easyC V4 Cortex

Introduction to easyC® & Cotrex™

easyC V4 Cortex

Cotrex™ Microcontroller

easyC V4 Cortex

Cotrex™ Joystick

easyC V4 Cortex

VEXNet™ USB Keys and Tether Cable

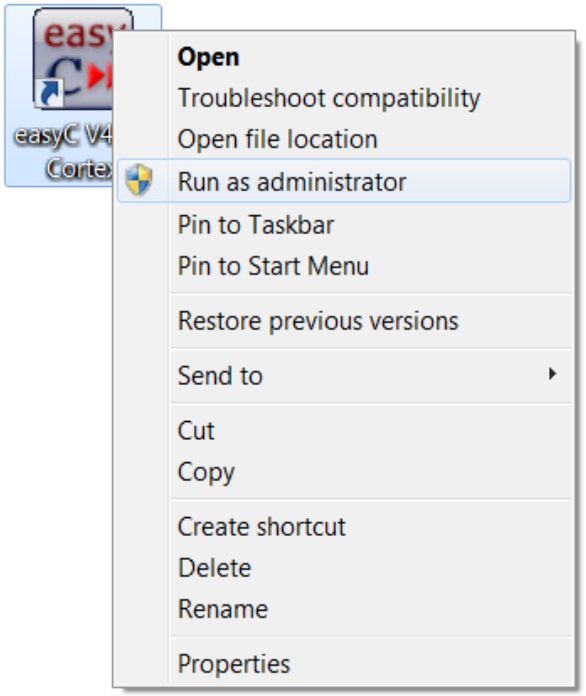
easyC V4 Cortex

easyC® V4 Programming CD

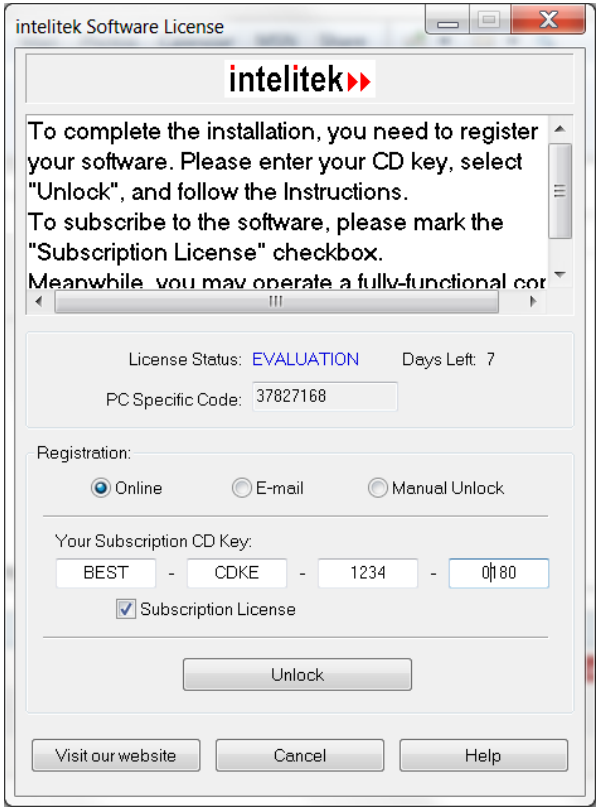
easyC V4 Cortex®

Unlocking easyC®

Right-Click the easyC Icon, Click "Run as Administrator"



Type in you CD-Key and Click Unlock



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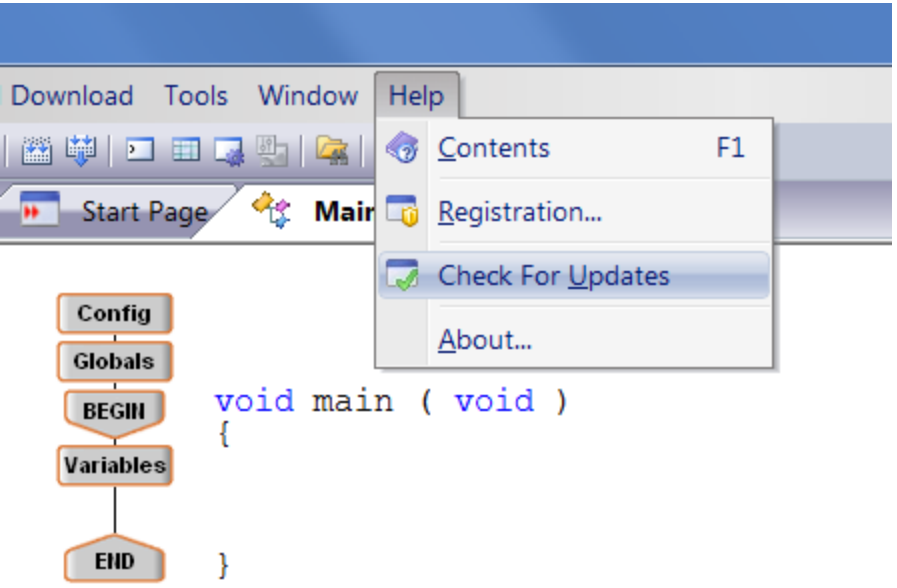
Updating easyC®

Go to Help -> Check For Updates, if the download site says to update download the latest version.



Download easyC v4 - 4.0.0.1

You are currently running version **4.0.0.0** of easyC v4, this is **not** the current version. Intelitek recommends you download version 4.0.0.1 of easyC Pro to experience the full benefit of all easyC has to offer.

New features include:

- *Release Version*
- *Requires Mastercode Update*
- *File extensions changed to .ECPX*
- *UI Improvements*
- *Math Functions*
- *Improved Direct Download*
- *Changed Program Structure*
- *XP/Vista/7, 256MB RAM, 200MB HDD, 1024x768 Display*

easyC V4 Cortex

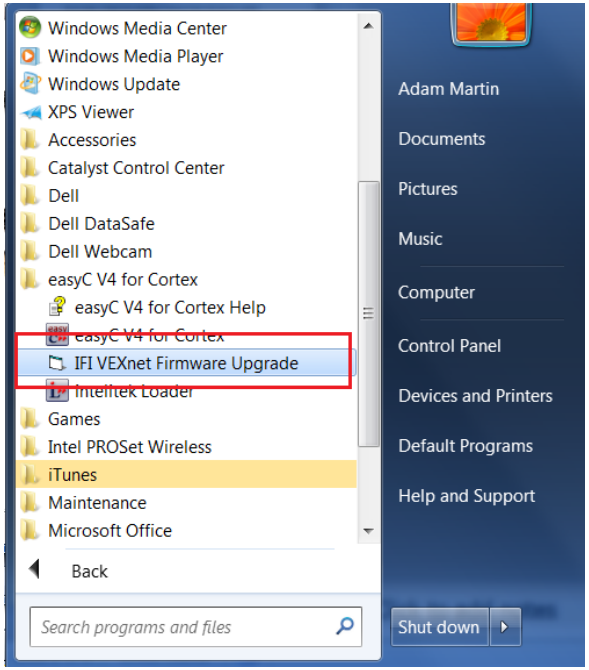
Updating Cortex™ Controller and Joystick

