# EasyC Version and FVC Template Information

This document is intended to provide assistance determining which version of EasyC you are using and whether the template and master code version are correct.

1 EasyC Version Information

If you are using EasyC, the first important step is to determine that you have the correct version. For the 2006 FVC season, you MUST use Easy V2.0 or higher.

2 Incorrect Version

EasyC V1.1 may not be used for the 2006 FVC competition. You can recognize this version easily from the splash screen that is displayed when EasyC starts up. The screen from version 1.1 is show below:
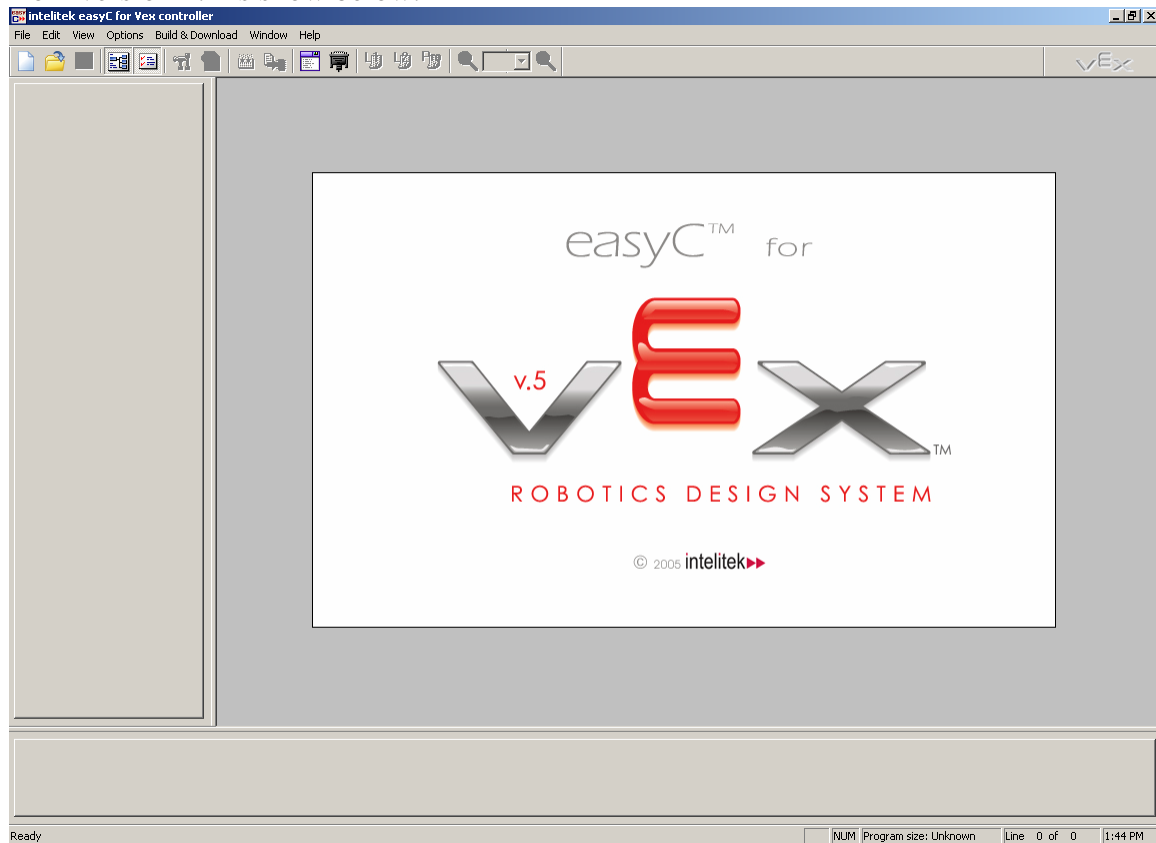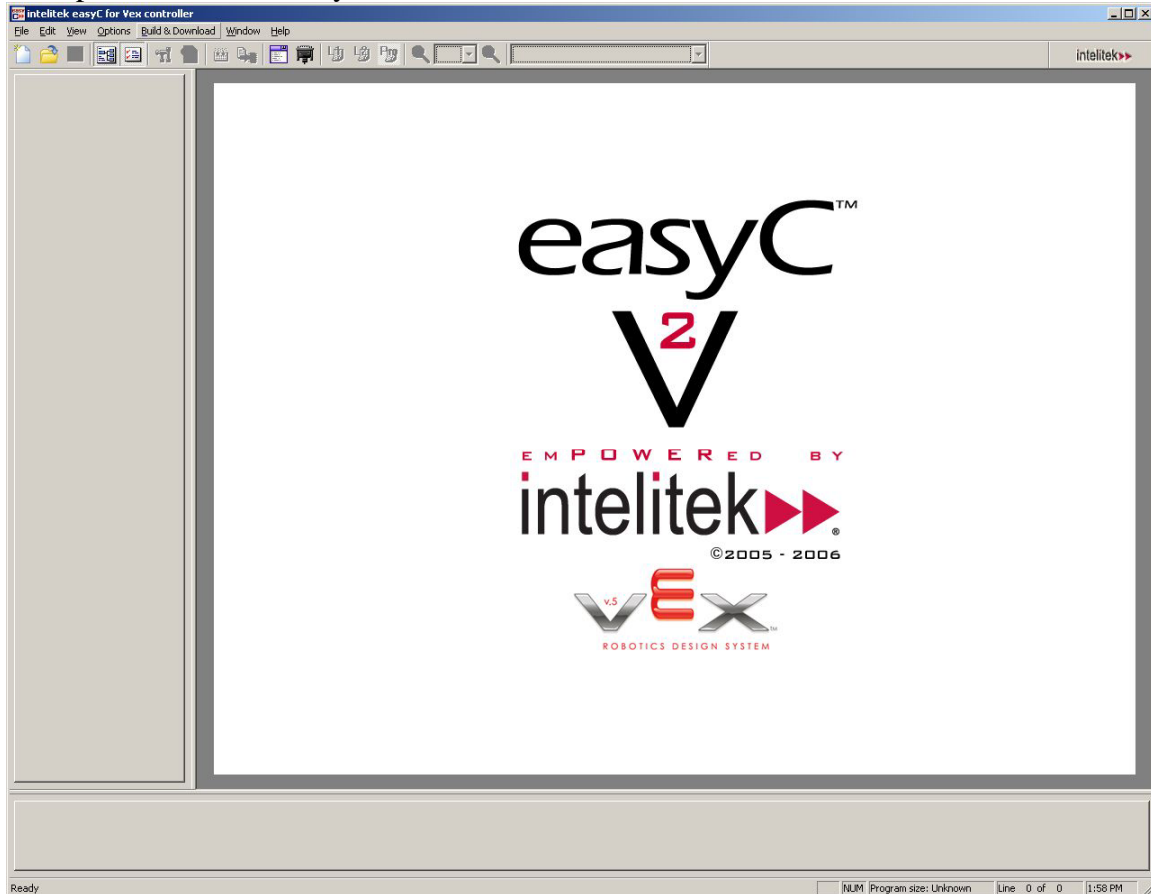

