

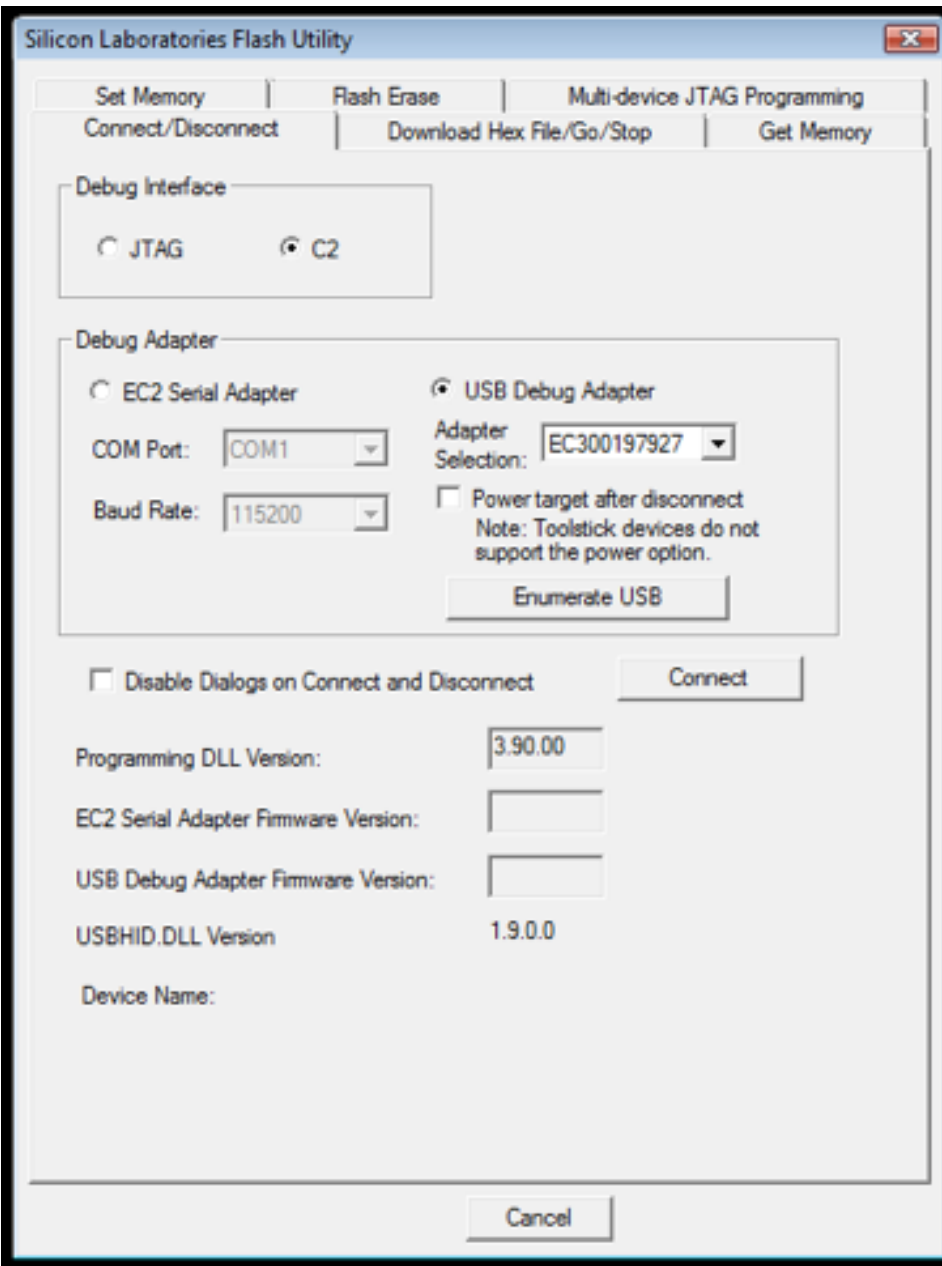
# **Flashing the YaRL Bootloader and Firmware - Windows instructions.**

## **Starting the Silicon Labs Flash Utility**

First, obtain the Flash Utility from <http://www.silabs.com/products/mcu/Pages/FlashProgrammingUtilities.aspx>

Attach the Silicon Labs USB programmer to the PC and launch the Flash Utility (the programmer must be connected before the flash utility is launched).