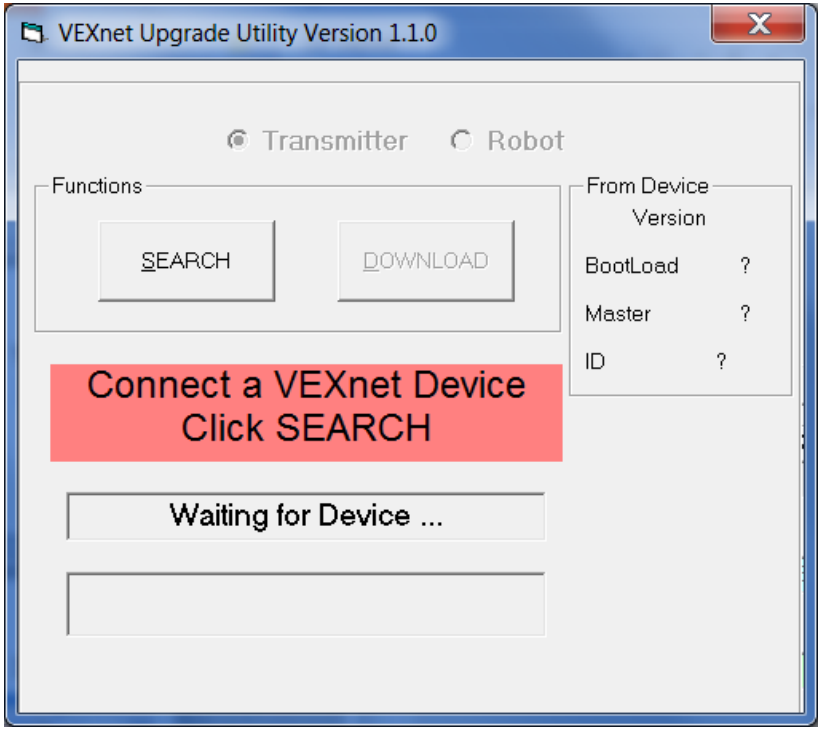
Remove the VEXNet™ key from the microcontroller and using the USB A-A cable connect the microcontroller to the computer. The LEDs should start flashing.

easyC V4 Cortex

Updating Cortex™ Controller and Joystick

Goto -> Start -> All Programs -> easyC v4 For Cortex -> IFI VEXNet Firmware Utility





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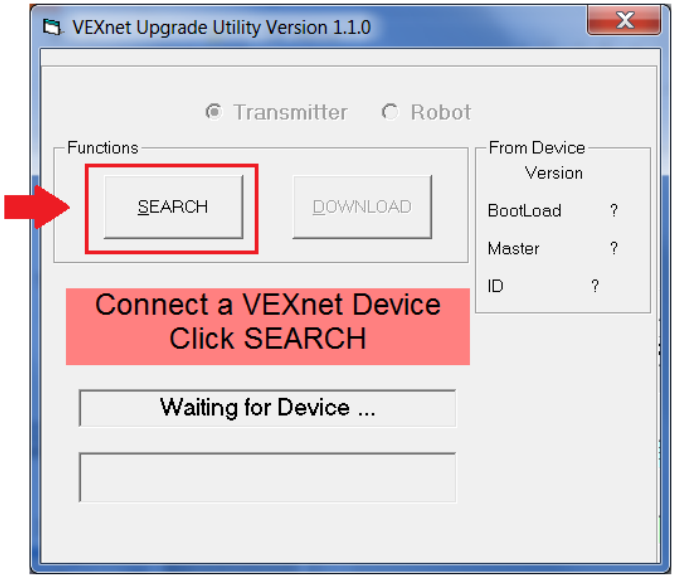
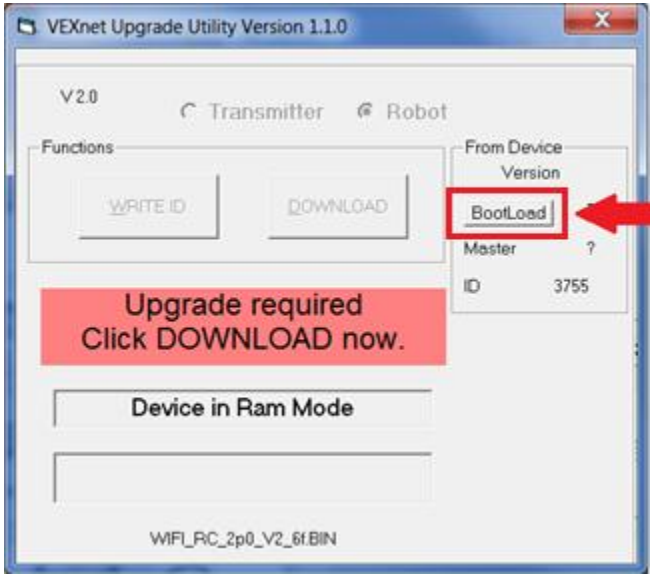
Updating Cortex™ Controller and Joystick

