



# Flash Update Utility

Version 1.0

## User Manual

Revision 0.2

October 2, 2003

Reference: BT-UM-0036

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## 1. Introduction

The Flash Update Utility application is designed to enable users to upload, download and verify the flash memory accompanying the Texas Instruments Bluetooth devices. The Flash Update Utility runs on a PC and controls the Bluetooth device Flash Memory via an RS-232 interface or a JTAG parallel port connection.

Main features:

- User friendly interface
- Supports a range of Flash devices from different vendors
- Compares Flash content with an HEX file
- Extendable to new Flash types via an XML Configuration File

## 2. Terms & Abbreviations

Abbreviation /Term	Meaning / Explanation
CS0	Chip Select 0 for selecting between internal ROM and external Flash
HW	Hardware
SW	Software

## 3. Reference Documents

Reference	Description / Comments
BT-SM-0037 (BRF6150 Product Target Specification Rev 0.4).doc	BRF6150 Product Target Specification Rev 0.4
BT-DS-0019 (BRF6100 Release 1.3 product Preview, Rev 1.02).pdf	BRF6100 Release 1.3 product Preview

## 4. System Requirements

- PC running Pentium 200 or greater
- Operating System: Windows 98 SE, Windows 2000 or Windows XP
- Serial communication port (RS232) or parallel communication port with supplied JTAG cable

## 5. Installation

1. From the installation CD ROM, run **Setup.exe** and follow the on-screen instructions.
2. When installation is completed, the Texas Instrument\Bluetooth Tools program group displays the Flash Update Utility program icon. 
3. Connect the PC to the Bluetooth device via a COM port using an RS-232 cable or via a parallel port using a JTAG cable.

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**Note** If you encountered difficulties running the installation program, check firewall settings regarding Windows security.

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## 6. Setup and Configuration

### 6.1 Invoking the Flash Update Utility

To invoke the Flash Update Utility, click on the Flash Update Utility program icon; the Flash Update Utility Main Window appears.

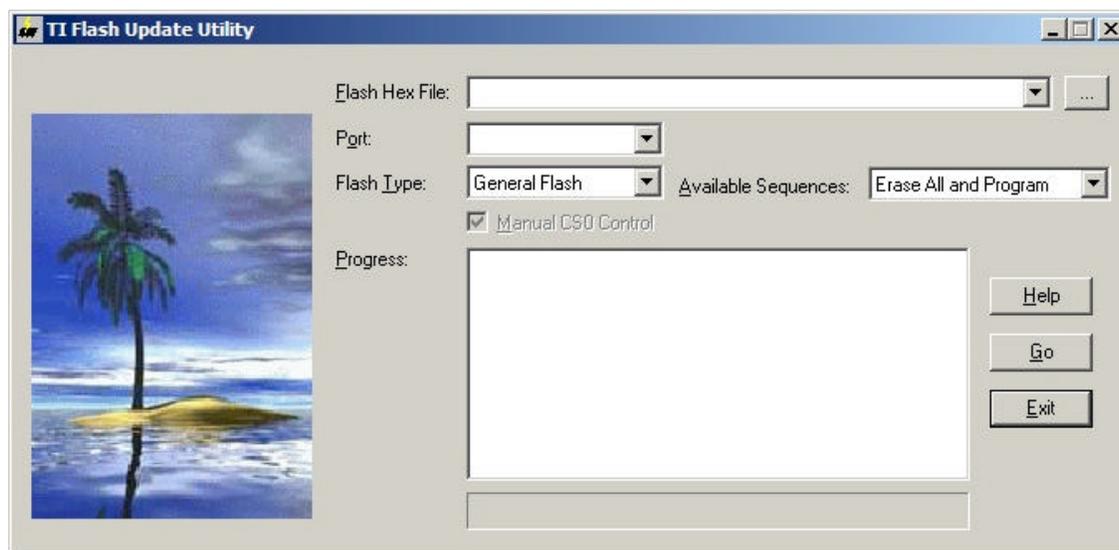


Figure 1: Flash Update Utility Main View

## 6.2 Selecting the Port

The Flash Update Utility communicates and controls the target device via a standard PC RS232 serial COM port or a JTAG port connection.

