

Getting Started Demo for μEZ® GUI

Tutorial 1: Create & Compile

How to Create and compile a project with Project Creator and IAR Embedded Workbench

Summary:

This tutorial explains how to get started with a new project for your μEZ GUI device. It explains from the ground up how to download the source files, create and compile a project, and upload and run that project onto the μEZ GUI with your computer. This will create the framework for the coming tutorials as well as touch on the basics of interacting with the device.

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Requirements:

Hardware:

- μEZGUI-4088-43WQN [Website](#)
- Segger J-Link Lite Module [Website](#)
- 2x USB A to USB Mini Cable [Website](#)

Software:

- IAR Embedded Workbench [Website](#)
 - μEZ GUI Project Creator [Website](#)
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Part 1) Download, Install and Run μ EZ Project Creator**Step 1:**

- Download μ EZ from SourceForge
- Extract The Files
- Run Project Maker

μ EZ Project Creator is available in the μ EZ download from SourceForge found [here](#). Once downloaded, extract the files and run uEZProjectMakerSetup 2.xx.msi. This includes the install of the project maker which will create the base projects for the μ EZ GUI devices.

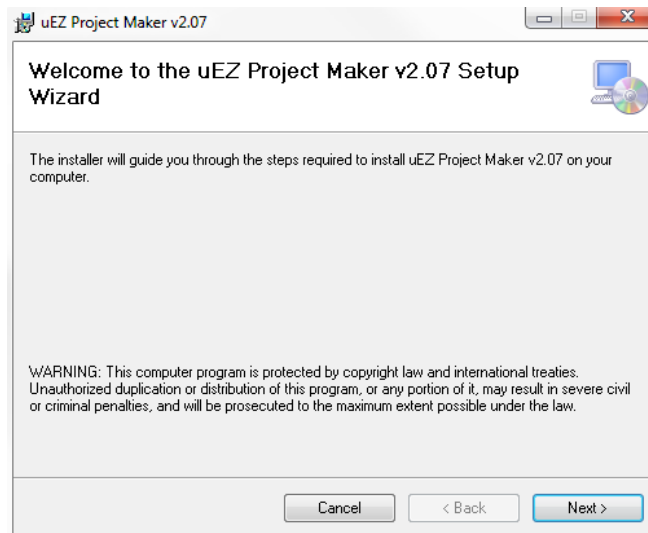


Figure 1:
Project
Maker
Welcome
Screen

Once installed, open the program to create the base μ EZ project.

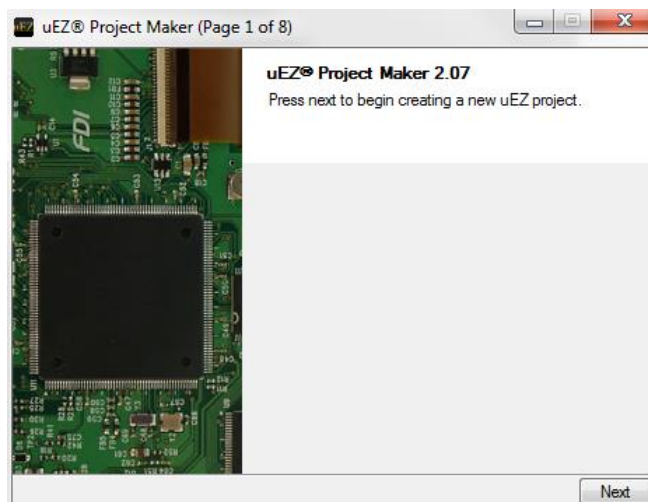


Figure 2:
Project
Maker
Create
Project
Screen

Step 2:

- Select FreeRTOS
- Select NXP LPC4088
- Select 43WQN
- Select IAR EWARM V6.50

Click *Next*. Choose FreeRTOS and click *Next*. This guide and demo are designed for the μ EZGUI-4088-43WQN so choose the NXP LPC4088 as the processor. Make sure the 43WQN is highlighted and click *Next*.

NOTE: if you have a 43WQH, 43WQN, or 43WQE choose 4088 as your processor. If you have a 43WQR, 43WQT, 70WVM, or 70WVT choose 1788, then choose your μ EZ GUI model.

For this demo IAR Embedded Workbench IDE is used, but any of the listed IDEs such as *Crossworks* and *Keil* will also work. Choose IAR EWARM v6.50 to use for the project.