Select “SEARCH” if the response is (Upgrade required) then “BOOTLOAD” and YES





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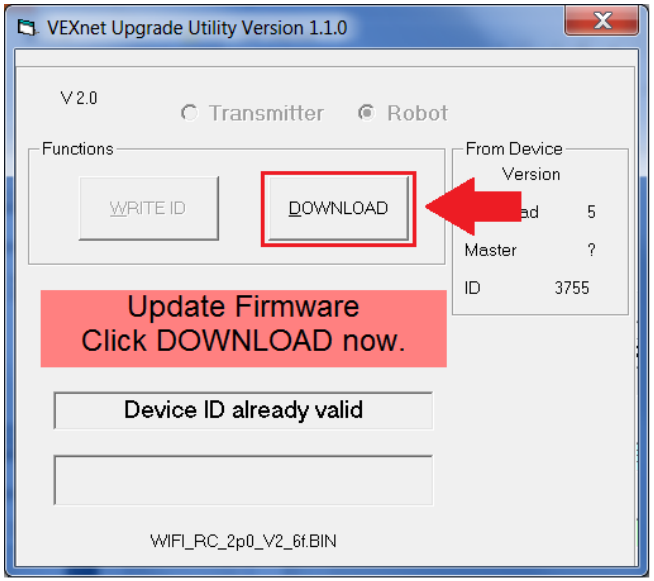
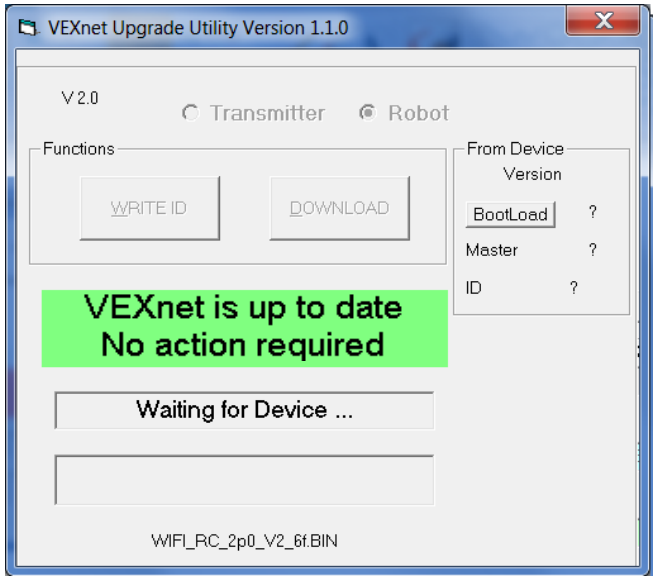
Updating Cortex™ Controller and Joystick

Then click “DOWNLOAD”



Afterward you should see



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Updating Cortex™ Controller and Joystick

Now repeate the “SEARCH” -> “BootLoad” -> “DOWNLOAD” Process with the Joystick.

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Tethering Cortex™ Controller and Joystick

After updating the firmware on the joystick and microcontroller both devices must be paired together. Connect the two devices together and then turn on the joystick or microcontroller. Wait until the VEXNet™ LED turns solid green.

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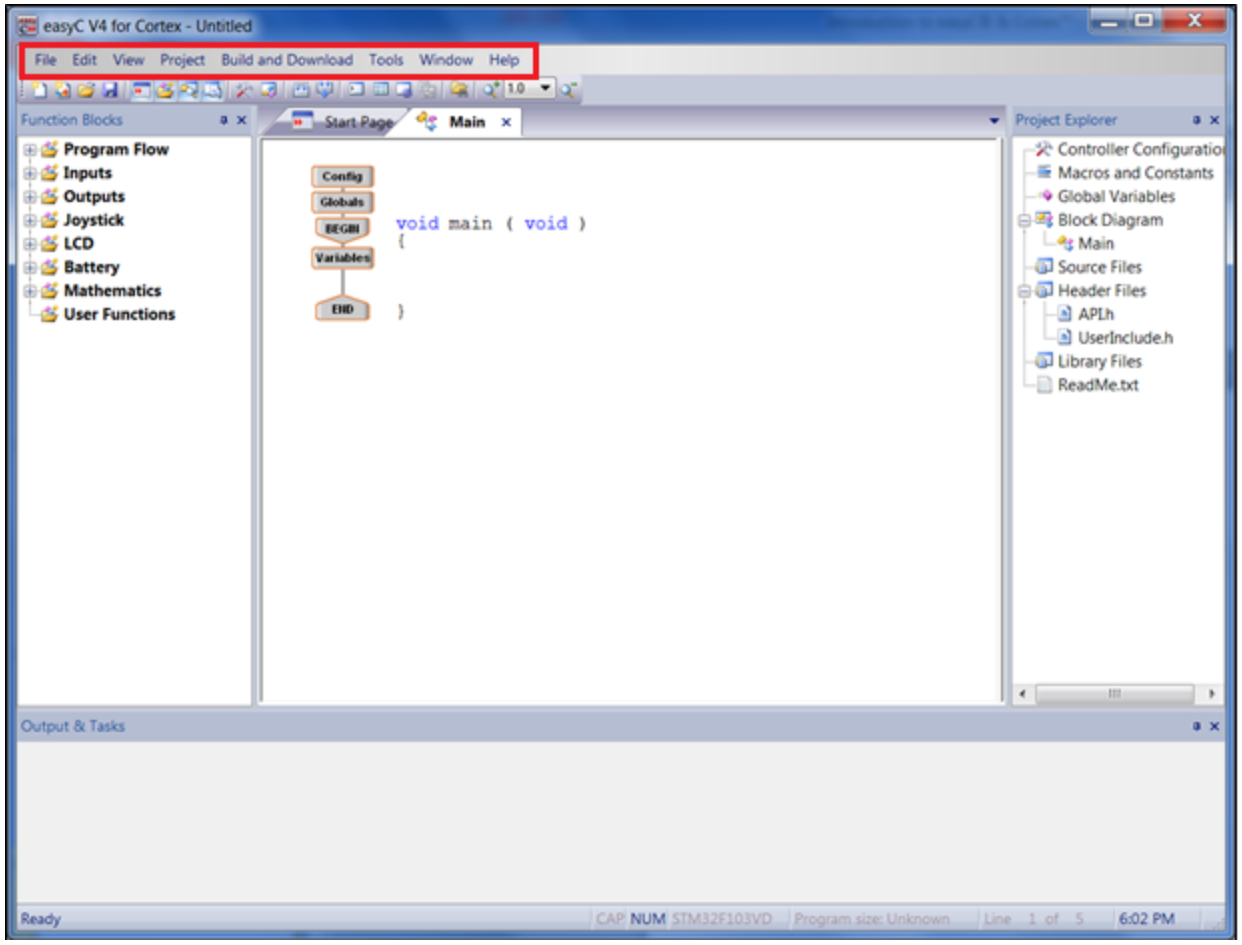
easyC User Interface



Menu Usage:

File Menu
New Project, Open, Close, Print

Edit Menu
Undo, Edit, Copy, Paste, Find

Project Menu
Project Type, Add Function, Import Function, Library Import

Build and Download Menu
Compile, Build and Download, Reload Default IFI Code

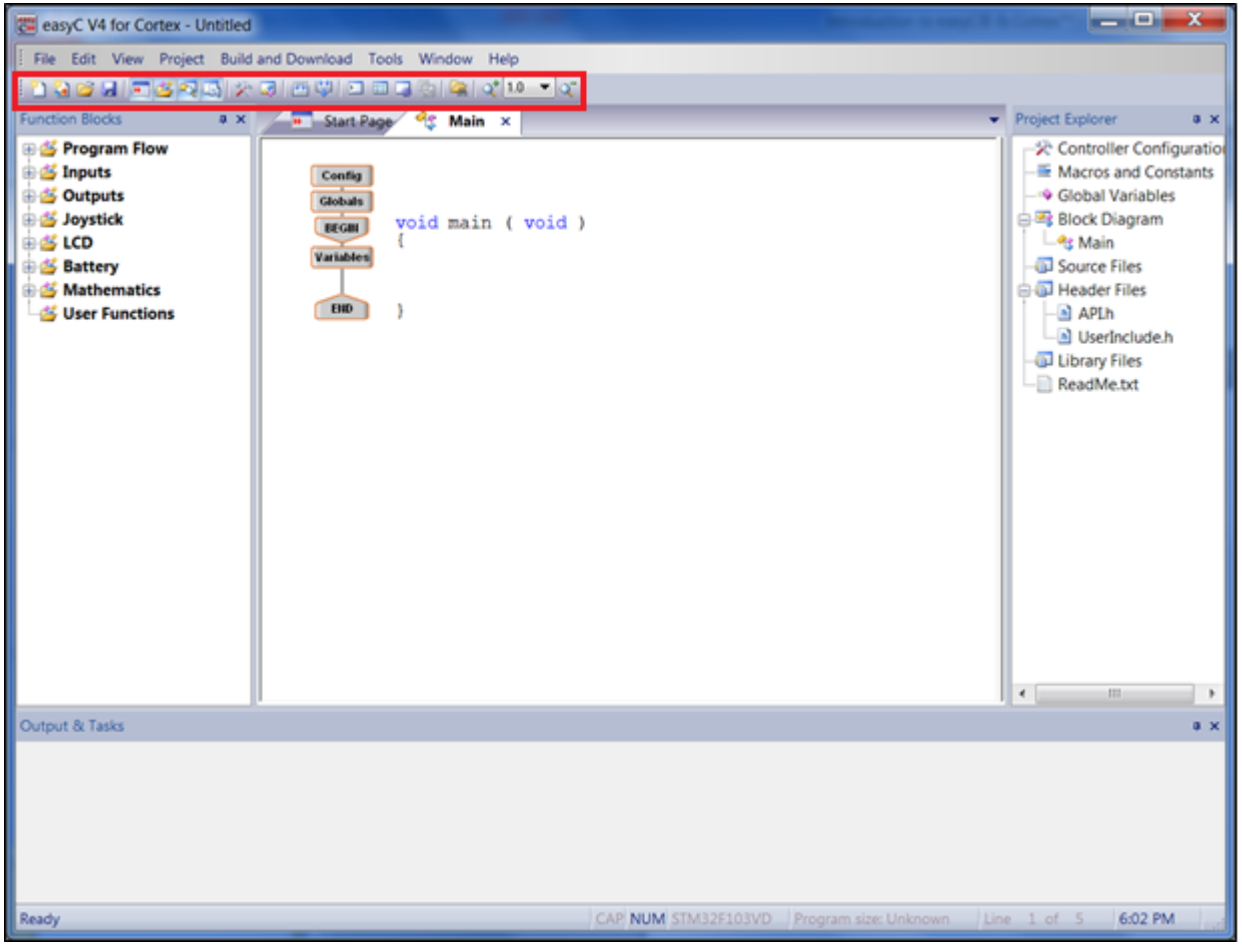
Tools
Terminal Window, Download Window, On-Line Window

Window
Block Layout, Block & C Layout

Help Menu
Contents, Registration, Updates

easyC V4 Cortex

easyC User Interface



Icons

- New Project
- New Competition Project
- Open
- Save
- Start Page Enable
- Function Blocks Enable
- Project Explorer Enable
- Output Panel Enable
- Controller Configuration
- Global Variables

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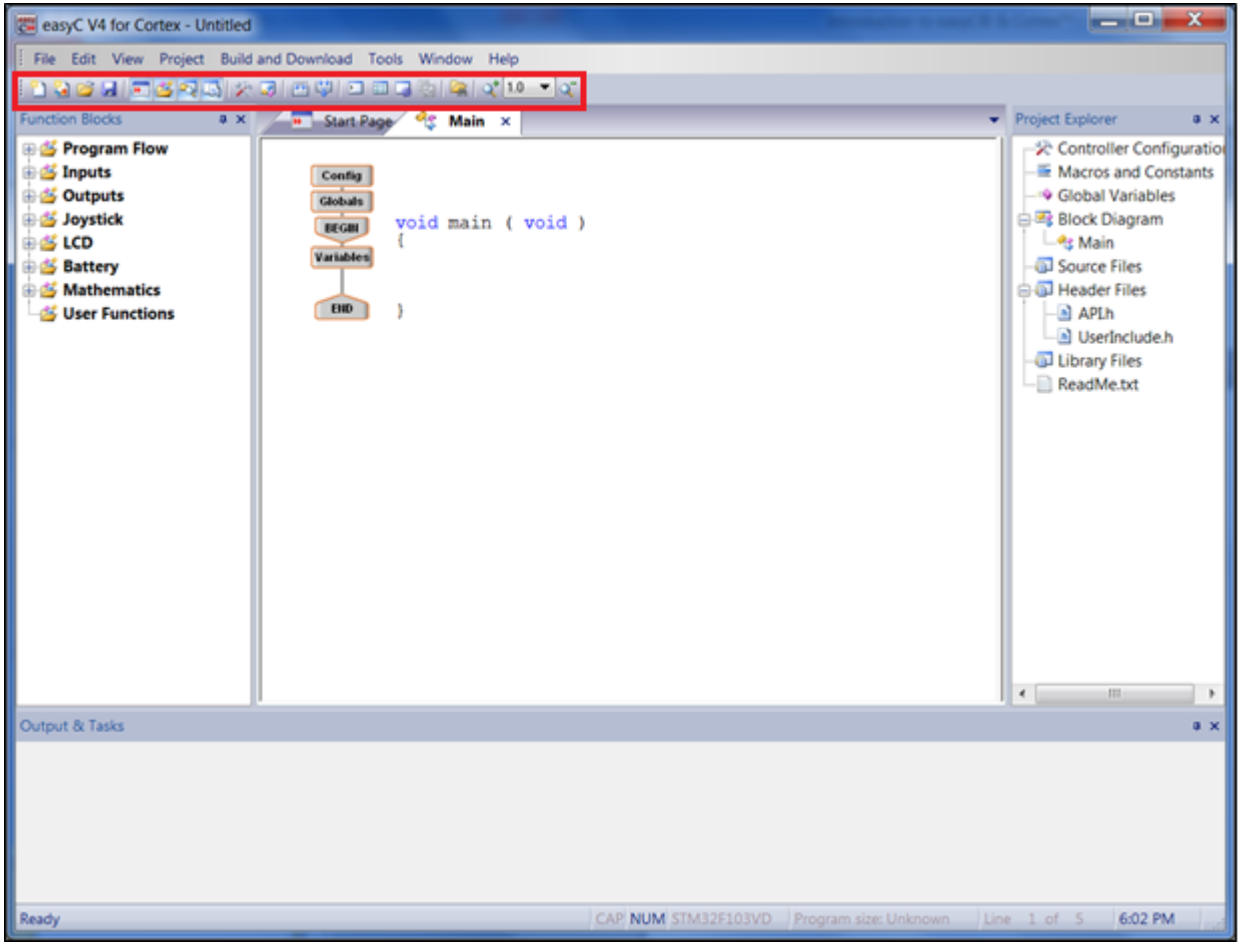
easyC User Interface



