SDR2GO Boot Loader Details
The Microchip dsPIC boot loader has been modified to place a boot loader in flash memory from 0x15000 to 0x157FE. The application code and boot loader code are installed in isolated memory segments.

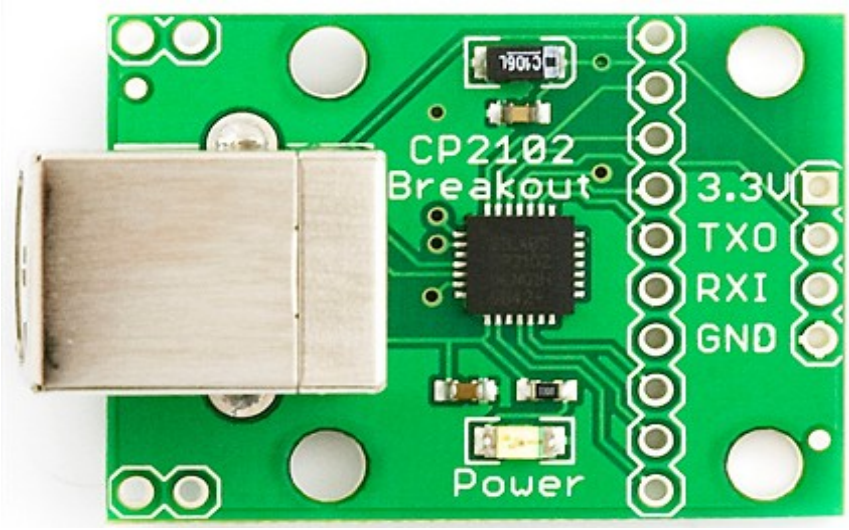
A boot time delay parameter (currently set for 10 seconds) is programmed into memory location 0x15000. Therefore boot loader code starts at memory location 0x15002.

Using the Boot Loader to Program the SDR2GO dsPIC
1) Connect a USB to **3 volt** TTL UART adapter such as the Sparkfun CP2102 (https://www.sparkfun.com/products/198) between a PC USB port and the UART connector on the SDR2GO.

Do NOT use a traditional RS232 interface which has +- 15 volt signal levels.

The connections are as follows:

J15 - Pin 1a to UART RXI
J15 - Pin 2a to UART TXO
J15 - Pin 1b to UART GND

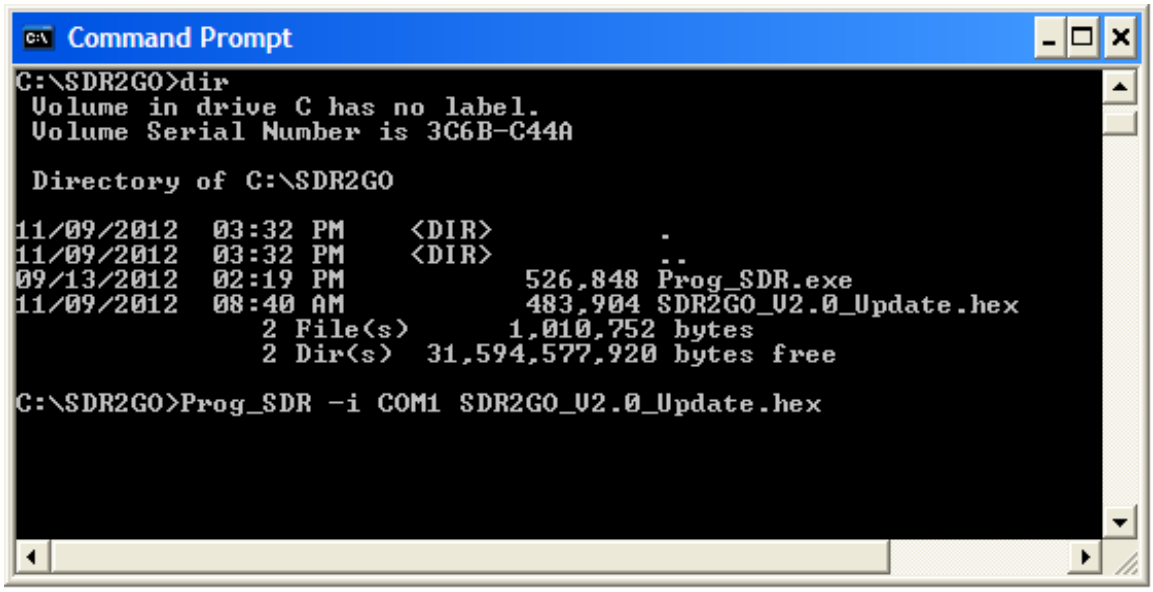


After installing the required driver, use Control Panel and Device Manager to identify the name of the UART port such as COM1.

2) An executable entitled Prog_SDR.exe may be downloaded from the AQRP website along with the current code revision file. Place both files in a directory on your C: drive such as SDR2GO.