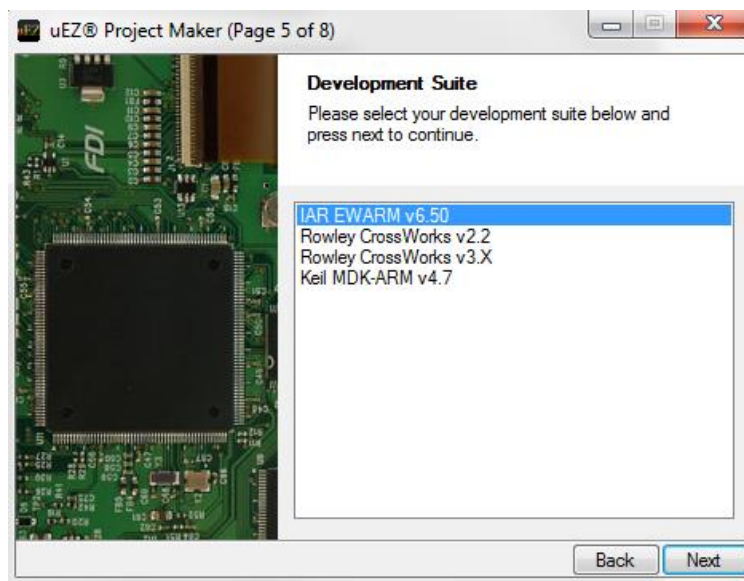


Figure 3:
Project
Maker
Dev. Suite
Screen

Choose a project name and base directory for the project and then click *Next*. There will now be a confirmation screen to confirm all of the choices. If they are correct then click *Create* to create the project. Once created, you can navigate to the project folder where it resides.

NOTE: You must have a copy of the μ EZ directory in the μ EZProjects folder alongside the created project for it to compile and run properly. The μ EZ directory is found in the μ EZ download from SourceForge mentioned earlier.

Part 2) Download, Install and Run IAR Embedded Workbench for ARM v6.50**Step 3:**

- Download The Installer for IAR
- Run The Installer
- Open IAR from The Start Menu

(Skip this step if using a different IDE than IAR)

The project creator is designed to make a project for version 6.50 of IAR specifically so it is highly recommended that this version should be used even though newer releases are available.

Download the installer file and run the installer. The one used for the tutorial is titled EWARM-CD-6502. There is a 30-day evaluation that can be acquired but you may need to purchase a license for long term development.

Once IAR is installed open IAR Embedded Workbench v6.50 from the Windows Start Menu.

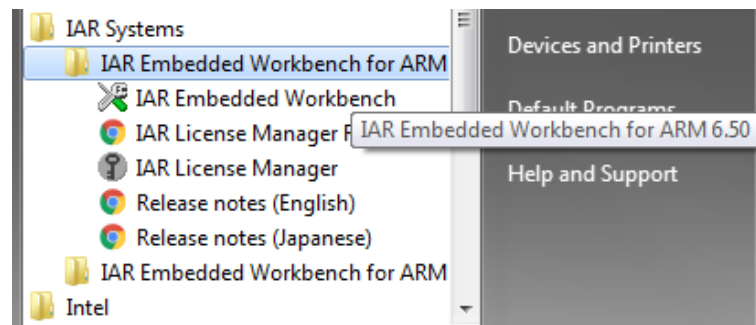


Figure 4:
IAR in Start
Menu

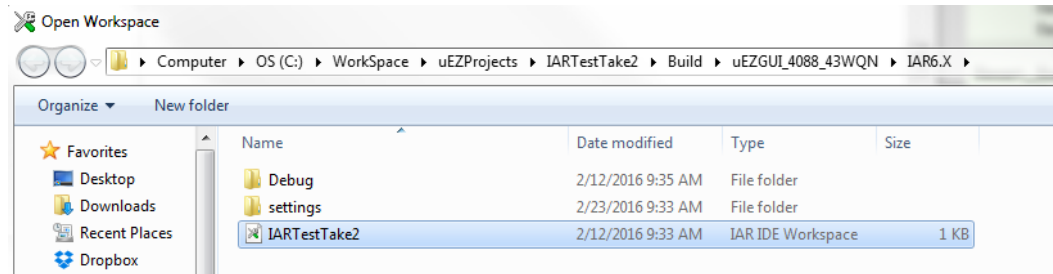
Step 4:

- Open The Demo Project
- Compile The Project

NOTE: Before the demo program can be compiled the μ EZ library must be compiled with IAR or some other IDE compiler. The .eww file for IAR is found in the C:\Workspace\ μ EZProjects\ μ EZ\Build\Generic\NXP\LPC4088(orLPC1788)\FreeRTOS\IAR6.x\ directory. After loading the workspace, hit F7 to compile, then exit.

Select File->Open->Workspace and navigate to C:/Workspace/uEZProjects/[Project Name]/Build/uEZGUI-4088-43WQN\IAR6.x\ and open the workspace file with the project name ([Project Name].eww).