Icons

- **Compile**
- **Compile and Download**
- **Terminal Window**
- **Graphic Display**
- **On-line Window**
- **Find**
- **Zoom**

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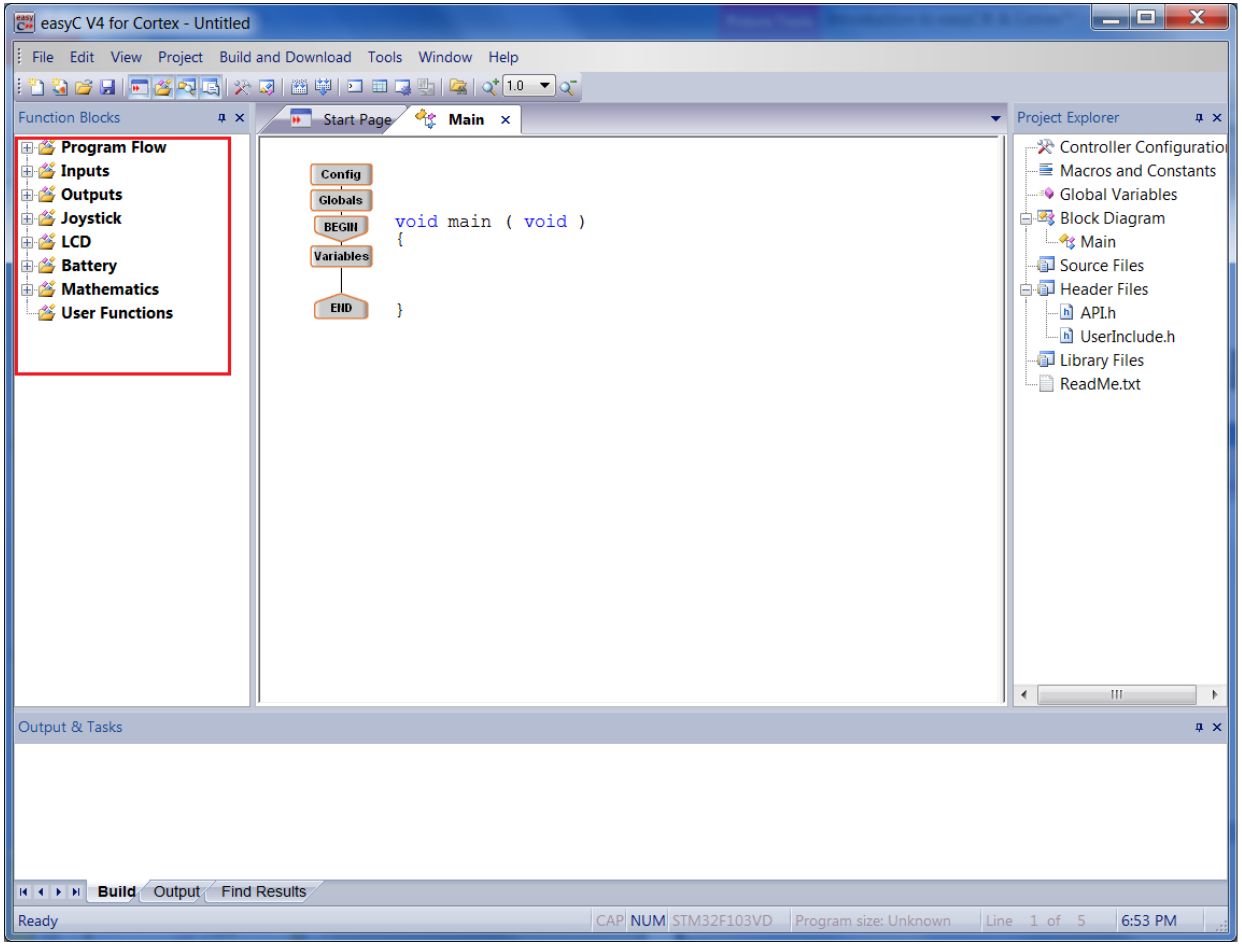
easyC User Interface



Function Blocks

Program Flow
Wait, If, Else, While, Timer, Assignment

Inputs
Limit Switch, Digital Input, Analog Input, Potentiometer

Outputs
Motor / Servo Module, Digital Output

Joystick
Tank (2 Stick) , Arcade (Single Stick), Motor to Joystick, Motor to Digital (Button), Get Digital, Get Joystick

