Introduction to easyC® & Cotrex™
Cotrex™ Microcontroller
Cotrex™ Joystick
VEXNet™ USB Keys and Tether Cable
easyC® V4 Programming CD
Unlocking easyC®

Right-Click the easyC Icon, Click “Run as Administrator”

Type in your CD-Key and Click Unlock
Updating easyC®

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

```c
void main ( void )
{
}
```

**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
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.
Updating Cortex™ Controller and Joystick

Goto -> Start -> All Programs -> easyC v4 For Cortex -> IFI VEXNet Firmware Utility
Updating Cortex™ Controller and Joystick

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

[Diagram of software interface with highlighted buttons: SEARCH, DOWNLOAD, BootLoad, Write ID, Download, Upgrade required, Click DOWNLOAD now, Device in Ram Mode, WIFI_RC_2p0_V2_6.BIN]
Updating Cortex™ Controller and Joystick

Then click “DOWNLOAD”

Afterward you should see
Updating Cortex™ Controller and Joystick

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

```c
void main ( void )
{
}
```

Ready

CAP NUM STM32F103VD Program size: Unknown Line 1 of 5 6:06 PM
easyC User Interface

Icons
- Compile
- Compile and Download
- Terminal Window
- Graphic Display
- On-line Window
- Find
- Zoom
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
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 an easyC® library
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.
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.
easyC Terminal Window

The easyC allows users to see output from GraphicDisplay calls from 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 be placed on a 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)

```c
void main ( void )
{
    while ( 1 == 1 )
    {
        Tank2 ( 1, 3, 2, 2, 3, 0, 0 );
    }
}
```
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)

```c
void main ( void ) {

    while ( 1 == 1 )
    {
        Arcade2 ( 1, 2, 1, 2, 3, 0, 0 );
    }
}
```