2.1 Correct Version

The correct version of EasyC is version 2.0 or higher. The possible versions are:
- EasyC v2.0 – initial release of EasyC version 2
- EasyC v2.7.0.2 – Loader enhancements and minor feature updates
- EasyC v2.8.0.1
    - Identical to v2.7.0.2 and adds:
        - FVC Competition Template
        - FVC Master Code v7

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■ Microchip C18 Compiler

If you have any version of EasyC v2, then the competition template will work and you can proceed. Note: If you own EasyC v2 but are not running v.2.8.0.1, you can upgrade to the latest version for free. Visit http://www.intelitekdownloads.com/FVC2006/ to get the upgrade.

The splash screen for EasyC v2 is shown below.

3 Master Code

FVC Robots must be updated to version 7 of the Vex Master Code. The master code is required so that the robot works correctly with the field controllers and the FVC Competition Template.

The master code can be downloaded from the FVC Competition Programming page, http://www.vexrobotics.com/programming/index.shtml.

3.1 Master Code Using EasyC

The master code v7 is included in EasyC Version 2.8.0.1. It can also be downloaded from the FVC programming page shown above.

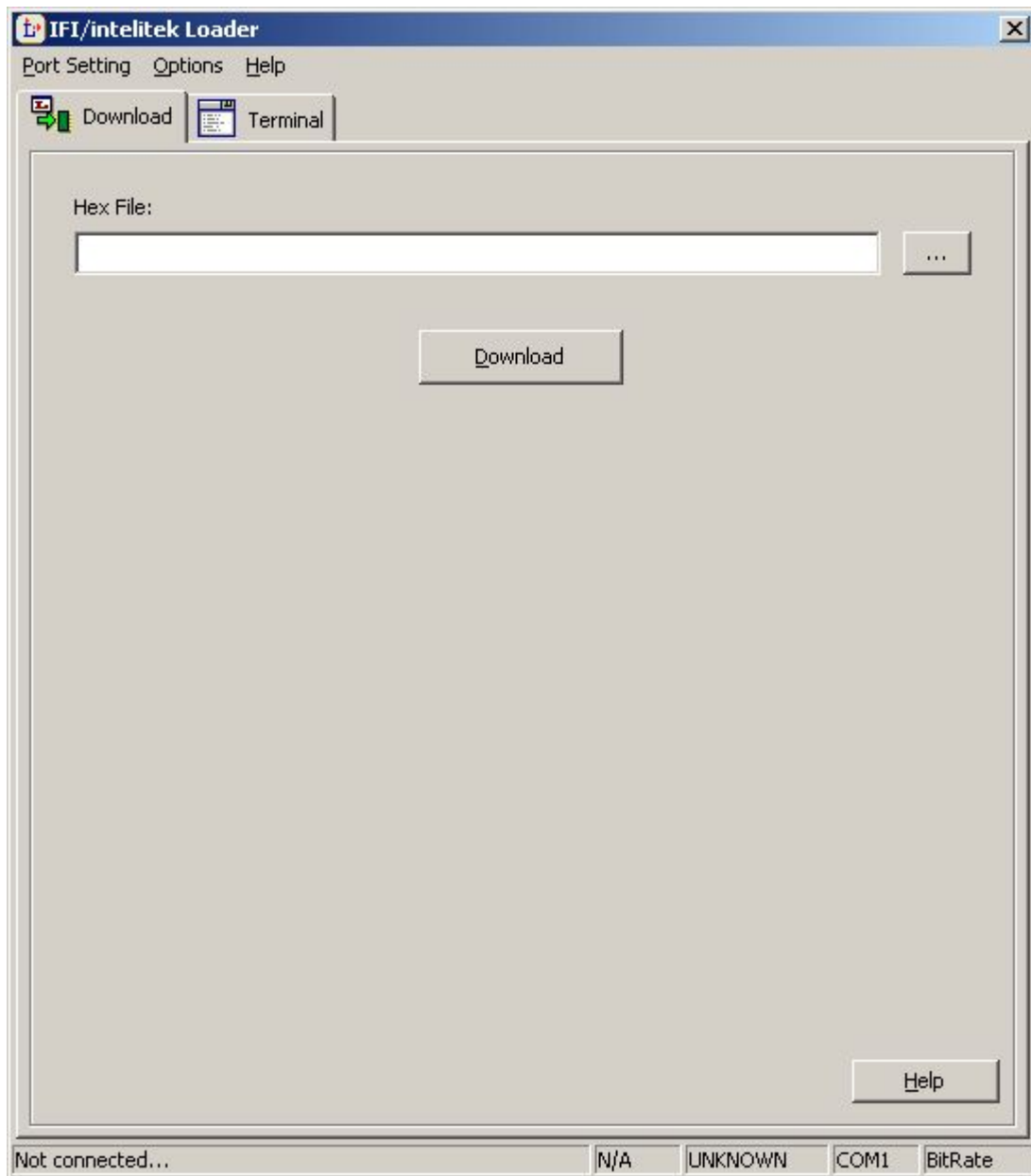To download the master code, perform the following:

1. Open Easy C
2. Open the "Build & Download" Menu. Select either:
   a. "Download Window…"
   b. "Terminal Window…"
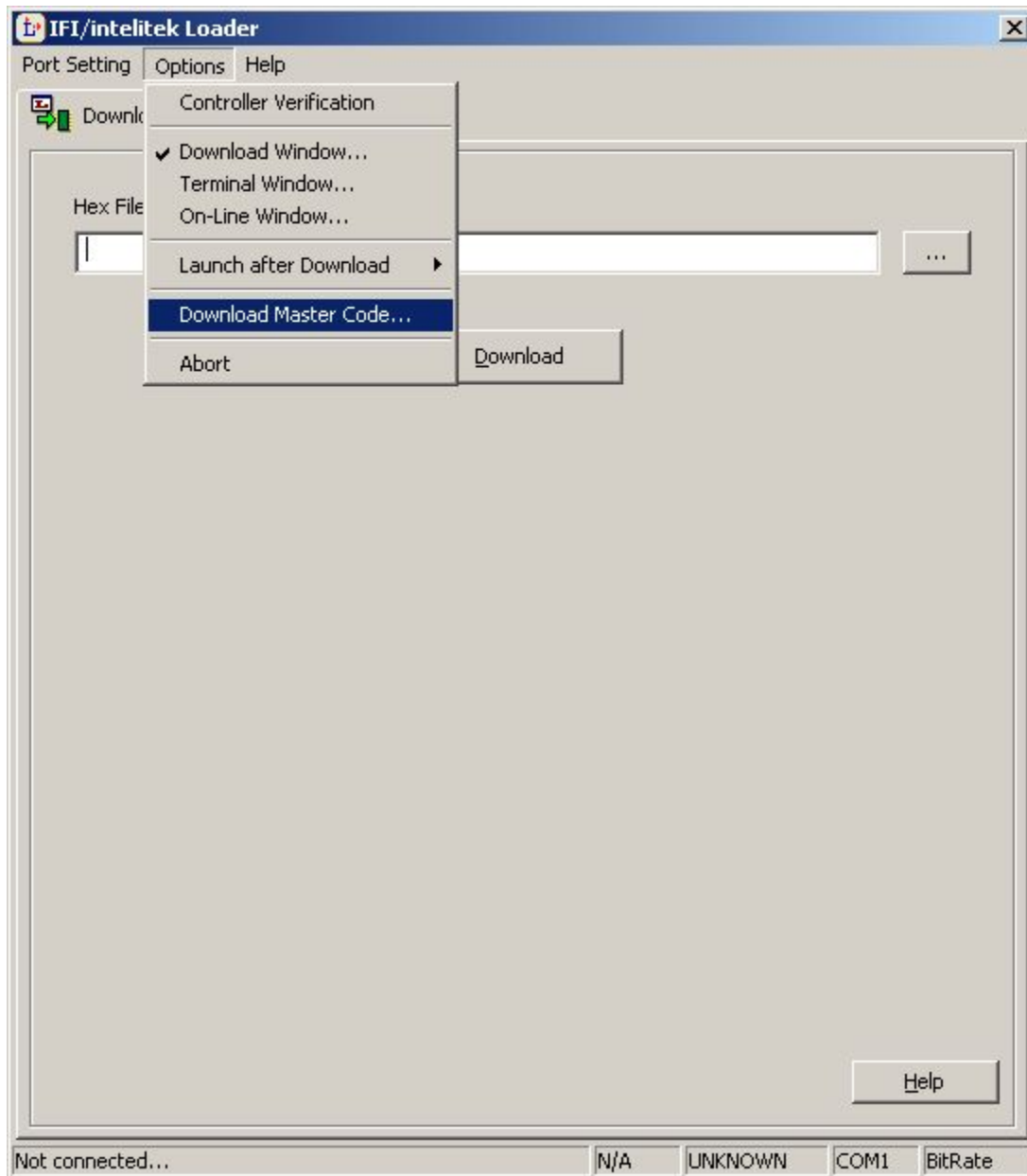   c. "On-Line Window…"
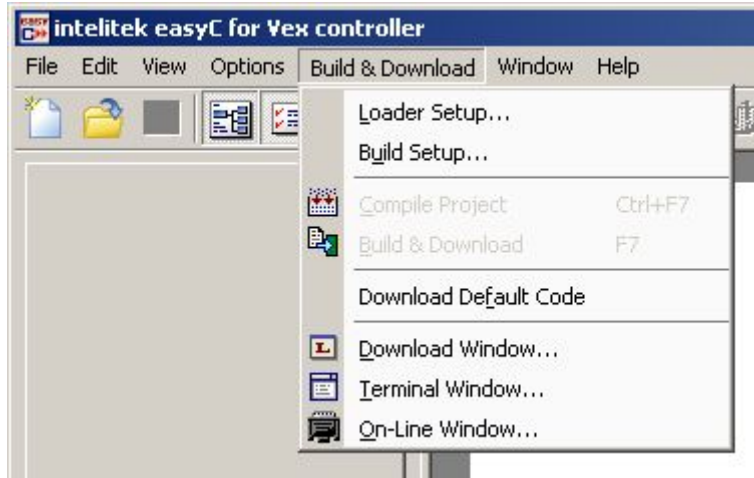
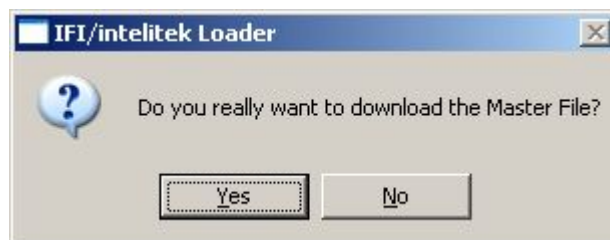3. Initially, you will see a warning message like the one shown below
