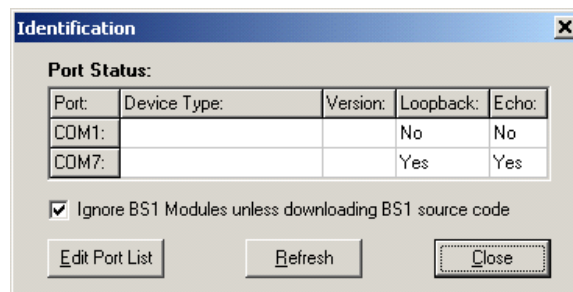
- ✓ Close the Identification window.
- ✓ Make sure the serial cable is properly connected, and that the Scribbler is turned on.
- ✓ Try the **Run** → **Identify** test again.
- ✓ If you know the number of the COM port, but it does not appear in the Identification Window, use the **Edit Port List** button to add that COM port, and then try the **Run** → **Identify** test again.

14 · Module Name

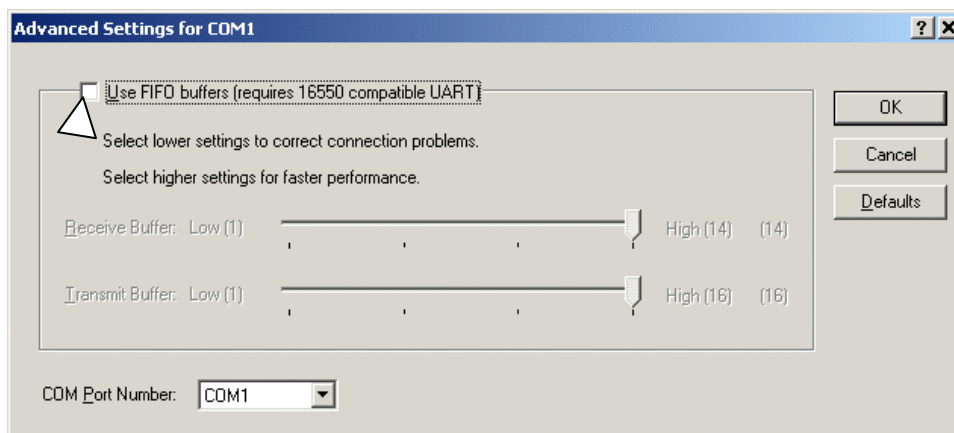
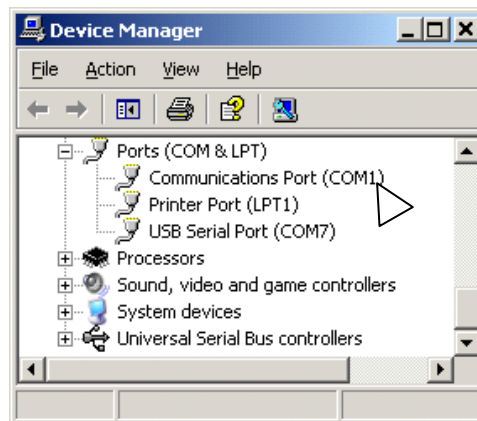
- ✓ If you have more than one COM port, try connecting your Scribbler Robot to a different COM port and see if **Run** → **Identify** works then.
- ✓ If you have a second computer, try it on the different computer.

If you get the error message “No BASIC Stamps Found” but the Run → Identify test shows a “Yes” in both columns for one of the COM ports, you may need to change a setting to your FIFO Buffers.

- ✓ Make a note of the COM port number with the “Yes” messages.



- ✓ Click on your computer's **Start** button, and select **My Computer**.
- ✓ Under your computer's **Control Panel**, select **System**.
- ✓ Select **Hardware** → **Device Manager** → **Ports**.
- ✓ Select the COM port number that showed “Yes” in the Identification window.
- ✓ Select **Port Settings** → **Advanced**.
- ✓ **Uncheck** the box labeled “Use FIFO Buffers”
- ✓ Make sure the Com Port number matches the one shown in the Identification window, then click **OK**.
- ✓ Click **OK** to close each window as needed, and return to the BASIC Stamp Editor.
- ✓ Try loading the empty program once more.



