Control Technology Corp.

Model 5100 Bootloader
Installation Guide

The information in this document is current as of the following Hardware and Firmware revision levels. Some features may not be supported in earlier revisions. See www.ctc-control.com for the availability of firmware updates or contact CTC Technical Support.

Model Number	Hardware Revision	Firmware Revision
5101/5102/5103/5104	B, C, and E	4.05

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1.0 Overview

NOTE: This manual is only required if a controller will not powerup and FTP connections can not be made! The bootloader can always be replaced using FTP if the controller is operating normally.

Should a problem ever occur during the reflash operation of the controller it may be necessary to fully replace all Monitor/Bootloader and Quickstep firmware as is done initially at the factory. This could occur if power is cycled during a reflash operation. When this occurs the program flash chip is fully erased and only partially updated. Although this should never occur, it is Murphy's Law that power may be lost during re-flashing, hence this manual. This manual will direct you as to how to initially load a Monitor/Bootloader and Quickstep firmware.

1.1 Firmware Distribution

The files for updating a controller, both monitor and main board Quickstep firmware are distributed in a zip file called 5100FullInstall.zip. To install this create a vbload subdirectory on one of your hard disks and extract this file to that location. The following files will be present:

Sh2boot.exe	vbload program, to install bootloader in controller
5102.mon	Monitor/Bootloader firmware for internal CPU loading
5102.sub	Type file for vbload program
BF5100######.sr1	Quickstep firmware for CPU and external flash where ###### is the revision number. LAN5102.sr1 may be used instead if present. This is the same type of file, its name simply does not include revision information.

Note: CTCMON V2.8 must be installed on the computer for proper operation. It's communications DLL is required.