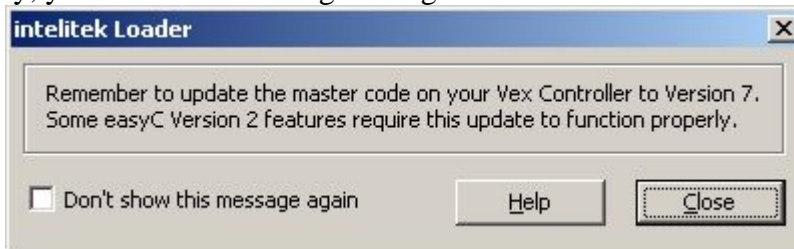
4. The IFI/Intelitek loader will open (show below on the Download Window tab)
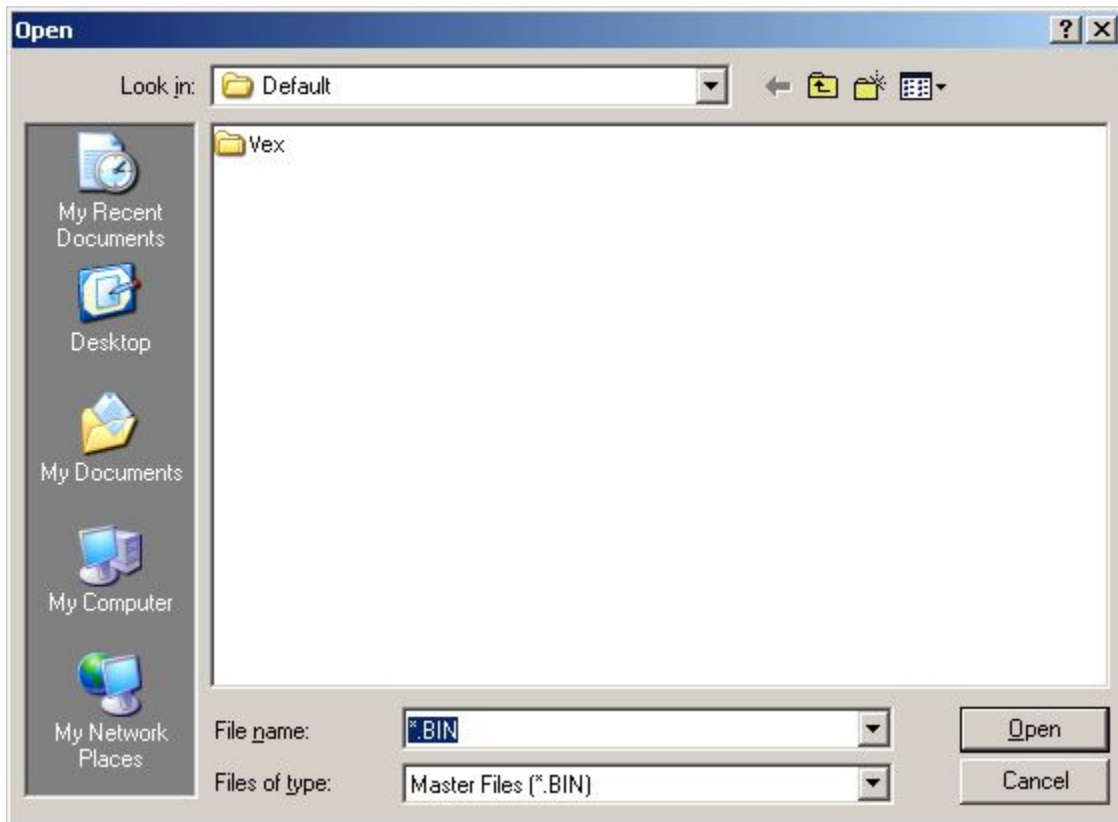
5. Select "Download Master Code…" from the "Options" menu.
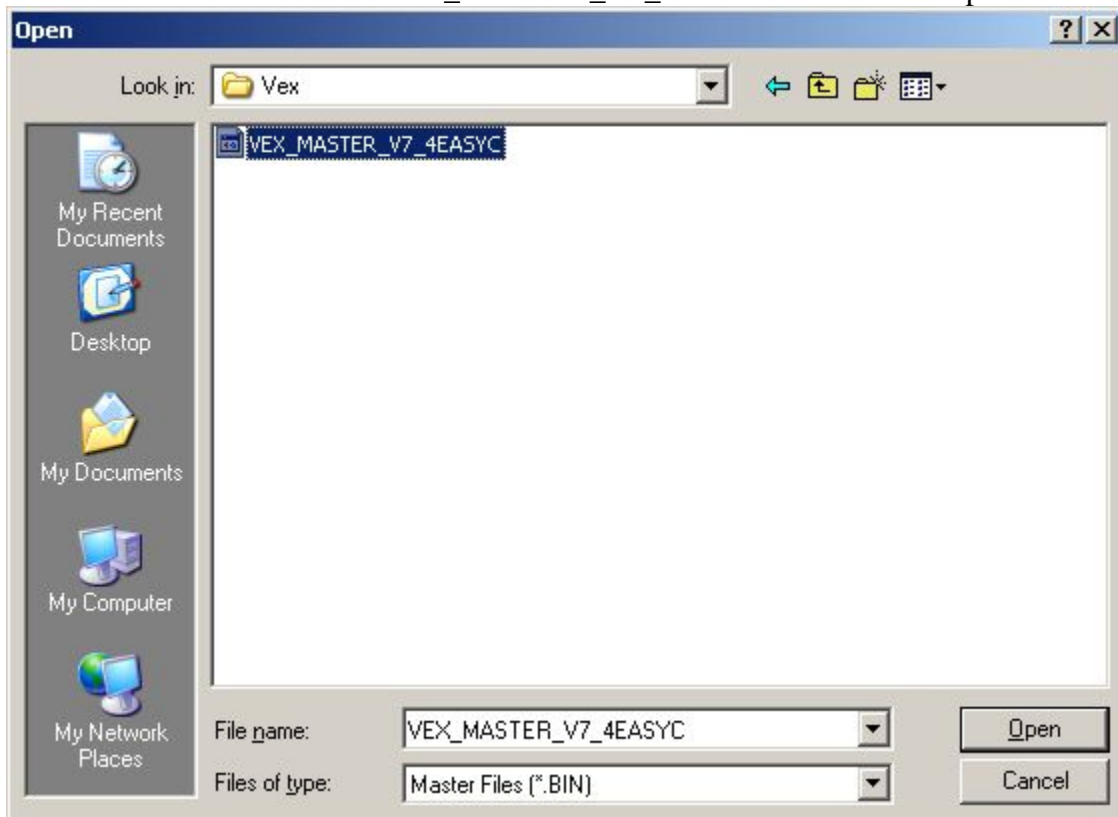
6. You will receive the warning below confirming that you want to download the master code.