The utility should launch at the "Connect/Disconnect" tab, and it should have the following settings selected:



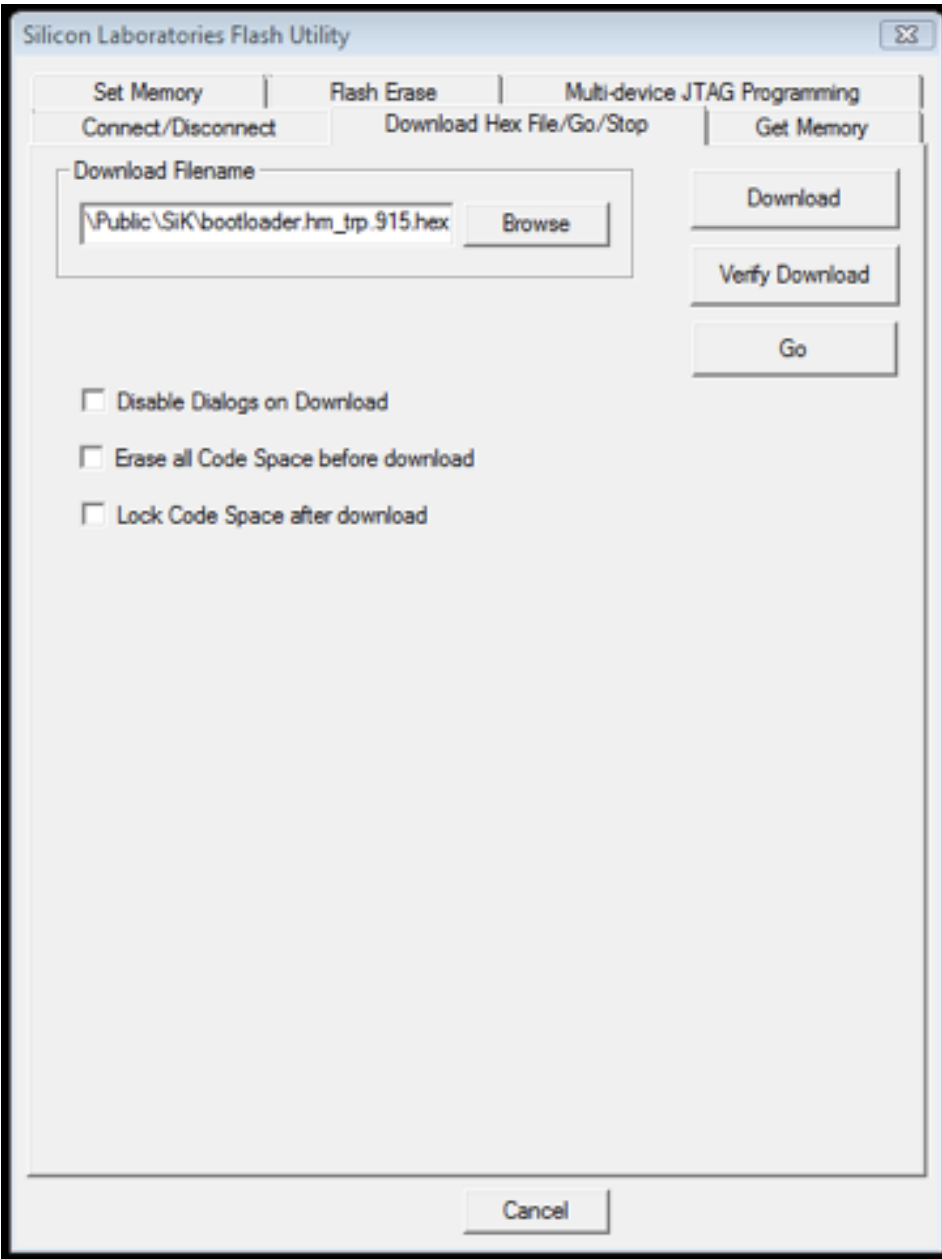
## Programming the Bootloader

Attach the programming cable to the HM-TRP module (it is probably best to do this before assembling it to the baseboard), and press the Connect button. You should be presented with a dialog saying "Connected" and a ding.