2.0 Installation Procedure

2.1 Invoking Program

At a DOS prompt or if a shortcut was made, invoke the sh2boot.exe program. The following will appear:
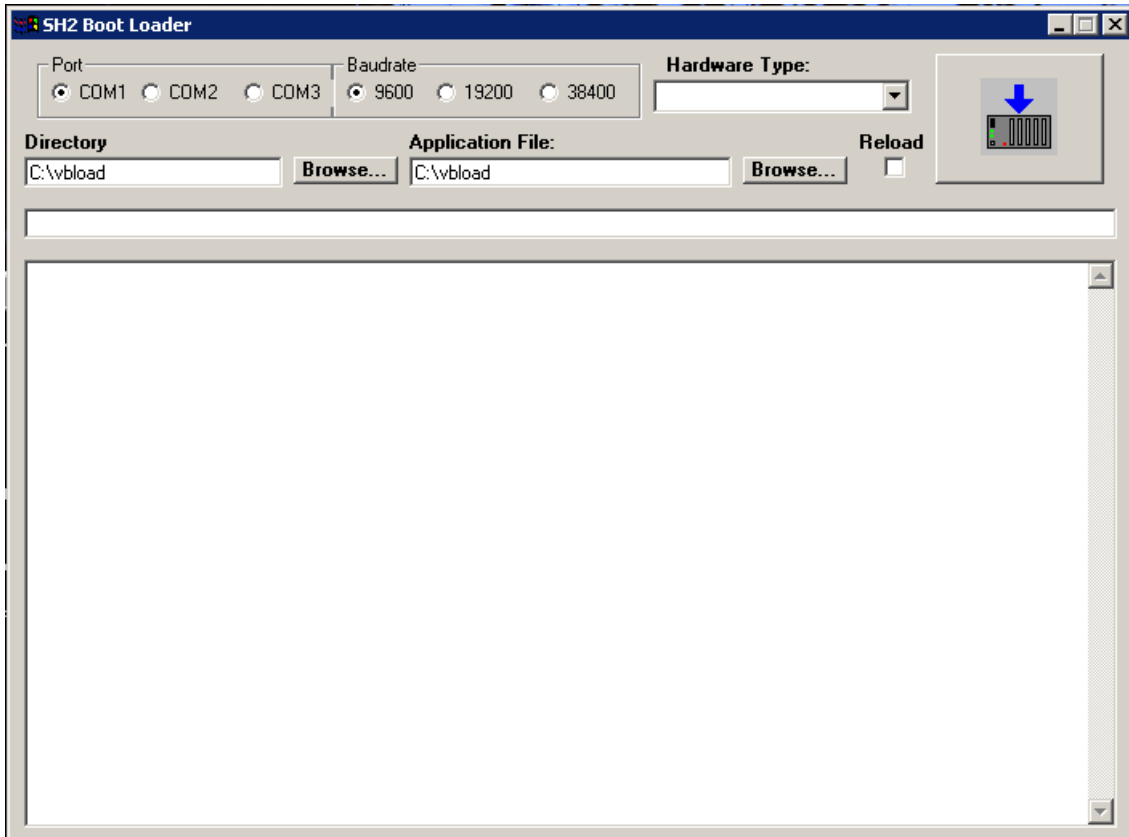
On the controller, turn the unit off and move the W1 jumper to PROC position, pin closest to the