7. The master code file is a directory labeled "Vex" as show below.

8. Double click on the "Vex" directory to open it.
9. Select the file named "VEX_MASTER_V7_4EASYC" and click "Open"

10. The Loader will let you know when the master code has been downloaded successfully. You will see the message indicated below.
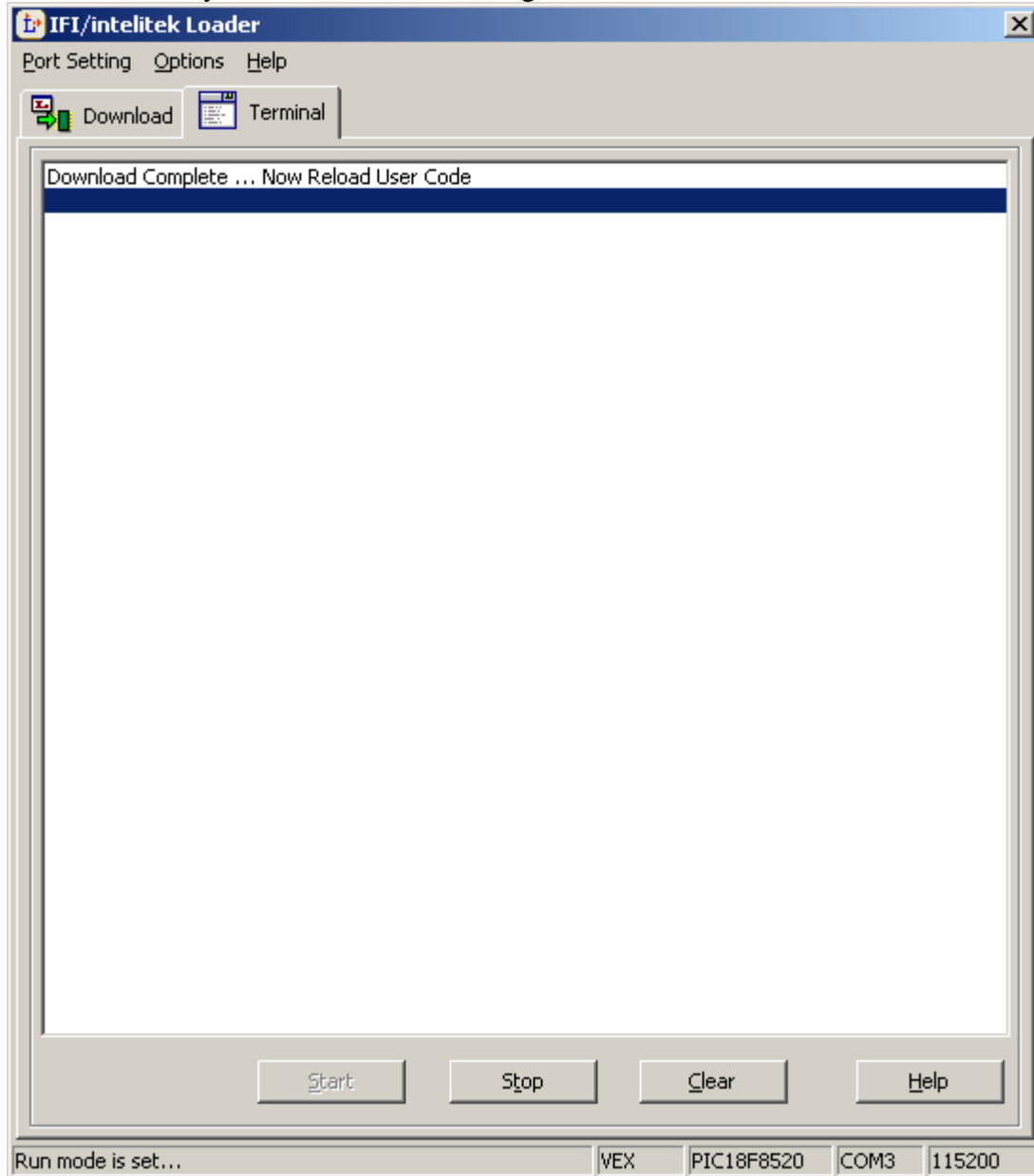
3.2 Master Code using MPLab

