

The first step is to install MPLAB; this should be relatively straight forward. Follow the on-screen installation instructions.

Next you need to copy the contents of the “MPLAB-AUTONOMOUS-CODE RevX.zip” file into: c:\mcc18\VexCode\
(Note: you may need to make a new directory)

Now open up MPLAB, and then open up the FVC competition workspace:

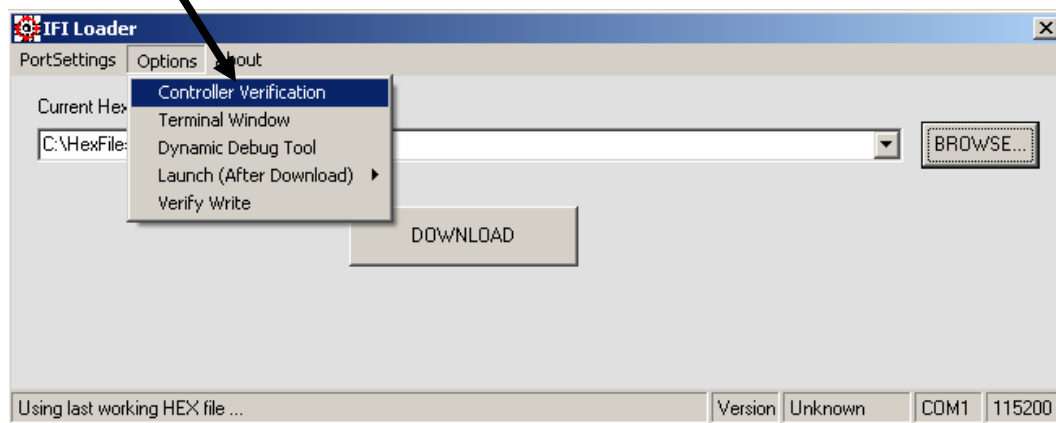
- Click “File” – “Open Workspace”
- Navigate to the “VexCode” directory
- Open “VexUserCode.mcw”

You are now in the necessary Vex workspace, and can proceed to the next step.

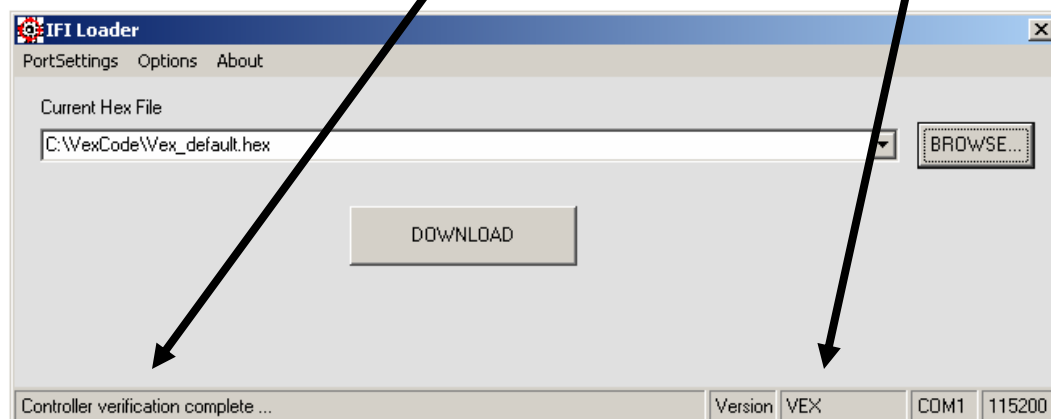
The next step is to update the master firmware in the Vex controller.

Install and open up the IFI_Loader and then see below for instructions on updating the firmware:

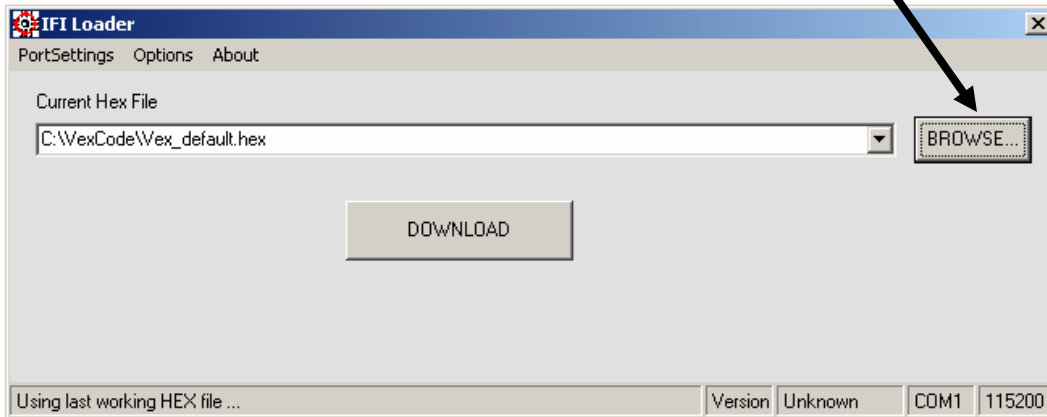
The **1st Step** is to make sure that the robot controller has been verified first. Make sure a serial cable has been attached from the PC to the programming board prior to this operation. The IFI-Loader supports many different robot controllers. The verification allows the Loader to select the appropriate protocol used during the download process. To do this click here. (This only needs to be done once).



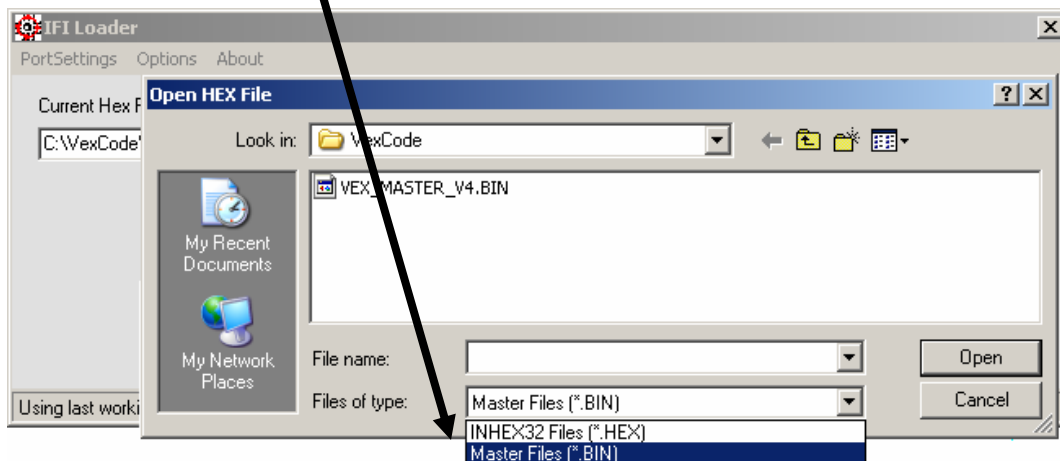
Now you should see 'Controller verification complete ...' on the lower left and 'VEX' in the lower right of the status window.



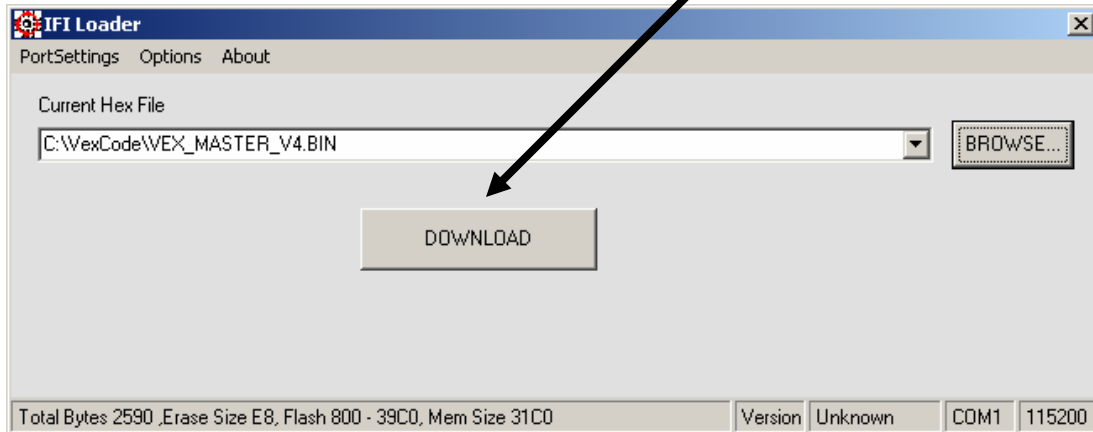
The **2nd Step** is to download the BIN file. To do this, click on the browse button.