communications connectors should now be vacant. Power the unit up and the POWER LED should be lit and FAULT LED dim. Make sure COM1 of the controller is connected to the serial port on your PC.
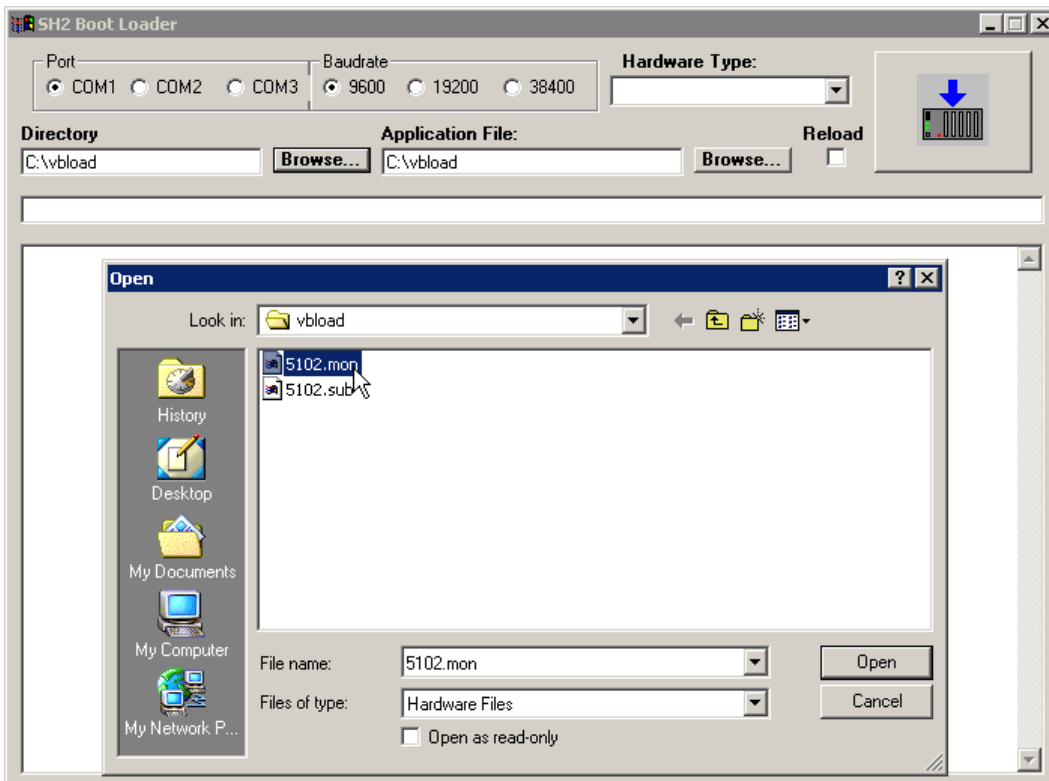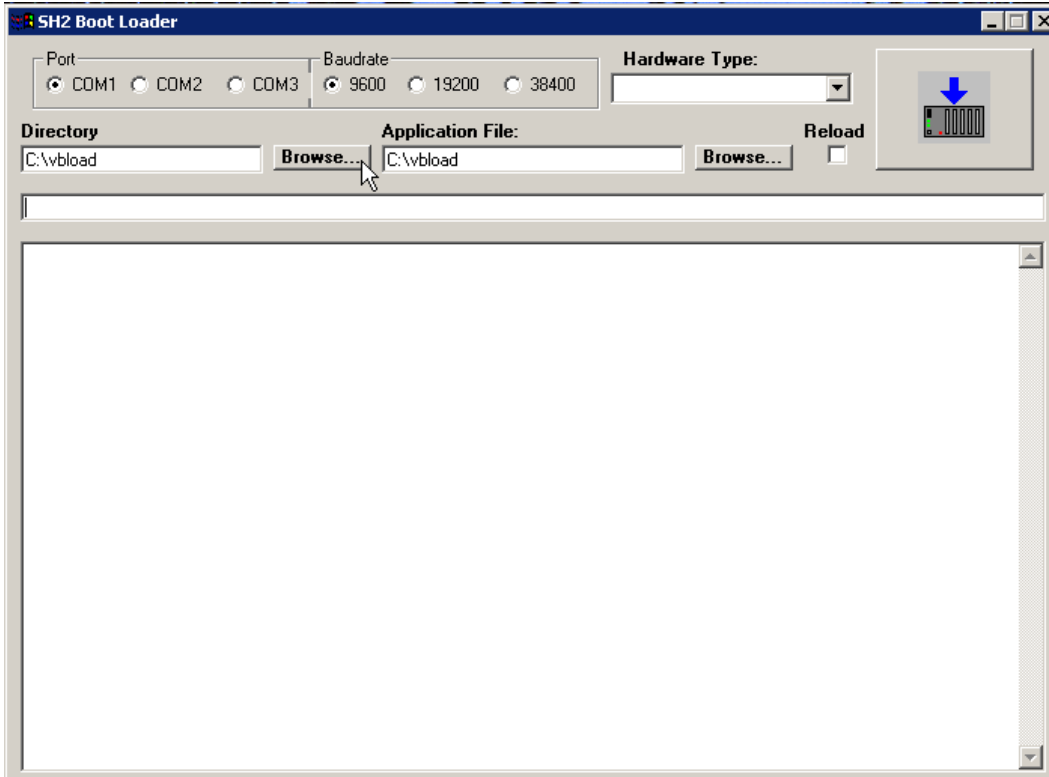
Before (normal operation):