3) Open a Command Prompt Window on your PC and navigate to the directory where Prog_SDR.exe file is located. For this example the directory is SDR2GO and the code revision file is SDR2GO_V2.0_Update.hex and the UART port is COM1.

Type in Prog_SDR -i COM1 SDR2GOV2.0_Update.hex but do not press enter. See screen shot below:



4) Press the Encoder#2 Select button on the SDR2GO, while powering your unit on. A static SDR2GO display will be seen. You have ten seconds to start the boot loader.

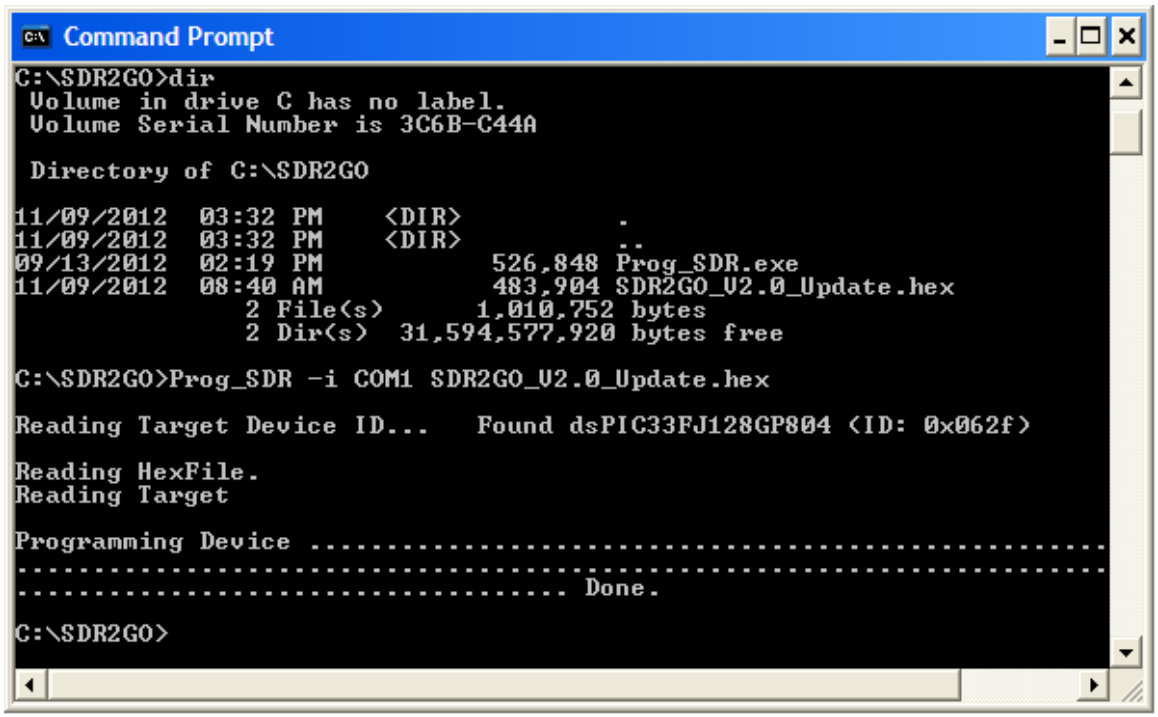
If you do not initiate firmware transfer from the PC to the SDR2GO within 10 seconds, the SDR2GO will abort the boot loader and immediately start running the existing SDR2GO code.

5) Press the Return key on the PC keyboard to launch the command in 3) above.

5) The PC display should indicate “Reading Target Device ID…Found dsPIC33FJ128GP804 (ID: 0x062F)

6) The PC screen should display a series of dots (periods) indicating progress in writing the hex file to the SDR2GO. When dots stop appearing, the SDR2GO should reset and start normal operation.

Please see the screen shot below which shows a successful download via the Boot Loader:



Using the Boot Loader to Read dsPIC Memory

1) Connect a USB to TTL UART adapter a PC USB port and the UART connector on the SDR2GO as described above.

2) Open a Command Prompt Window on your PC and navigate to the directory when Prog_SDR is located. For this example, memory above 0x015000 is to be read. Type in the command as shown below but do not press enter.

Prog_SDR –i COM1 -p 0x015000

3) Press the Encoder Select button on the SDR2GO, while powering the unit on.

4) Press the Return key on the PC keyboard to launch the command in 2) above.

5) The PC display should indicate “Reading Target Device ID…Found dsPIC33FJ128GP804 (ID: 0x062F)

6) The PC display should then the contents of the dsPIC memory containing the boot loader code beginning at address 0x15000. The first address should contain 0x00000a, which is the boot loader time out value (10 seconds).

7) Different areas of dsPIC flash memory can be read out by changing 0x015000 to the start of the desired block of memory (e.g. 0x000400 for the start of SDR2GO code).