Next, select "Master Files (*.BIN)" in the combo box.



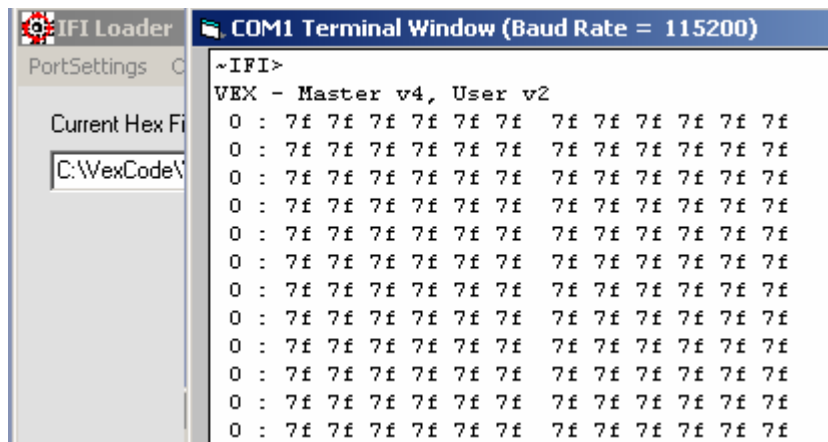
Once the appropriate BIN file has been selected, click on the DOWNLOAD button.



The **3rd Step** is to download the user code. Once the master firmware has been updated, the user code must be reloaded. In order to do this, repeat **Step 2**. Rather than selecting “Master Files (*.BIN)”, you must select the “INHEX32 Files (*.HEX)” option. After downloading the appropriate user code (file), the robot controller is ready for use.

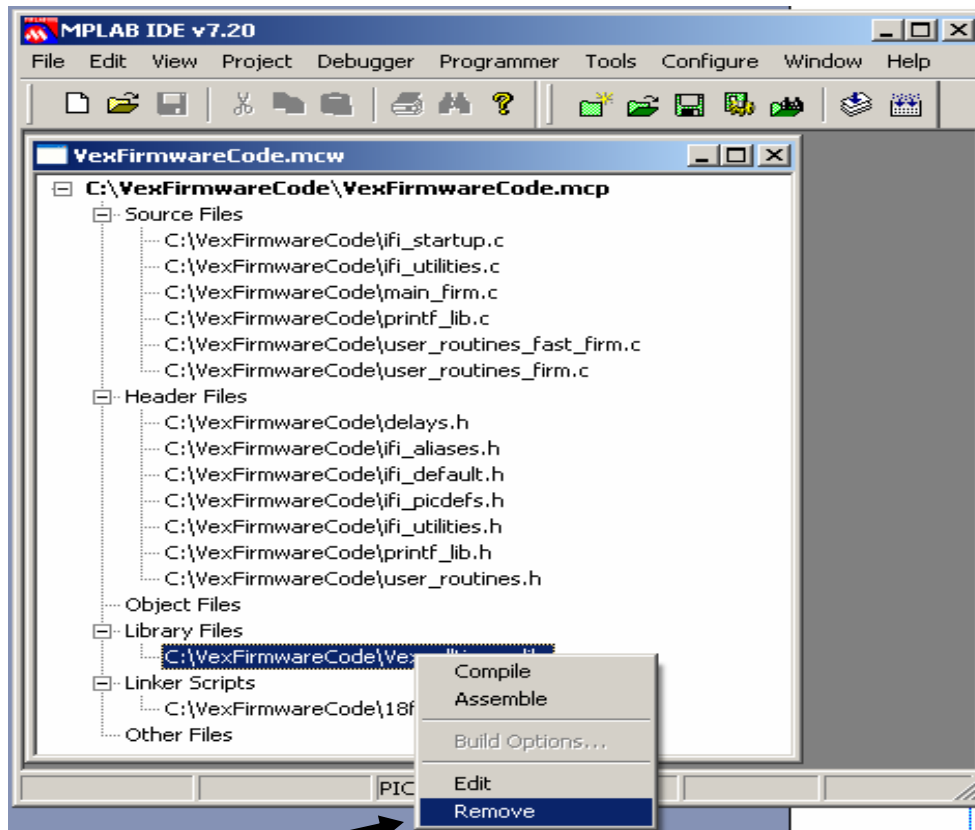
To verify that the master code and user code is downloaded correctly, make sure the RC is turned off then open the terminal window (from the options menu of the IFI Loader). Turn the RC unit on for a second then turn it off. On the terminal window, you should see the proper master version number and user version number (note: the user has the ability to change the user version number—the default is “User v2”).