The master code is included as part of the FVC Competition Template for MPLab.

Instructions for downloading the master code can be found starting on page 2 of the "MPLAB 2006 FVC Programming Guide." It will require that you download and run the IFI Loader.

4 Competition Template

The competition template is a required tool for the *FIRST* Vex Challenge. The template allows the robot to run both the autonomous and operator controlled portion of the match. The competition template can be downloaded from the FVC Competition Programming page mentioned earlier.
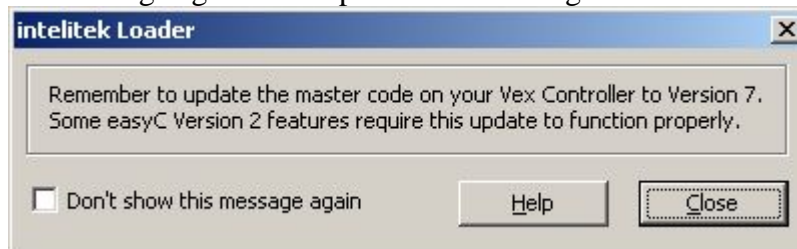
4.1 Verify the Template in EasyC

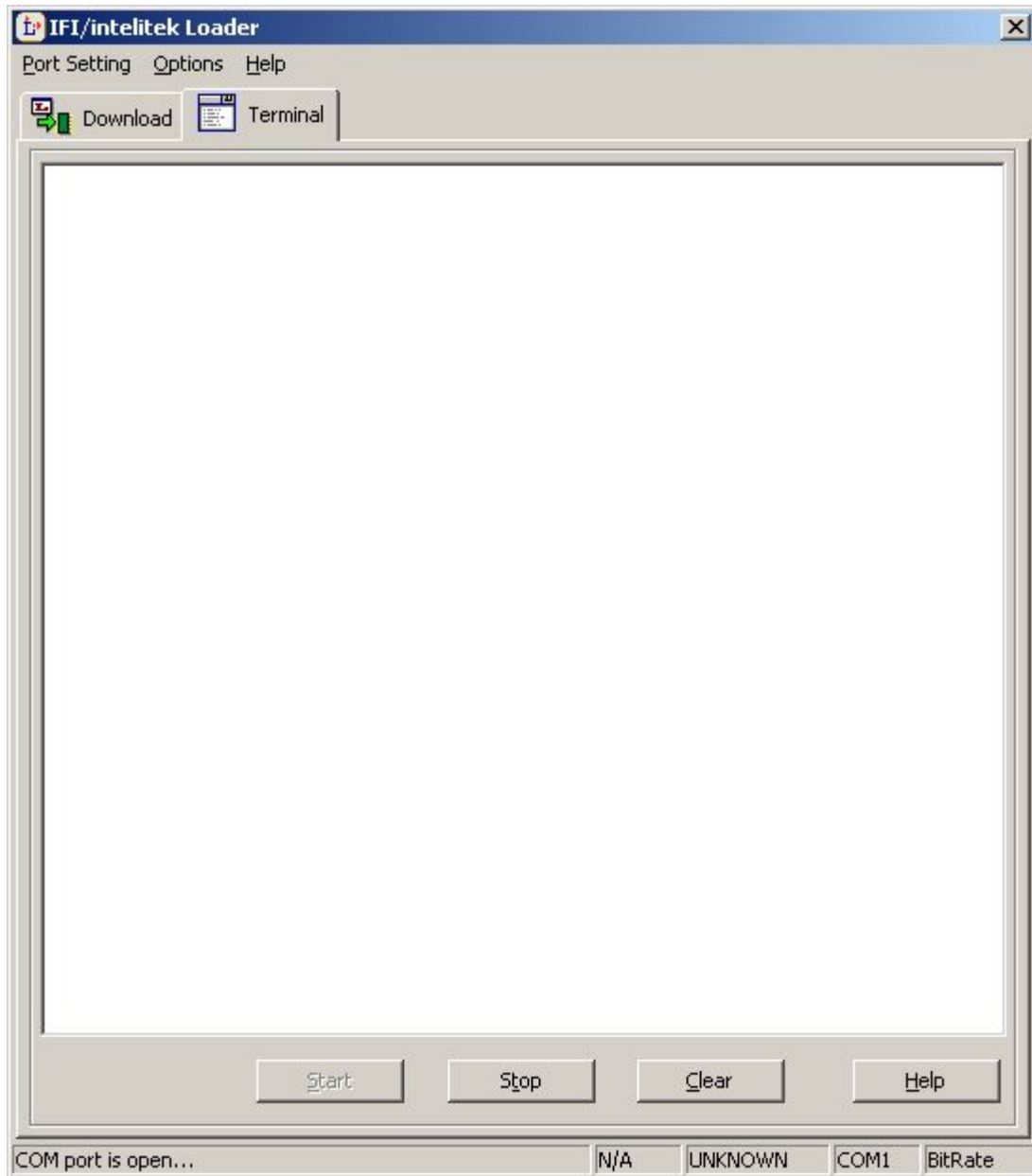The master code and template can be easily verified using EasyC.