After (PROC position, loading bootloader):

It is important to do the following in sequence otherwise the application file will not load properly. The full update will take about 15 minutes:

1. Using the Directory Browse button, select the 5102.mon file.

2. Select the "Hardware Type" to be 5102, if not already set.
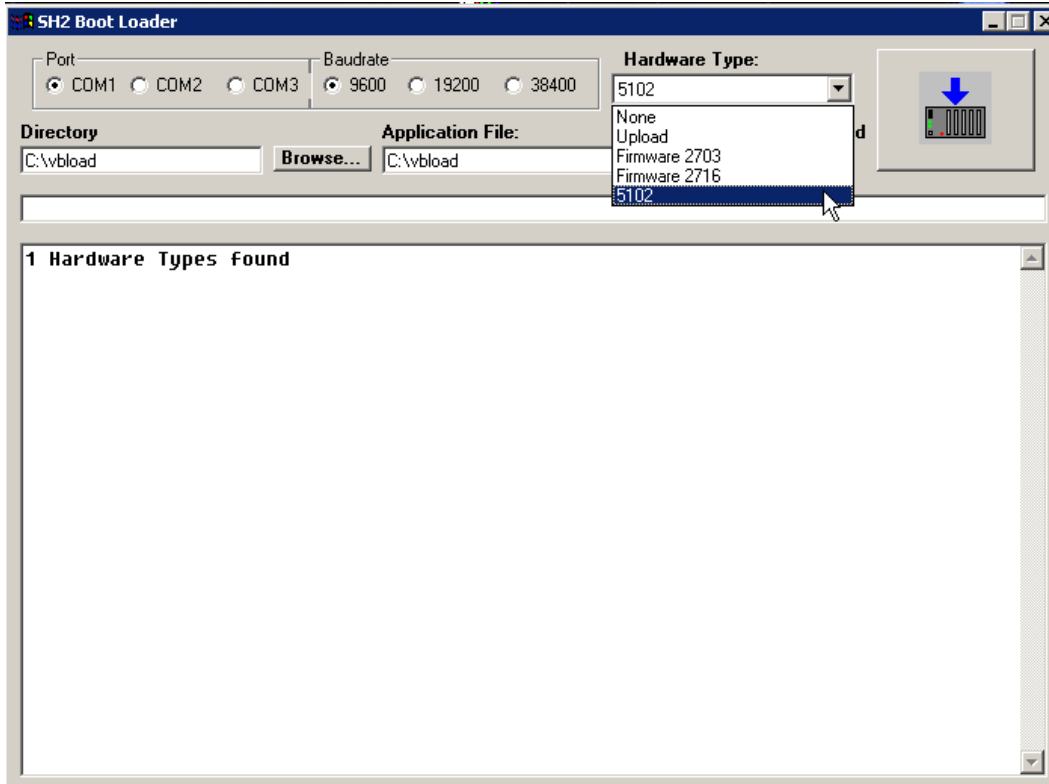
3. Select the "Application File" LAN5102.sr1 or BF5100######.sr1 (where ######
    is the revision level of the firmware) using the Application file Browse button.
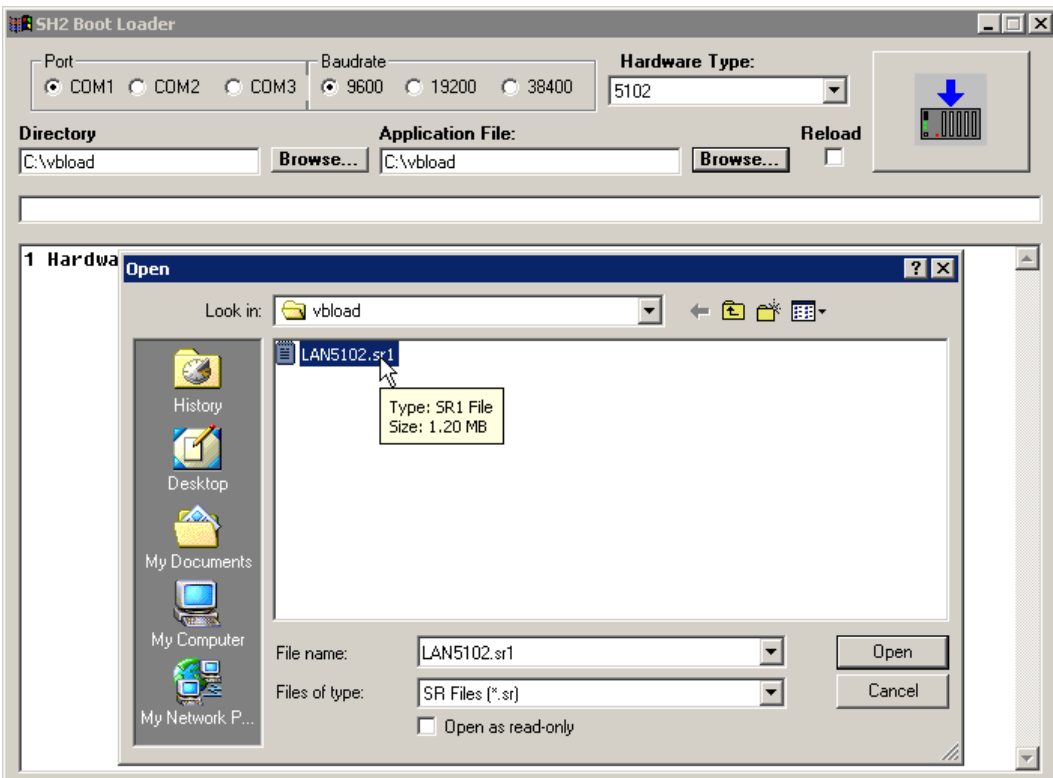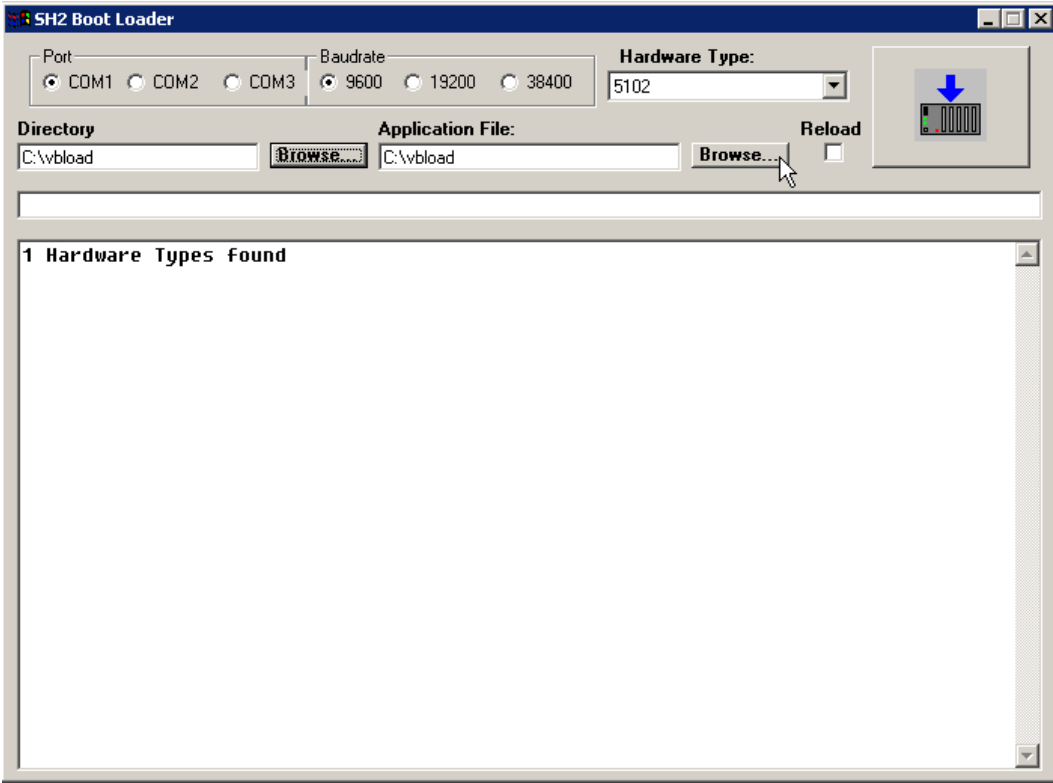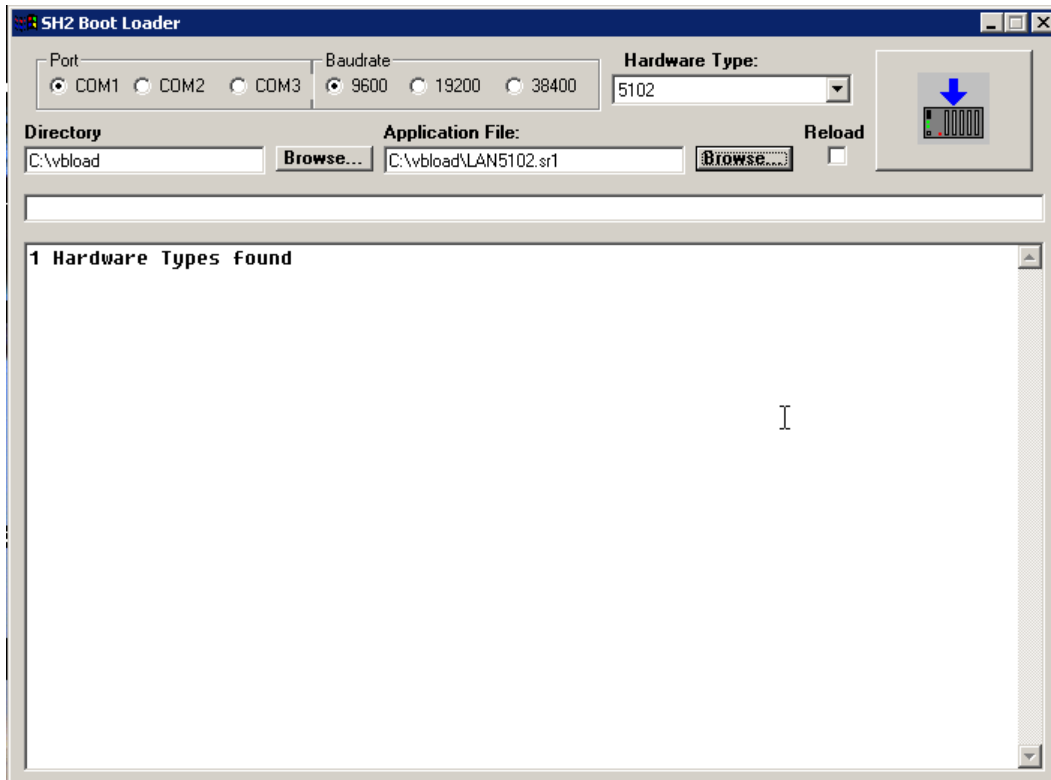
2.2 Starting Download