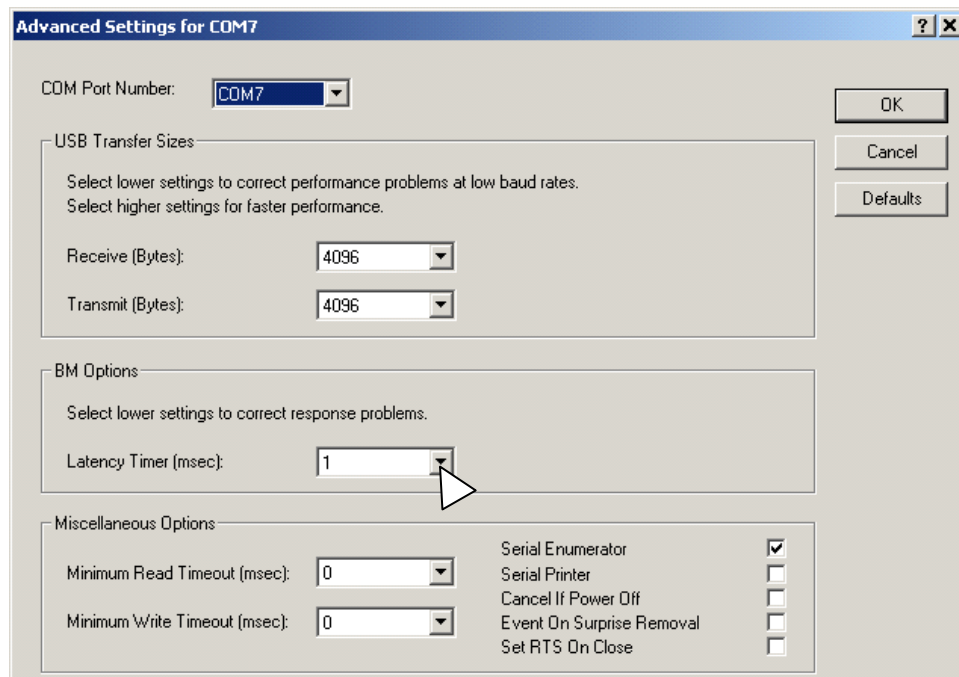
If you are using an FTDI USB-to-Serial Adapter, the Echo and Loopback information may not be accurate. Here are a few more hints:

First, make sure you loaded the FTDI drivers onto your computer, from the Parallax Software CD that came with it.

- ✓ Insert the Parallax CD in your CD ROM drive.
- ✓ From the Welcome screen, choose **Software**, then **USB Drivers (FTDI VCP)**.
- ✓ Click on the diskette icon labeled **Windows Drivers**, and then click **Install**.
- ✓ A **Confirm** window will open; click **Yes**.

You may also need to modify your USB port's latency settings, usually with a laptop computer.

- ✓ Under your computer's **Control Panel**, select **System**.
- ✓ Select **Hardware** → **Device Manager** → **Ports**.
- ✓ Select the COM port that the USB-to-Serial Adapter is connected to.
- ✓ Select **Port Settings** → **Advanced**.
- ✓ Reduce the **Latency Timer** setting to **1**.
- ✓ Click **OK** to close each window as needed, and return to the BASIC Stamp Editor.
- ✓ Try loading the empty program once more.



16 · Module Name

Tech Support from Parallax Inc.

If you are still having trouble installing the BASIC Stamp Editor software or establishing a programming connection between your computer and the Scribbler Robot, you can contact Parallax Inc. for free Technical Support. You have several options:



Telephone

Parallax Inc.'s Tech Support staff takes calls on weekdays from 7:00 am to 5:00 pm Pacific Time.

Phone: (916) 624-8333

Toll Free in the US and Canada: 1-888-99-STAMP

Email

Send an email to support@parallax.com explaining the problem. Emails are answered as promptly as possible throughout the business day.

Forums

You can post a question to the Scribbler Forums at forums.ScribblerRobot.com. Your questions may be answered by other Scribbler owners and Parallax Tech Support staff. This free public forum is moderated, and has no pop-up advertisements.