1. To correctly set up and connect the targeted device to the workstation PC running the Flash Update Utility, please refer to the device's User Manual.
2. In the Main View, from the Port drop down list, select the desired port.
  - Serial Port: select an available COM port

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**Note** The Flash Update Utility is internally adjusted to set the parameters of the selected Serial Port (such as baud rate, parity, etc.). No further setting is required.  
Default settings: 115.2Kbps, 8 bit, No parity, 1 Stop bit

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- JTAG Port: select an available JTAG port

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**Note** The Flash Update Utility does not support USB connections.

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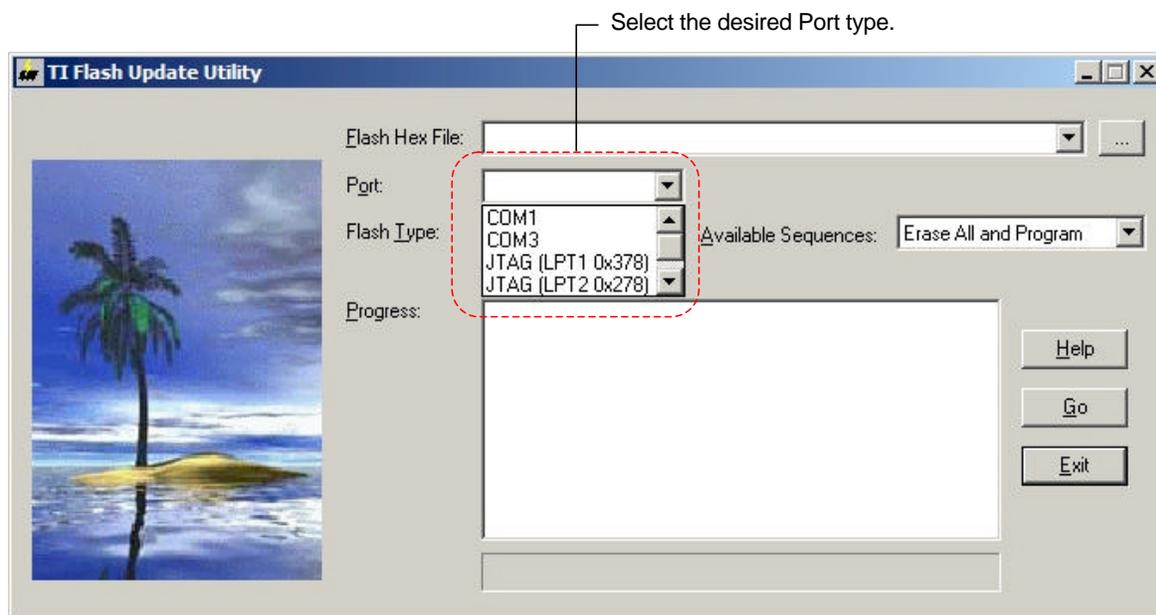


Figure 2: Selecting the Port Type

### 6.3 Selecting the Flash Type

The Flash Update Utility is designed to handle various Flash types. A Flash type might be characterized by size, burning procedures, etc.

Please refer to your target device product User Manual to identify your specific flash type.

In order to select the flash type of the actual flash to be updated, point the mouse and click the 'Flash Type' selection control in the Flash Update Utility main window, and select the desired flash type out of the available types from the drop list as shown (by pointer 1) in the following figure.

1. Verify the Flash type of the targeted device. Flash types can differ according to size, burning procedures, etc. Please refer to the target device's User Manual to correctly identify the specific Flash type.
2. In the Main View, from the Flash Type drop down list, select the desired Flash type.

**Note** The default selection, **General Flash**, is generally appropriate for most Flash devices but could require additional time when erasing the Flash device. The dedicated Flash types were optimized to erase only the relevant section, thus requiring less processing time.