With the controller powered on press the big button with the blue down arrow:
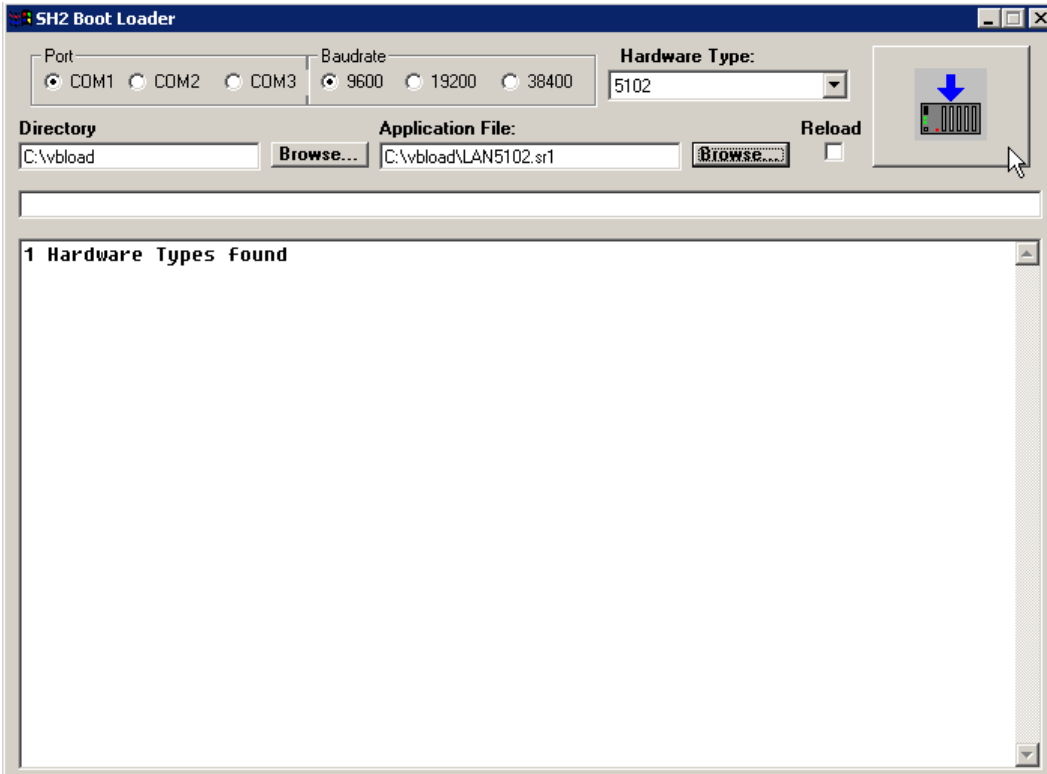
To initiate the transfer press the OK button, ignore the comment about COM2.
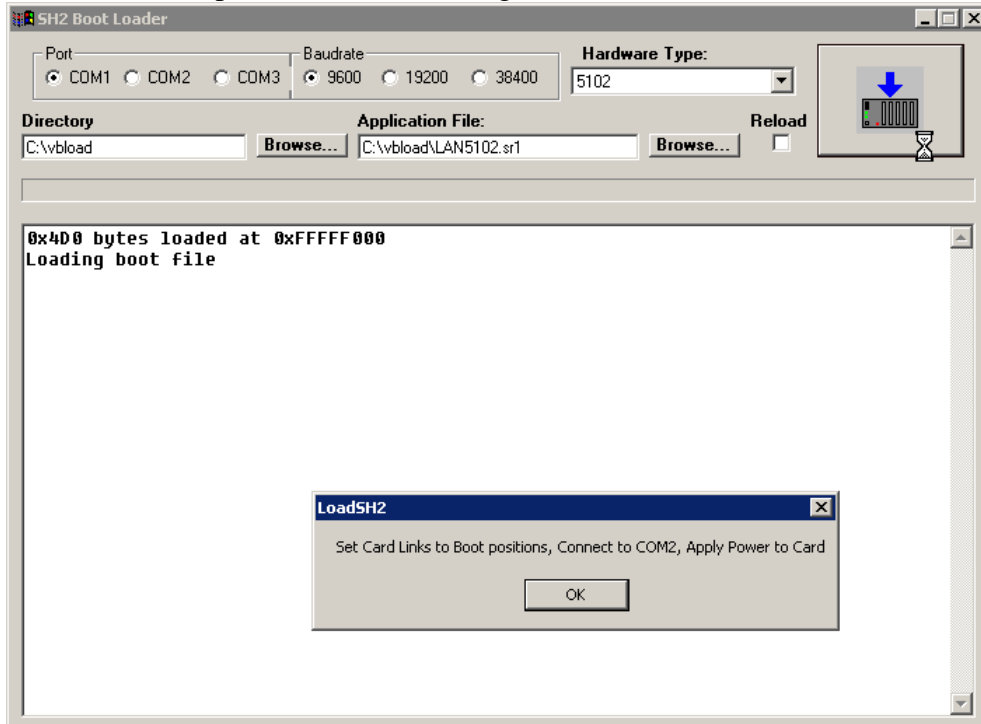
After initial loading a prompt for Serial number and Ethernet Address will