Mathematics
SIN, COS, TAN, Power, Random

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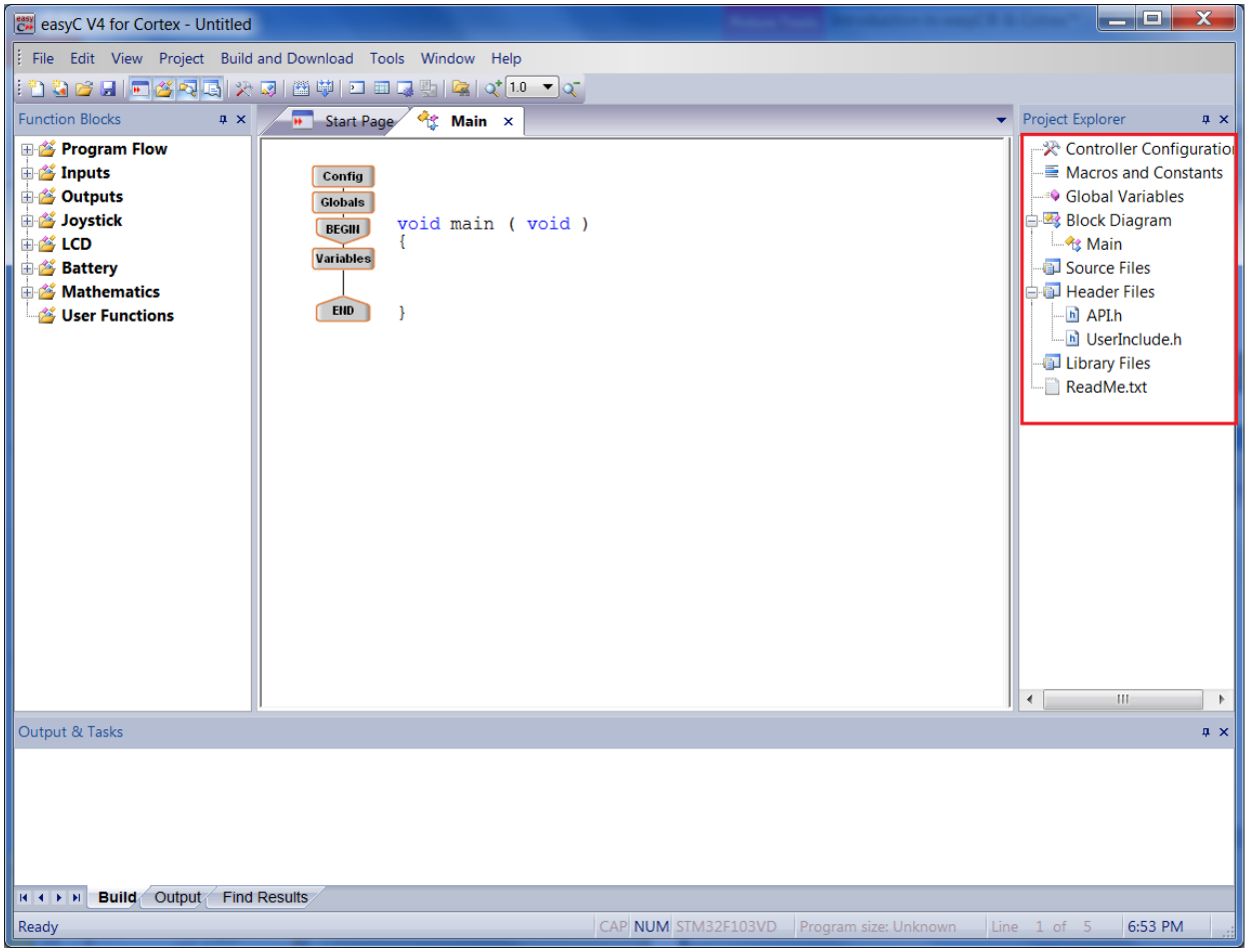
easyC User Interface



Project Explorer

Controller Configuration
Change Inputs and Output, Label Ports

Macros and Constants
Create Definitions (aka C #define)

Global Variables
Variable with Global Program Scope

Block Diagram
Select Between Functions

Source & Header Files
Create or Import .c and .h files, Write C-Code Freehand

Library Files
Import a easyC® library

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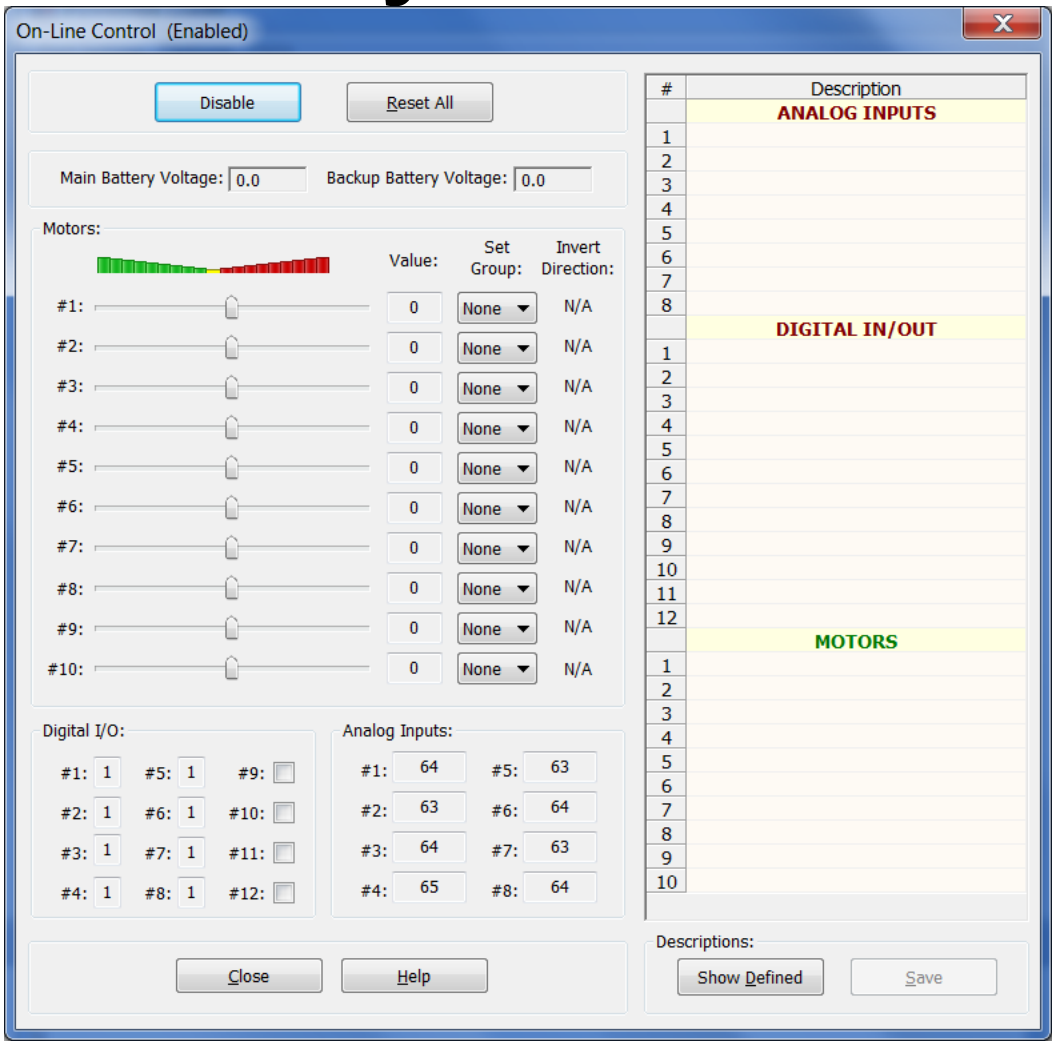
easyC On-Line Window



The easyC® On-Line Window allows the user to see and control motors and sensors attached to the robot in real time. This can be enabled at any time.

Note: The On-Line Window requires a program, even blank be downloaded after updating the master firmware.