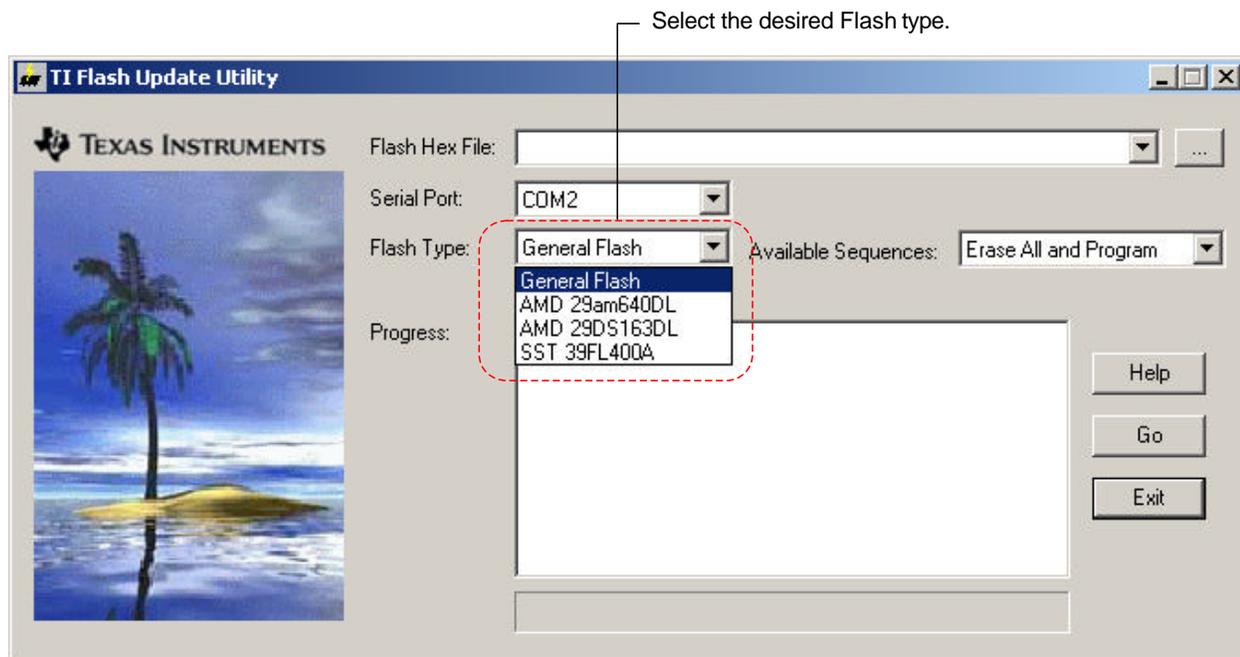


Figure 3: Selecting a flash type

## 6.4 Selecting the CS0 Control Type

CS0 (Chip Select 0) determines the memory device that the firmware runs after reset. The Texas Instruments Bluetooth single chip is by default a ROM based device chip. As such, it holds an internal ROM memory that is preloaded with Baseband Firmware. An external control line, MUX\_CS, is used to control the CS0 signal destination:

- When MUX\_CS is pulled down, CS0 is routed to the internal ROM.
- When MUX\_CS is pulled up, CS0 is connected to the external Flash.

The Flash Update Utility supports two methods of CS0 control:

**Manual** Provides on-screen popup windows requesting user intervention for CS0 control

**Automatic** For target boards having HW pre-work for connecting the PC COM port DTR signal to the MUX\_CS line; these do not require manual intervention.

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**Note** CS0 control type is valid **only** when using a serial port connection.

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- **To select manual CS0 control:**

In the Main View, select the **Manual CS0 Control** check box.

- **To select automatic CS0 control:**

In the Main View, verify that the Manual CS0 Control check box **is not** selected (checked).

- Select for Manual CS0 Control.
- Leave unchecked for Automatic CS0 Control.