1. Go to the Terminal Window
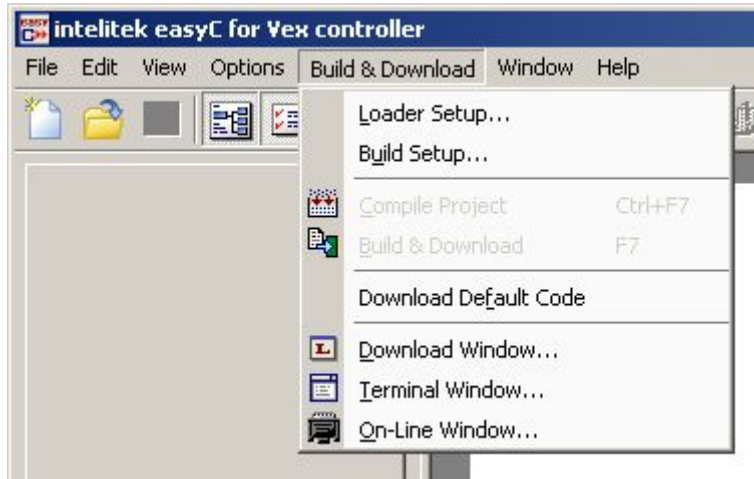
2. Initially, you will see a warning message like the one shown below. Click "Don't show this message again" to stop it from occurring.

3. The terminal window will popup

4. Turn on the robot. You should see: "VEX – Master v7, User v20.01"
   Note for inspectors: Look only at the Master Code version. The User version number does not matter.
5. Make sure your robot is supported off the ground so it doesn't move.
6. Turn on the Transmitter. You should see: "Automonous(20)"
7. After the 20 seconds of Autonomous the robot will transition into operator controlled mode.
8. You should have control via the remote and should see: "OperatorControl(254)"
9. The screen below shows what the output will look like after you have gotten all the way to operator controlled mode.
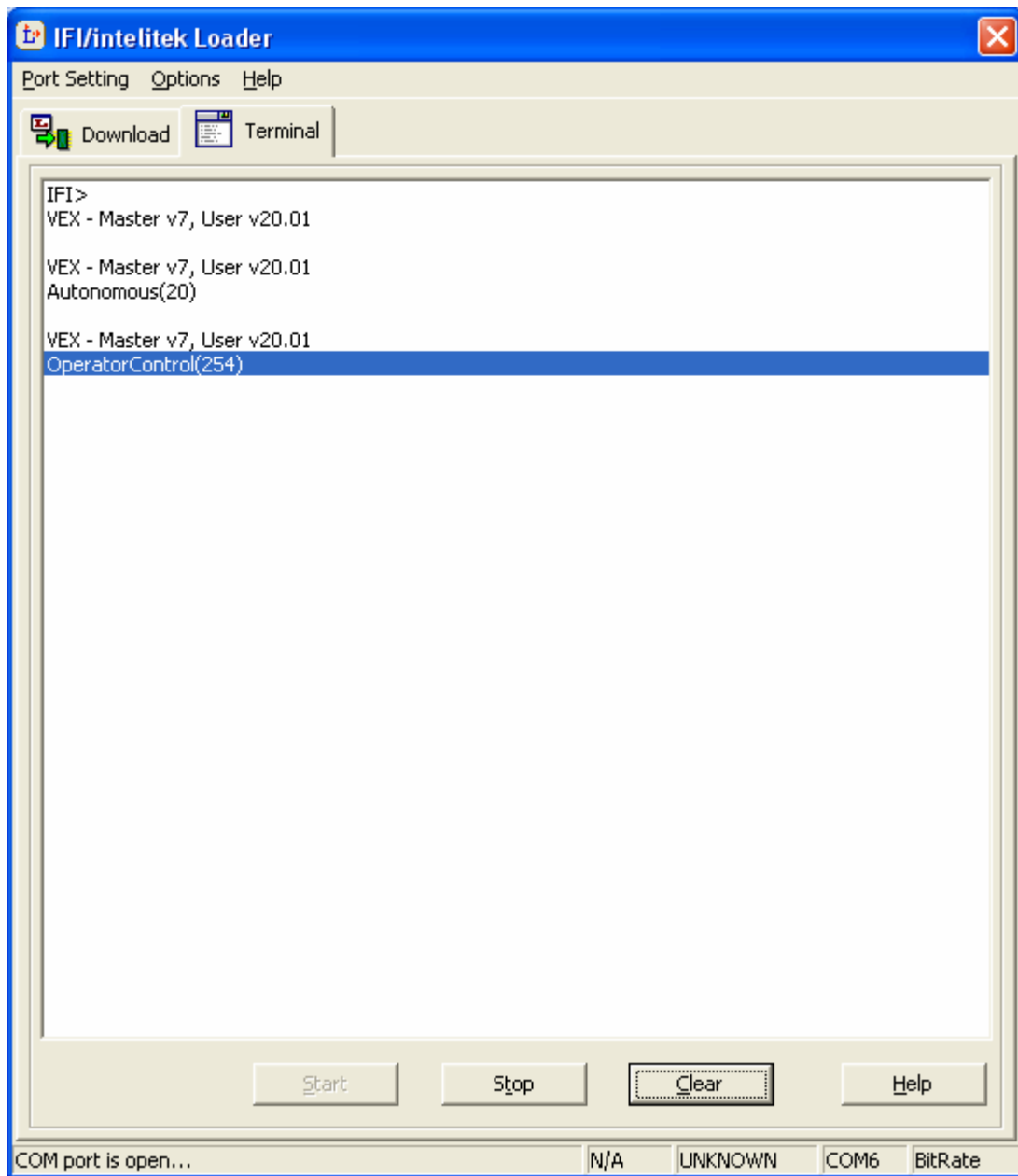
4.2 Verifying the Template in MPLab