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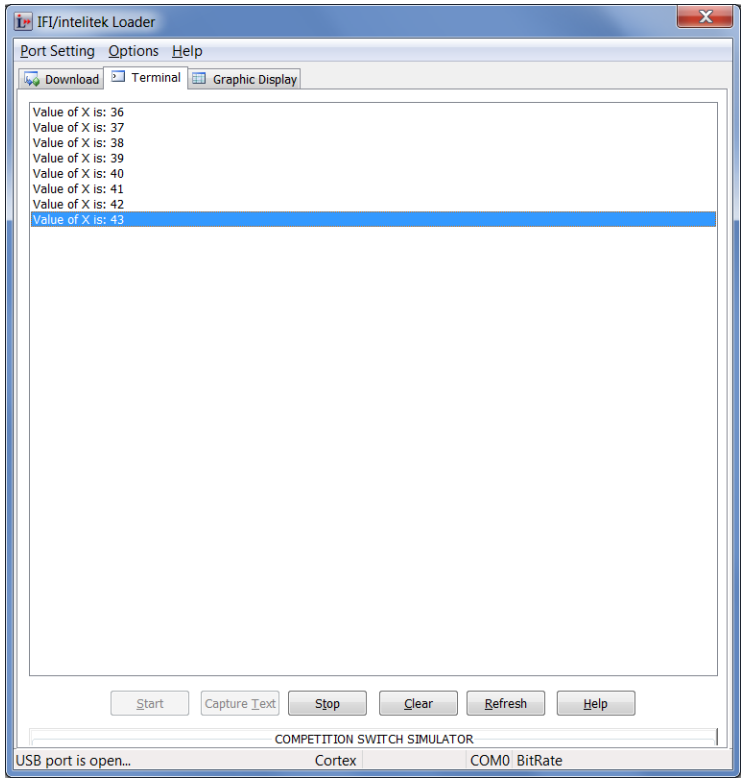
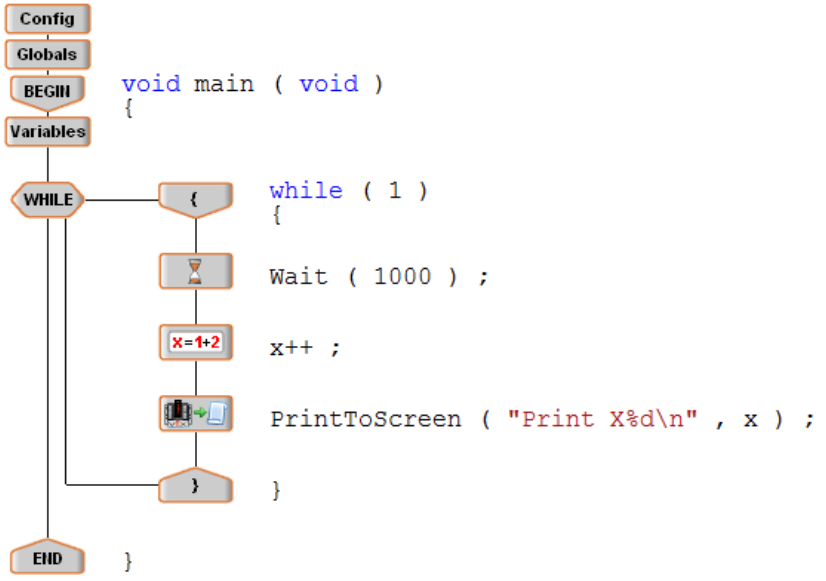
easyC Terminal Window

The easyC allows users to see output from PrintToScreen calls form within their program while the program is running on the Microcontroller.





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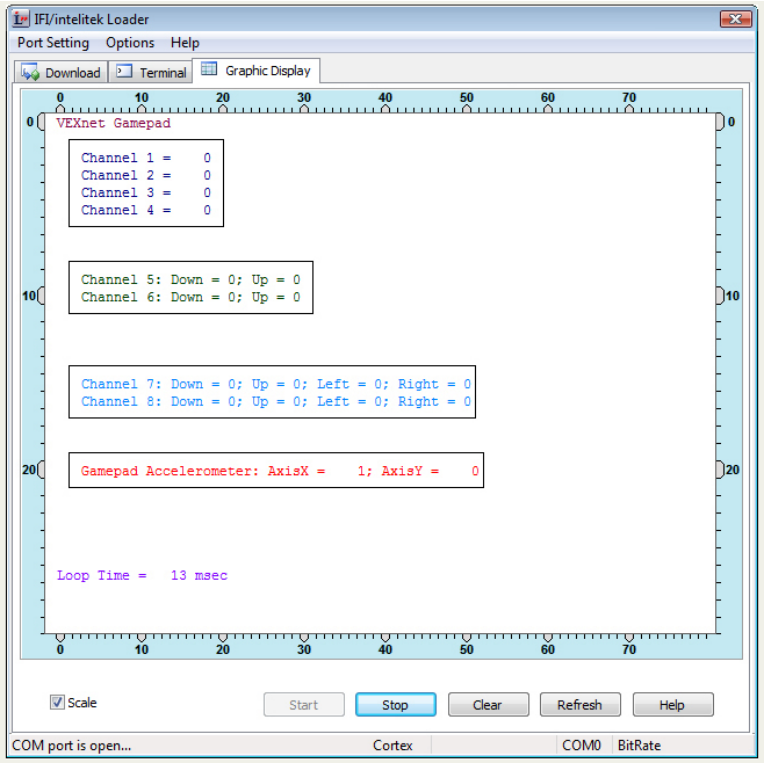
easyC Terminal Window