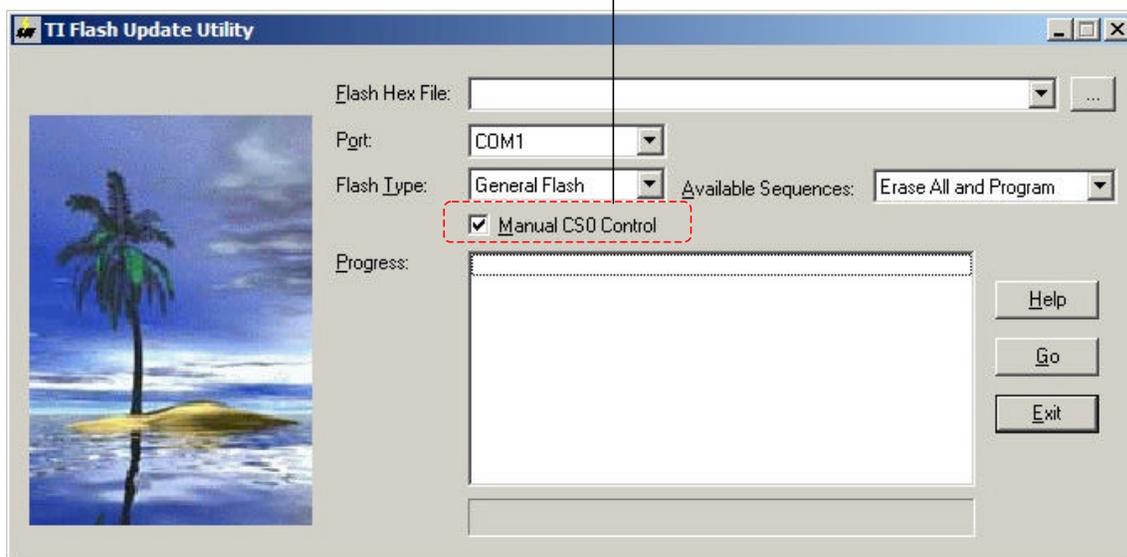


Figure 4: Enforcing Manual CS0 Control

## 7. Using the Flash Update Utility

The Flash Update Utility can read and write data from/to Flash memory. Using the Flash Update Utility, the user can perform read/write operations such as:

- Update the Flash firmware (Erase and Program)
- Read and display the Flash version
- Read the Flash data and backup to file
- Verify Flash content according to a specific HEX file

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**Note** User operation is based on read/write sequences of operations. Available sequences may differ according to Flash type (based on Flash size or other parameters).

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This section describes the procedures for performing the following Flash Utility Update operations:

- Selecting the input or output file
- Selecting and activating a sequence
- Verifying sequence execution

## 7.1 Selecting the Input or Output File

To select an input or output file, in the Main View, in the **Flash Hex File** field,

- enter the full path to the desired file.
- or-
1. Choose the **Browse** button; a standard **Open** file dialog box appears.
  2. Navigate to the desired file and choose **OK**; the file appears in the Flash Hex file field.

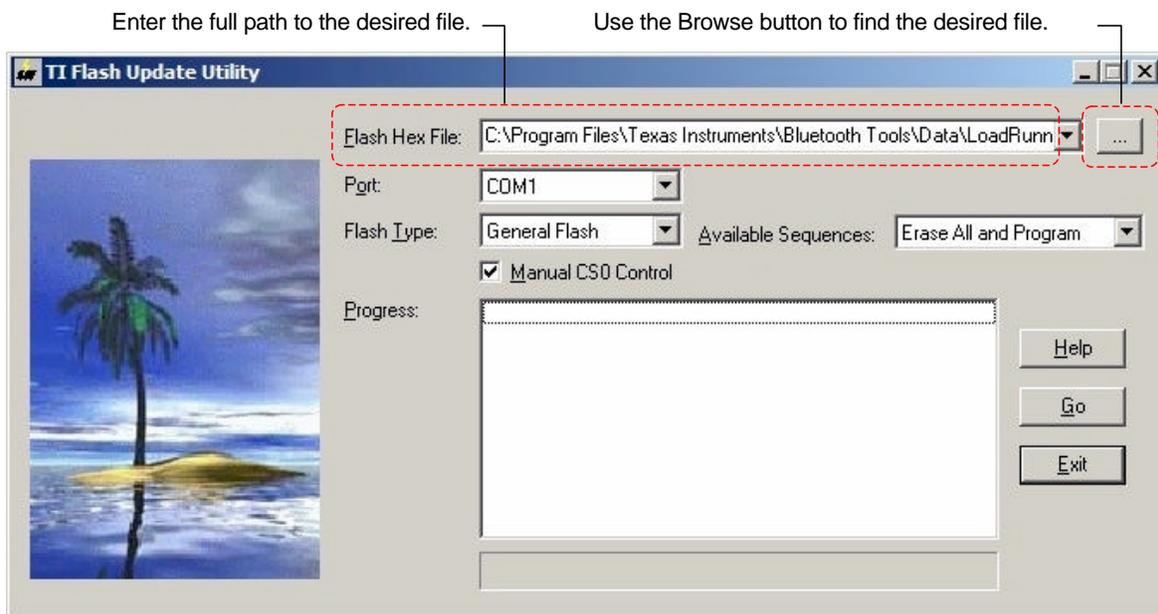


Figure 5: Setting input or output file

## 7.2 Selecting and Activating a Sequence

1. Verify that the Flash type has been selected (see page 7).

**Note** Available sequences may be dependent on the Flash type. Therefore **always** select Flash Type **before** selecting a sequence.