appear. The Ethernet Address is really the MAC Address. Use the serial number from the bar-coded label on the main board. It will appear something like SN100-52801, use the numeric portion only:
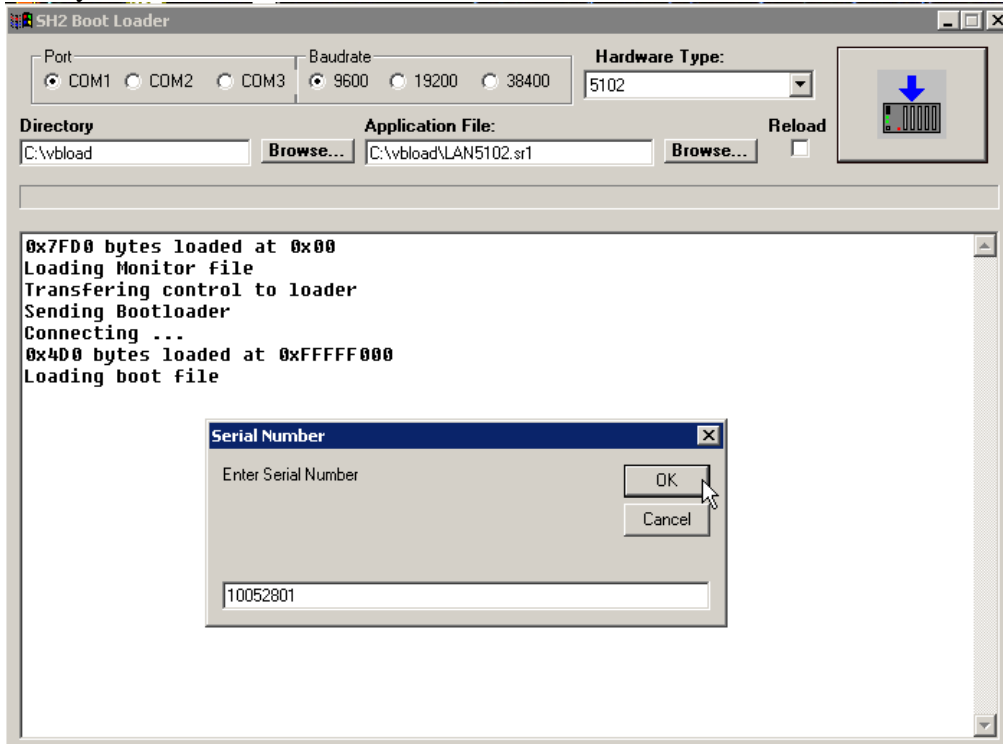
After entering the Serial Number you are prompted for the Ethernet Address (MAC):