Currently, the terminal window should display “Master v5” if the latest master file was downloaded correctly. “User v1” is the “out-of-the-box” default firmware.

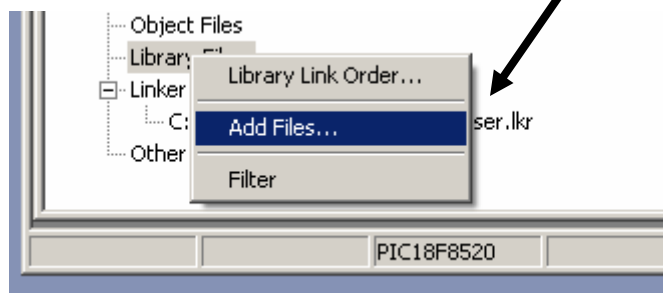


Once you have updated the Master firmware, you must also add the appropriate library to your project file.

To do this, do the following (assuming you know how to open your workspace):



Remove the current library, then select 'Library Files->Add Files...' (after selecting, - a right mouse click will bring up the sub-menu)



Once the appropriate library file has been selected and added to your project file, recompile the project then download the user code to your controller.

Your controller will run the autonomous section of code (located in the user_routines_fast_XXXX.c file) from **power-up along with a valid receiver signal**. The controllers' EYE will flash rapidly when autonomous mode is active.

When competing use :

'Vex_alltimers_wauton_jmpr.lib'
or
'Vex_library_wauton_jmpr.lib'.

These libraries use interrupt pin 6 to determine whether or not you want to run competition code. The autonomous duration is set for 20 seconds. The operator match duration is set for 2 minutes and 30 seconds. After the duration time expires, the user processor will halt until power has been recycled.

When debugging your autonomous code use:

'Vex_alltimers_auton_test.lib'
or
'Vex_library_auton_test.lib'.

Either library may be added to your project (via the former procedure) to enable autonomous testing. The debug libraries enable a user to put the controller in or out of autonomous mode. After reloading your user code, autonomous can be activated by pressing (then releasing) the top left button on the transmitter (channel 5). Autonomous mode is deactivated by pressing the top left button again. We recommend not using user related functions associated with this button while this library is intact. When the controller is in autonomous mode (using the button) the EYE will not flash rapidly since the user processor simulates the autonomous mode.

If you want to remove autonomous mode from your user code then replace the '...wauton_jmpr.lib' (or the '...auton_test.lib') library file with 'Vex_alltimers.lib' or 'Vex_library.lib'. Once this is done, recompile your project then redownload your user code.

The README.txt file (located in the project directory) contains information about the latter libraries.

Once the correct libraries are loaded into the project, you can begin programming as normal. You can then download your code into the Vex robot using the IFI_Loader software.

When using this code for competition, place a jumper in Interrupt #6. When the Vex microcontroller receives signal from the Vex transmitter, the robot will run in autonomous mode for 20 seconds, then run in operator controlled mode for 2 minutes and 30 seconds. After this, the robot will be disabled until the power to the microcontroller is reset.

If there is no jumper in Interrupt #6, the Vex robot will run continuously in operator controlled mode (no autonomous, no disable timer).

For additional information & help concerning the C18 Compiler and MPLAB, refer to the MPLAB help files (included on the installation CD).

For additional information & help concerning C programming, refer to any C tutorial (online, textbook, etc).

For Official Vex Technical Support, refer to www.vexforum.com
Please note, the official Vex Tech Support can NOT help with programming questions.