2. Verify that the Input File has been selected (see page 10).
3. In the Main View, from the **Available Sequences** drop down list, select the desired sequence.
4. Choose **Go**; the selected sequence is activated.

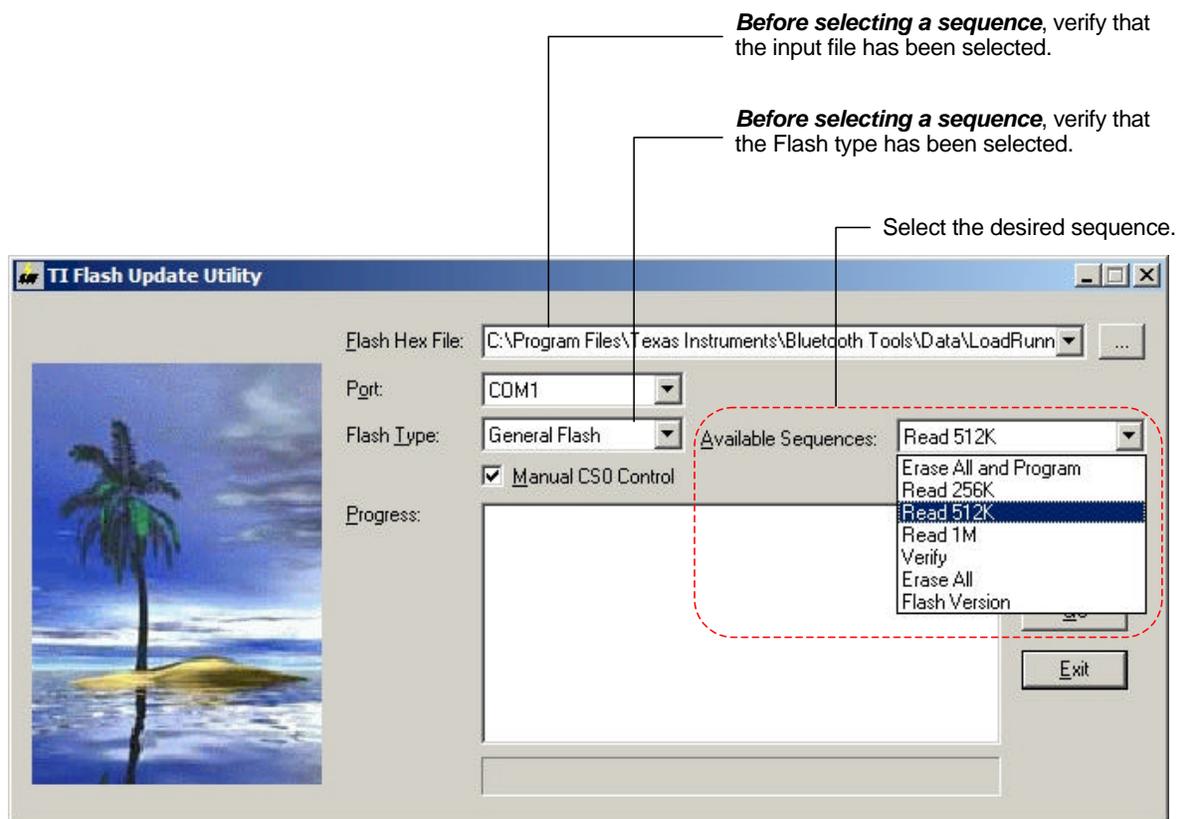
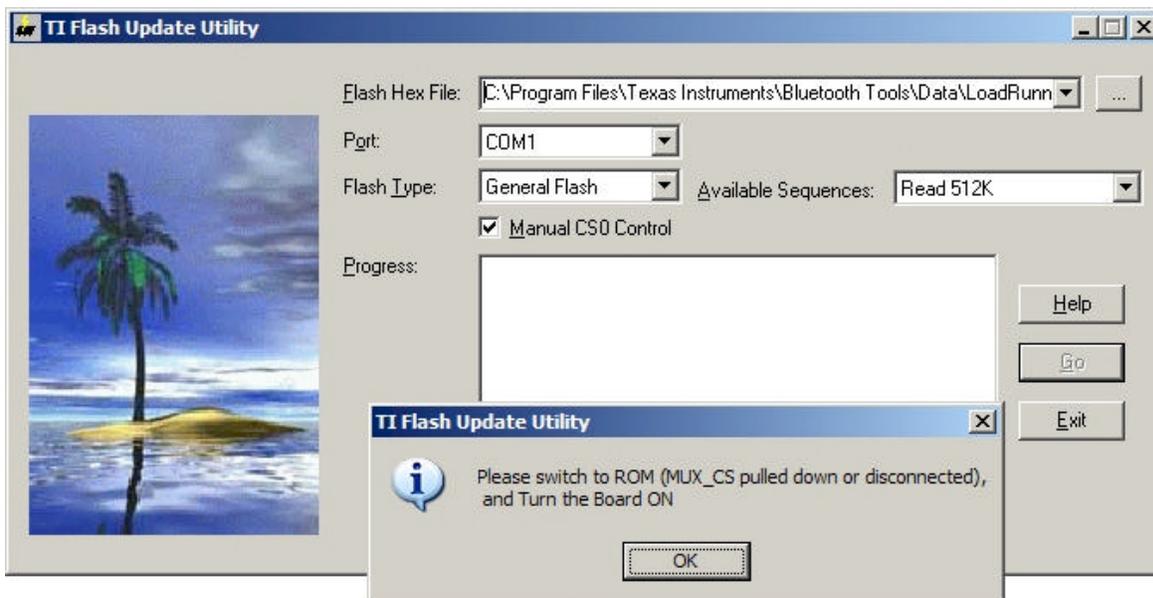