The monitor will initially load, execute and then the application is loaded, taking about 15 minutes. When finished the following will appear. Although the controller is now operational, please move the jumper back to the original position (W1-run) and cycle power.

```
SH2 Boot Loader                                                    _ □ ×
Port                  Baudrate           Hardware Type:
 ⊙ COM1 ○ COM2 ○ COM3  ○ 9600 ⊙ 19200 ○ 38400  5102          ▼        ↓
Directory                    Application File:              Reload
C:\vbload         Browse...  C:\vbload\LAN5102.sr1  Browse...  □

┌──────────────────────────────────────────────────────────────────┐
│00400000Write Boot 0001fff0: 00008000 0045ddd7 023a697b 00400000 Int. Flash Done│
│Data at 0045ddd3                                                     │
│Memory 3 data for LAN5102.sr1                                        │
│Clearing Flash from 0001fff0 length 00000010 Successful             │
│Internal Flash Specified                                            │
│Clear Boot                                                          │
│Clearing Flash from 00450000 length 00010000 OK                    │
│Clearing Flash from 00440000 length 00010000 OK                    │
│Clearing Flash from 00430000 length 00010000 OK                    │
│Clearing Flash from 00420000 length 00010000 OK                    │
│Clearing Flash from 00410000 length 00010000 OK                    │
│Clearing Flash from 0040e000 length 00002000 OK                    │
│Clearing Flash from 0040c000 length 00002000 OK                    │
│Clearing Flash from 0040a000 length 00002000 OK                    │
│Clearing Flash from 00408000 length 00002000 OK                    │
│Clearing Flash from 00406000 length 00002000 OK                    │
│Clearing Flash from 00404000 length 00002000 OK                    │
│Clearing Flash from 00402000 length 00002000 OK                    │
│Clearing Flash from 00400000 length 00002000 OK                    │
│Pgm at 00400000 to 0045ddd8, boot at 0001fff0                      │
│Memory 2 data for LAN5102.sr1                                        │
│No boot length 00000010                                             │
└──────────────────────────────────────────────────────────────────┘
```
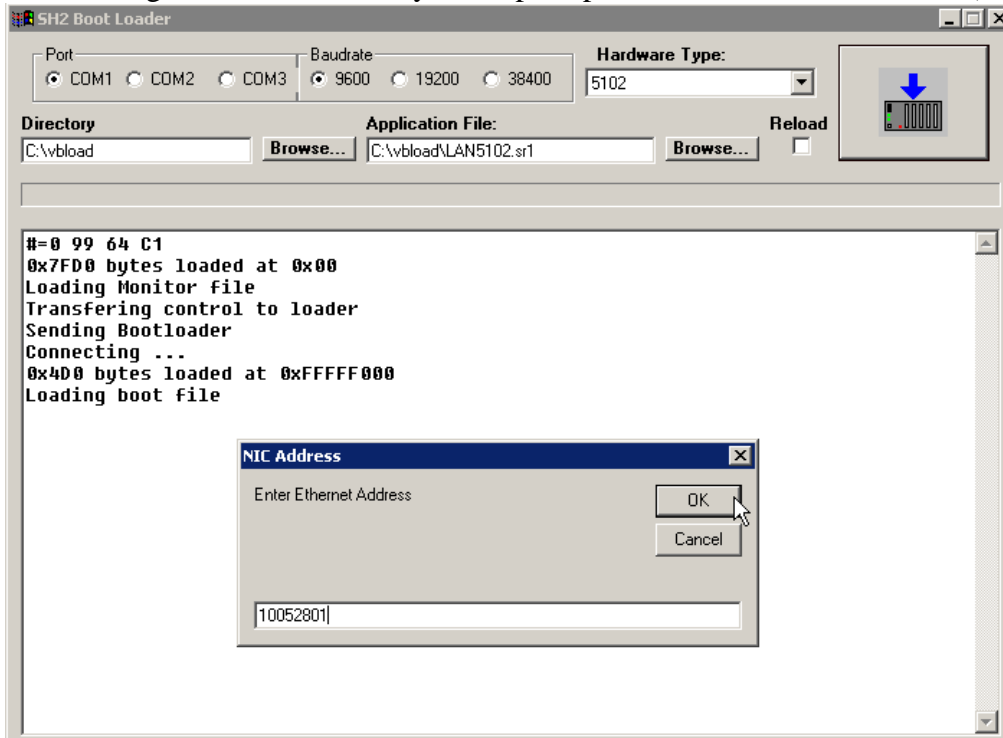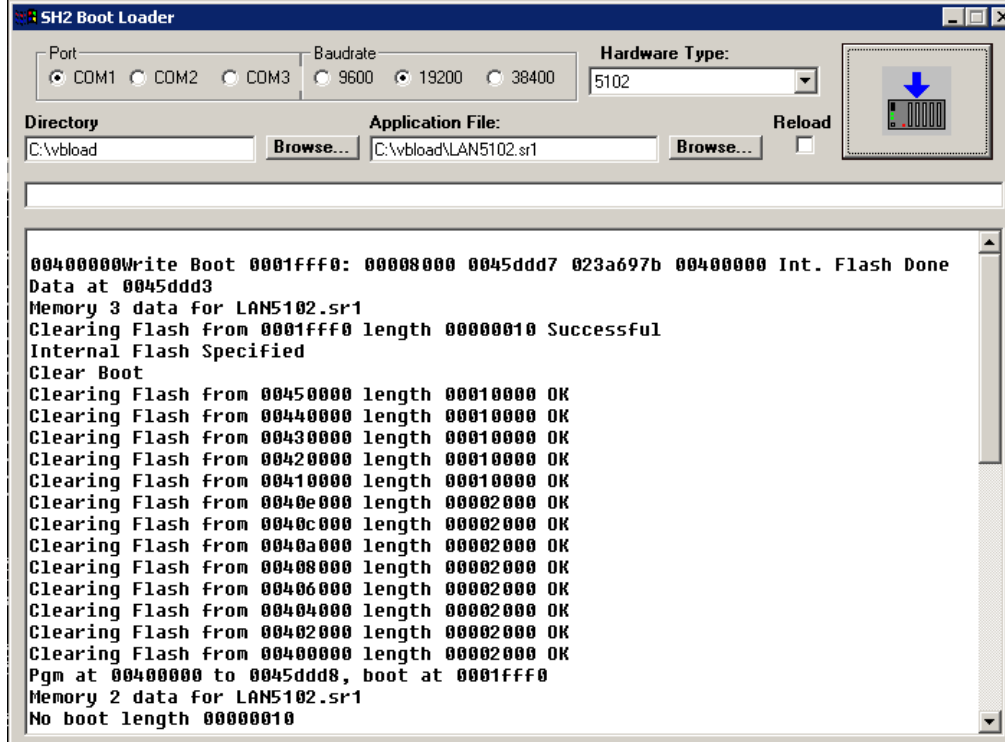
2.3 Completion

Using the serial port and CTCMON, the IP address information will have to be re-entered if DHCP is not being used (registers 20048… remember to write a 1 to the 20096 register for changes to take effect), cycle power once again. Now update the communications processor and any analog or motion modules with their proper firmware, via ftp and telnet if required. Detailed instructions for this may be found in the *Model 5100 Remote Administration Guide (Document 951-510001)*.