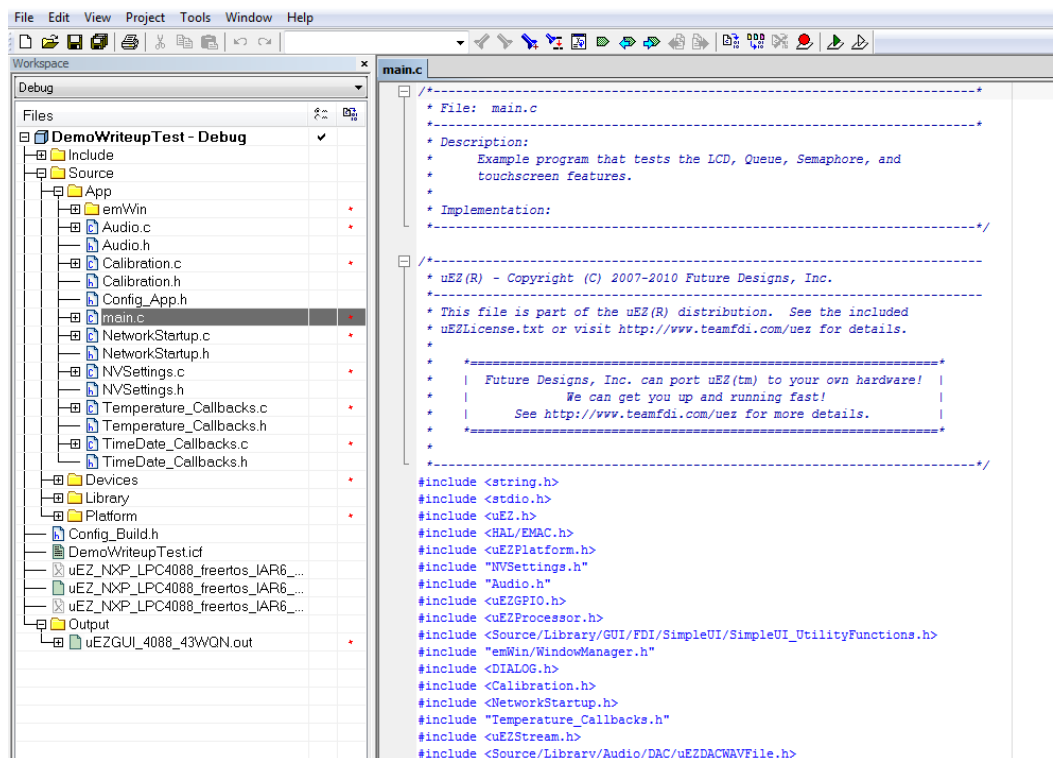
Figure 5:
IAR
Workspace
File



NOTE: Alternatively, the file can be opened from file explorer and loaded directly into IAR Embedded Workbench.

The project should now be open in IAR Embedded Workbench with all necessary libraries linked up.

Figure 6:
IAR
Workspace



Select Project->Make from the toolbar or hit F7 to ensure the program compiles.

NOTE: It should compile properly with occasional warnings. These are expected and do not affect functionality.

Part 3) Install J-Link, Connect Your Device, Run the Debugger**Step 5:**

- Download and Install The Segger J-Link Software
- Connect The μ EZ GUI To The Computer with J-Link

In this step you will actually see the project come to life in your μ EZ GUI device. Before that the debugging hardware needs to be connected and running on the computer. There is a J-Link Lite device from Segger, a ribbon cable, and a JTAG connector for the μ EZGUI-4088-43WQN supplied in the kit.

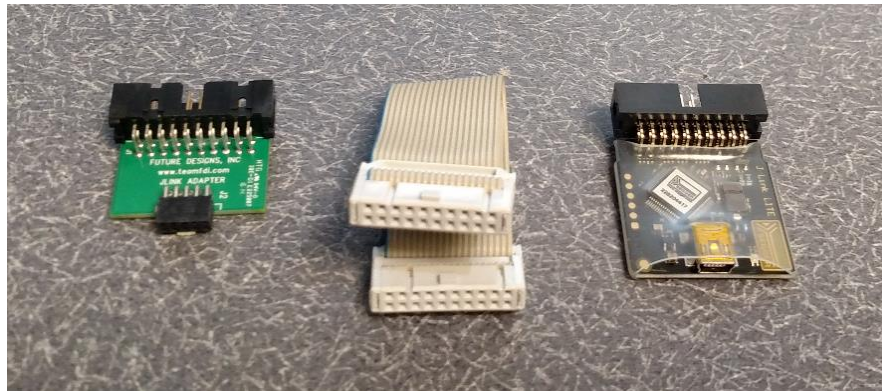


Figure 7:
J-Link
Hardware

NOTE: If you purchased the standalone board you will need to obtain these devices from FDI before you can run the debugger for your project.