Figure 6: Selecting a Sequence

## 7.3 Sequence Progress

### 7.3.1 Manual Intervention

If **Manual CS0 Control** was selected (see page 8), initiating the selected sequence (see page 11) will cause the Flash Update Utility to display various messages requesting user action (e.g. 'Switch to ROM...', 'Turn the board ON...', etc.). An example of this type of message is displayed in the following image:



Example of a request for manual intervention.

Figure 7: Request for Manual Intervention

**If you receive a request for manual intervention, proceed as follows:**

1. Refer to your target device User Manual for details on how to correctly perform the requested action.
2. After performing the requested manual action, from the dialog box displaying the request, choose **OK**; the read/write sequence will resume.
3. Follow popup window instructions to complete the process.

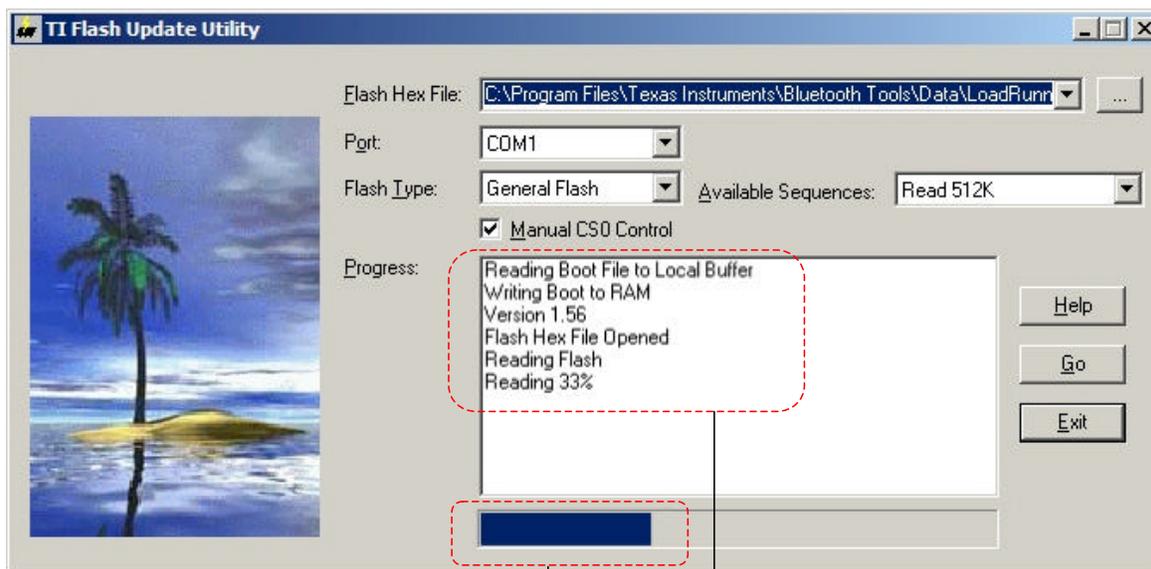
### 7.3.2 Progress Indicator

The progress of the read/write sequence is depicted by two indicators:

- **Progress Window** Provides textual data about the sequence stages.