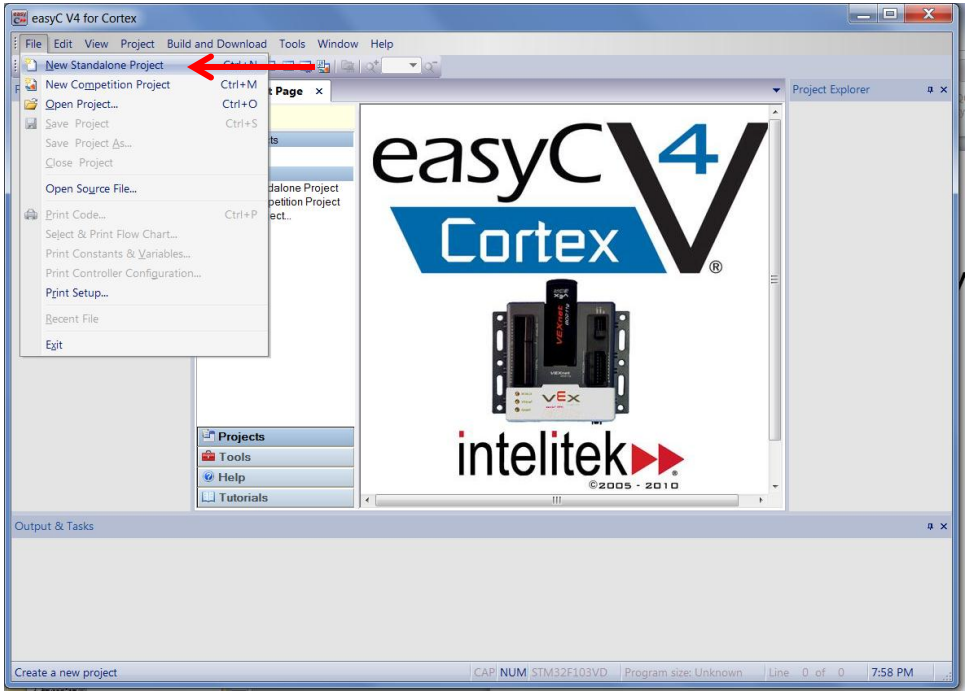
The easyC allows users to see output from GraphicDisplay calls form within their program while the program is running on the Microcontroller. The Graphic Display is a more advanced type of feedback that allows values to placed on grid instead of scrolling.

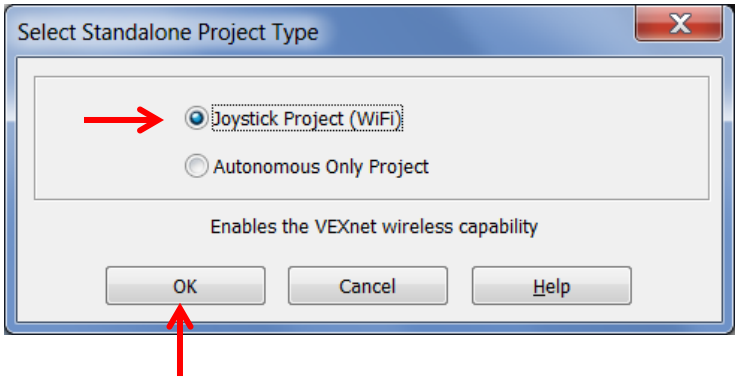


See Samples –> "Graphic Display Joystick Test" for code.

Creating a New Program

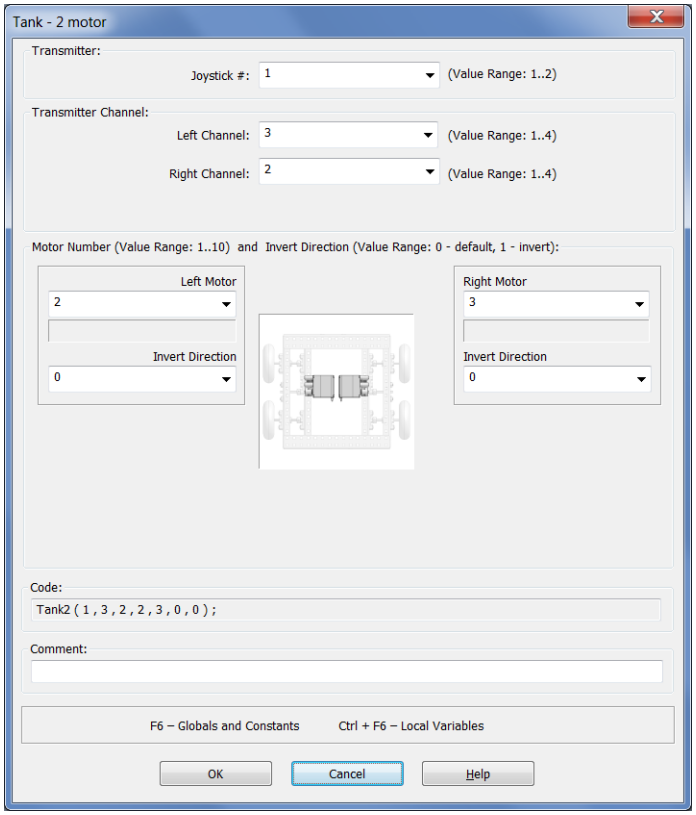
1. *Goto File -> New Standalone Project*
2. *Select Joystick Project (Wifi)*
3. *Click OK*

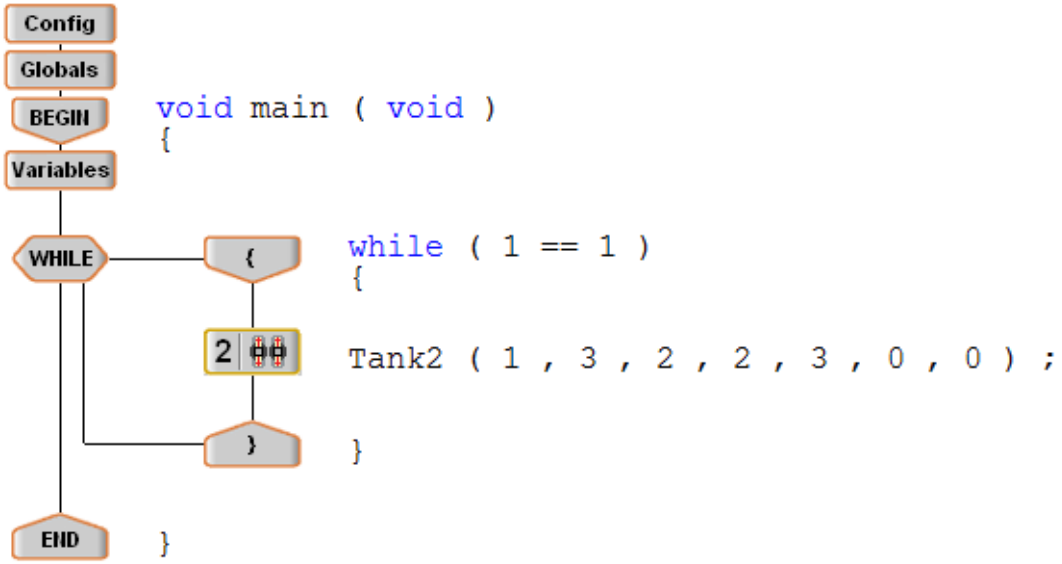




Simple Tank (2-Stick) Drive Example

This simple program would drive a robot with motors connected to motor ports 2(left) and 3(right). Using joystick channels 2(right stick) and 3(left stick)





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Simple Arcade (1-Stick) Drive Example

This simple program would drive a robot with motors connected to motor ports 2(left) and 3(right). Using joystick channels 2(left stick vertical) and 1(right stick horizontal)