The master code and template can be verified in MPLab only if teams have not modified the printf line in user_routines.c. **Please leave this code intact to help the inspectors.** These steps assume that you have already downloaded the master code and user code to the microcontroller.

1. Insure that the robot and transmitter are powered OFF.
2. Start the IFI Loader
3. On the "Options Menu" select "Terminal Window". A blank terminal window will appear.
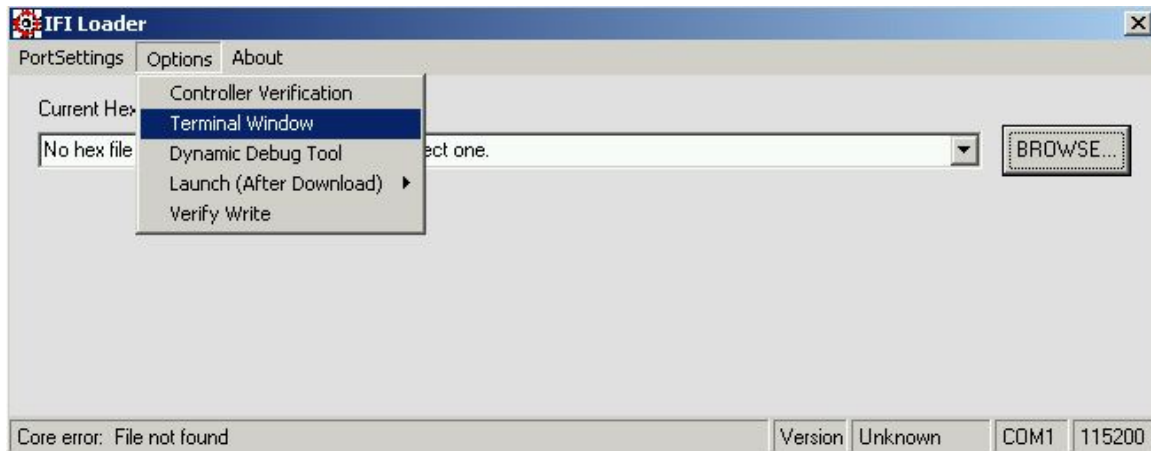
4. Turn on the robot and the transmitter. You should see: "VEX – Master v7 – User v2" as shown in the screen shot below.
   Note for inspectors: Look only at the Master Code version. The User version number does not matter.

5. Make sure your robot is supported off the ground so it doesn't move.
6. Turn on the Transmitter.
7. After the 20 seconds of Autonomous the robot will transition into operator controlled mode.
8. You should have control via the remote.

5   A Word About Jumpers

Both the EasyC and MPLab templates use jumpers in specific interrupt ports to control whether the controller operates in autonomous mode, operator controlled mode, or both. Please review the specifics below to ensure that the jumpers are properly placed.

Jumpers in any other ports on the controller or sensors plugged into the other interrupt ports will be part of the code and do not cause any problems with the template.

5.1   Jumper Configuration when using EasyC

When using EasyC and the competition template, you have three options for the jumpers:
- Jumper in Interrupt Port 5 – Robot runs only autonomous mode
- Jumper in Interrupt Port 6 – Robot runs only operator controlled mode
- **No Jumpers – Robot runs autonomous mode then operator controlled mode (This configuration MUST be used in competition matches)**

5.2   Jumpers Configuration when using MPLab

When using MPLab and the competition template, you have two options for the jumpers:
- **Jumper in Interrupt Port 6 – Robot runs the competition code (This configuration MUST be used in competition matches)**

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- No Jumpers – Robot runs only in operator controlled mode and will not disable using the field controls.

6 Monitoring the robot through the Vex LEDs

The LEDs on the Vex microcontroller can provide status regarding the code and the operation of the robot.

LED	Status	Indicates
PGRM	ON	• Problem in the Code • Code was not downloaded successfully
PGRM	OFF	• Code was downloaded successfully
"Eye"	Flashing	• Robot is in Autonomous Mode
Rx1	ON	• Data is being received from Vex transmitter connected to Rx1 port
Rx2	ON	• Data is being received from Vex transmitter connected to Rx2 port

Note: The PGRM light will go on if the button on the programming module is pressed.

7 Proper Start Up Sequence with Field Controls

When using a robot with the competition field, please follow the following sequence. This sequence will help ensure that the matches run correctly.
1. Connect tether cable at Operator Station to transmitters
   a. Double check to ensure that cable is seated correctly
2. Turn on Transmitter
3. Place Robot on the Field
4. Turn on Robot

If the robot moves, turn off the robot and transmitter and start over. Be sure that the tether cable is seated properly.