

# Software upgrade instructions

## Bootloader

All Multivision's modules and cards include a bootloader software. The user application can be loaded to the card using the bootloader. There are different ways to enter the bootloader mode in different boards. See table 1 for a correct method for the board you are programming.

Table 1

Product	Method
MVINC-CO-1	1
MVINC-CO-2	
MVRES-CO	
MVMIO24-CO	
MVDIO32-CO	
MVLRX	2
MVLLD	
MVCANGW	

## Method 1

1. Connect RS-232 cable between the module and a PC.
2. Start a terminal program on the PC. We use a terminal program named Tera Term Pro, which you can download from web for free (<http://hp.vector.co.jp/authors/VA002416/teraterm.html>). Hyperterminal is not very good terminal for this application but it works somehow.
3. Set terminal settings to following:

Baud rate	9600
Data bits	8
Paritys	none
Stop bits	1
Handshaking	XON/XOFF

NOTE: it's essential for the bootloader that XON/XOFF- handshaking is used, because the bootloader uses it for serial buffer handling.

4. Set jumper to bootloader jumper. See usermanual for the jumper location. There are two ways to enter the bootloader:
  1. Set jumper...
  2. power up the board.  
Enter the following command to the terminal screen:  
#SG! <Enter>
5. Connect power to the card. The terminal screen should now show up the following menu:

---

```
68HC08AZ60 bootloader V0.9
Tampere Multivisions Oy 1999
```

```
d- Download program
e- Erase FLASH
g- Execute application
```

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Enter command:

6. Erase FLASH memory with command“e” (by pressing key“e ” on the keyboard). After the module prints that erase is DONE and the bootloader menu becomes visible again, switch power OFF and ON again.
7. Start program downloading with command“d” . Send the new application software to the card with the terminal program's text file transfer function (for example, in Tera Term Pro, the “File” -> “Send file” menu option). The application file format is Motorola S19 format, which means that the file is a text file with an ending of **.S19** (for example, for DIO8 module, file name is “dio8.s19”).
8. Program loading takes about 3 to 5 minutes depending on the file size. When the program is loaded (the bootloader menu appears again), please turn power OFF and ON once more. After that the program is ready to run.

## Method 2

1. Connect RS-232 cable between the module and a PC.
2. Start a terminal...
3. Set terminal settings to following:  
Baud rate: 115200
4. Press and hold keyboard key“d” and turn ON the power to the board. The following text appears on the terminal screen:  
  

```
Send S19-file...
```
5. Send the new program file using terminal software's text file transfer (for example, in Tera Term, select “File” ->“Send file” menu to select the download file.
6. The download takes only about 5-10 seconds depending on the file size. When the download finishes, power OFF and ON the board, and the new application starts.