**Note** The textual data in the **Progress Window** can be selected, copied and pasted to an external application. This enables this data to be logged and/or sent by email.

- **Progress Bar** Visually depicts execution progress via an expanding graphical bar indicator.



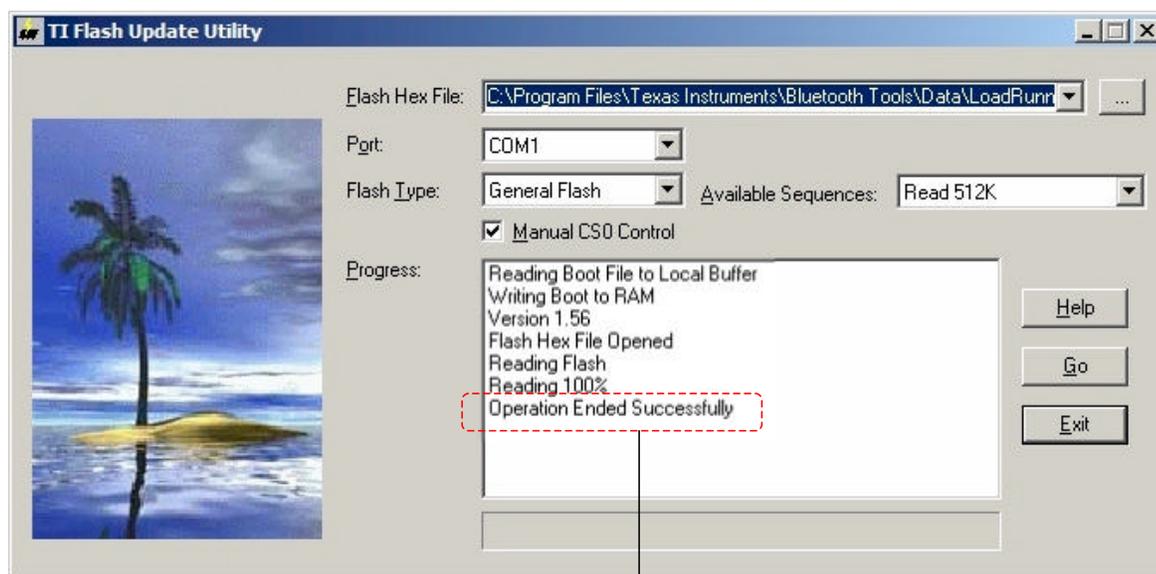
Sequence progress is visually indicated by the expanding solid bar.

Sequence progress is indicated by displaying the sequence stages.

Figure 9: Progress Indication

### 7.3.3 Completion Indicator

When the read/write sequence has been completed successfully, the Progress Window displays the following final line of text: **Operation Ended Successfully** as illustrated in the following example.



Text line indicating successful completion of sequence.

Figure 10: Sequence Completion Indicator

## 8. Example: Firmware Update

Following is an example of using the Flash Update Utility to update firmware.

1. Setup the Flash Update Utility as described in “Setup and Configuration”, page 5.
2. Identify the current Firmware version:
  - a. Select the relevant **Flash Type**.
  - b. Select the Flash Version **sequence** from the Available Sequences.
  - c. Choose **Go**.

The Firmware version should be displayed in the Progress text box
3. Update Firmware:
  - a. Check or uncheck the **CS0 check box** according to target board configuration.
  - b. Enter the new Firmware file (Hex file) in the **Flash Hex File** text box.
  - c. Select the **Erase All and Program** sequence from the Available Sequences drop down list (some Flash types might have the option of erasing part of the Flash to save time).
  - d. Press **Go** and follow the popup window instructions to completion.
4. Verify the updated Flash:
  - a. Enter the new Firmware file (Hex file) in the **Flash Hex File** text box.
  - b. Select the **Verify** sequence.
  - c. Choose **Go** and follow the popup window instructions to completion.

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