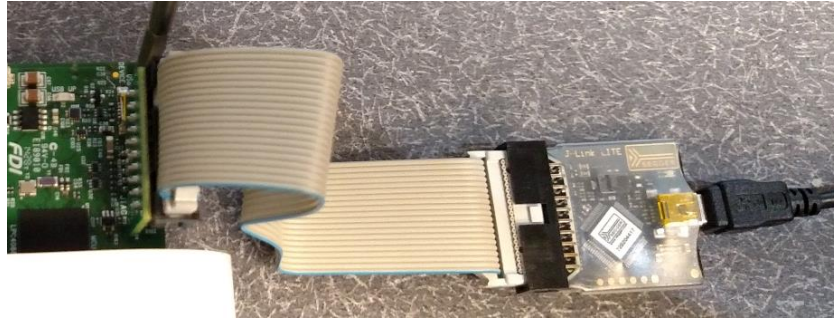
Download the J-Link software from the Segger website. The latest version that is tested and working with the μ EZ GUI device is version 5.10. The download can be found [here](#).

Once installed, connect the device with the J-Link to the computer. It will probably install the J-Link debugger driver the first time it is connected to the computer. Insert The J-Link module and the JTAG adapter into the ribbon cable and insert the adapter into the JTAG port on the bottom of the μ EZ GUI device.



Figure 8:
FDI J-Link
Adapter

Figure 9:
J-Link
Connected
to μ EZ GUI



When the board is powered on the device is ready to be debugged with IAR.

NOTE: The J-Tag port and J-Link device do not power the μ EZ GUI. An external power supply will have to be connected through the μ EZ GUI's USB port or through the alternative power port on the side.

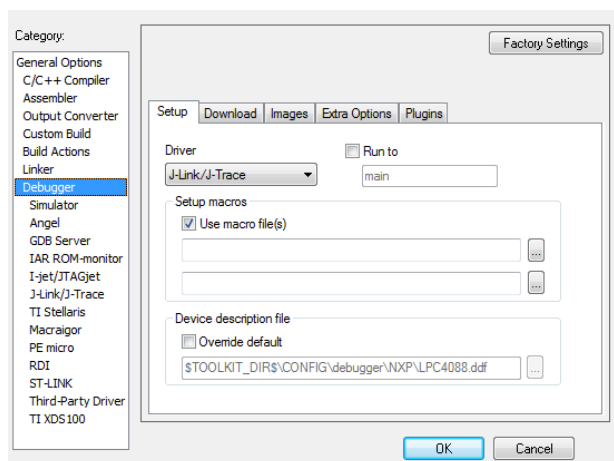
With the project open in IAR Embedded Workbench and the μ EZ GUI connected through the J-Link device to the computer, it is time to upload and debug your program on your μ EZ GUI device.

Step 6:

- Open Project Options
- Select J-Link/J-Trace As The Debugger
- Run The Debugger

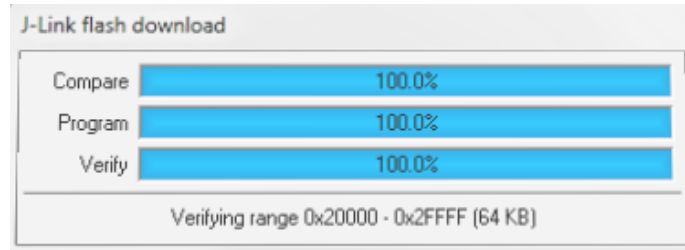
Confirm the projects settings are correct by going to the project's bold name in the Workspace window, right-click it, and then select *Options*. Under *Debugger* make sure J-Link/J-Trace is selected as the driver.

Figure 10:
IAR
Debugger
Options



Click OK to go back to the main screen. Now go to the Project tab and click Download and Debug. Alternately, you can hit Ctrl+D. This will start the download of the project to the flash memory of the μ EZ GUI device. You will see a J-Link window pop up displaying the progress of the download to the device.

Figure 11:
J-link Flash
Status
Dialog



The program is now loaded and ready to run on the μ EZ GUI. Click "Go" at the top of the screen to get it to actually run the program through its execution. You can also go to the *Debug* tab and select *Go* or simply hit F5. The demo program should now be running on the device and the Jumpstart screen with Temperature and Time/Date buttons can be seen on the μ EZ GUI's screen.

Figure 12:
Demo on
 μ EZ GUI
Screen



Congratulations!! You are now running and debugging your own μ EZ GUI demonstration on your μ EZ GUI device. Please reference our other guides for further programming features and functionality. *Enjoy!*

Reference & Information:

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Hardware:

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| • Segger J-Link Lite Module | Website |
| • 2x USB A to USB Mini Cable | Website |

Software:

- | | |
|--------------------------------|-------------------------|
| • IAR Embedded Workbench | Website |
| • μ EZ GUI Project Creator | Website |