You can turn off these dialogs with the "Disable dialogs on Connect..." checkbox; might be nice for longer programming sessions.

Switch to the Download Hex File/Go/Stop tab and browse for the bootloader.hm\_trp.<frequency>.hex file. Depending on the modules you're

programming this will probably be bootloader.hm\_trp.915.hex. The programmer will remember the setting for multiple downloads.



Press the Download button and the bootloader will be programmed. Once programming has completed, you can disconnect the HM-TRP module and return to the "Attach the programming cable" step above to program another board.

### Testing the Bootloader

The best way to test the bootloader is with the Python-based command line utility. After a fresh programming of the bootloader, the board will be in bootloader mode

waiting for an application upload, and the red LED on the HM-TRP module should be lit.

Upload the application using:

```
> uploader.py --port <serial port name> radio.hm_trp.hex
```

Note that there is only one version of the radio application for all frequency configurations of the HM-TRP board.

The upload process should only take a couple of seconds, during which you will see the following printed to the console:

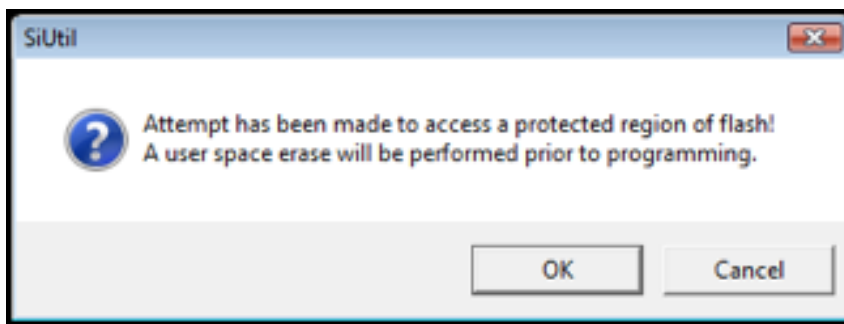
```
board 4e  freq 91  
erase...  
program...  
verify...  
done.
```

The freq value printed is the first two digits of the bootloader frequency; in the example here, 915MHz.

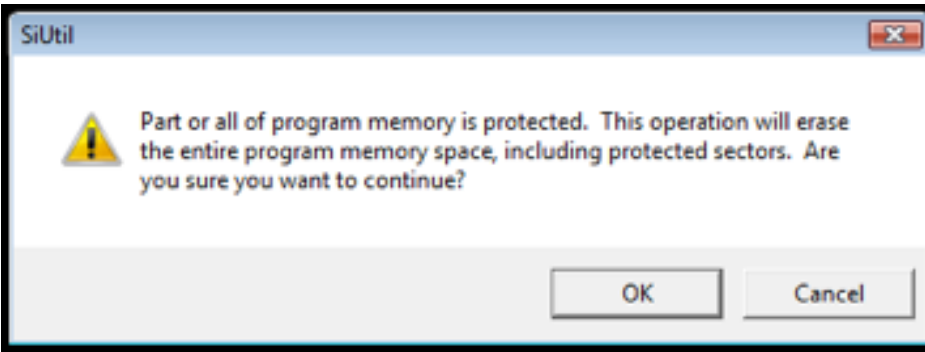
Note that the Silicon Labs Flash Utility cannot program the application, due to the protection scheme used to avoid overwriting the bootloader.

## Troubleshooting

If you're programming a board that has already been programmed, you will see this dialog:



And then this one:



And then the download will fail because the bootloader area is protected with extra special magic to reduce the risk of bricking the device.

You must select the Flash Erase tab, and press the Erase Code Space button, accepting the dialogs that are presented subsequently. This will completely erase the device and permit the bootloader to be reflashed.