

QSG159: EFM32TG11-SLSTK3301A Quick-Start Guide

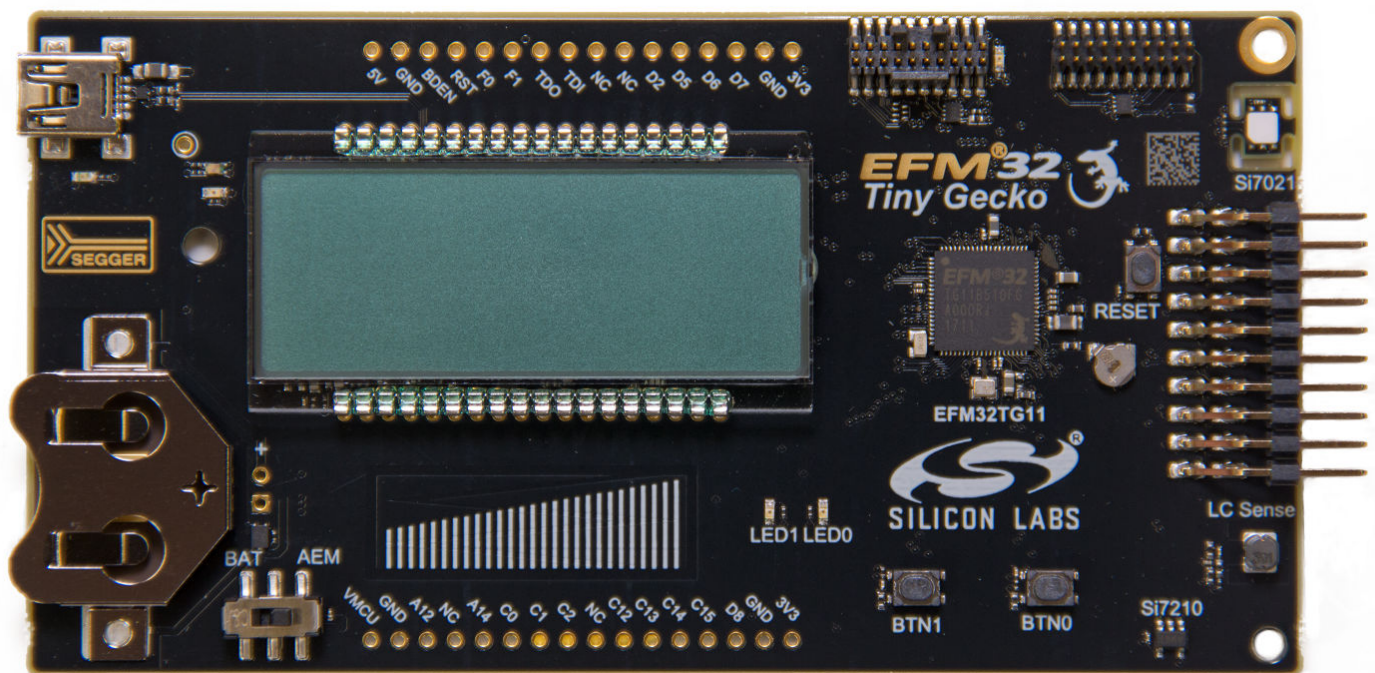


The EFM32TG11-SLSTK3301A is an excellent starting point to get familiar with the EFM32TG11 Tiny Gecko microcontrollers.

The kit contains sensors and peripherals demonstrating some of the MCU's many capabilities. The kit can also serve as a starting point for application development.

KIT CONTENTS

- EFM32TG11 Tiny Gecko Starter Kit board
- 1 x mini USB cable
- Getting Started card

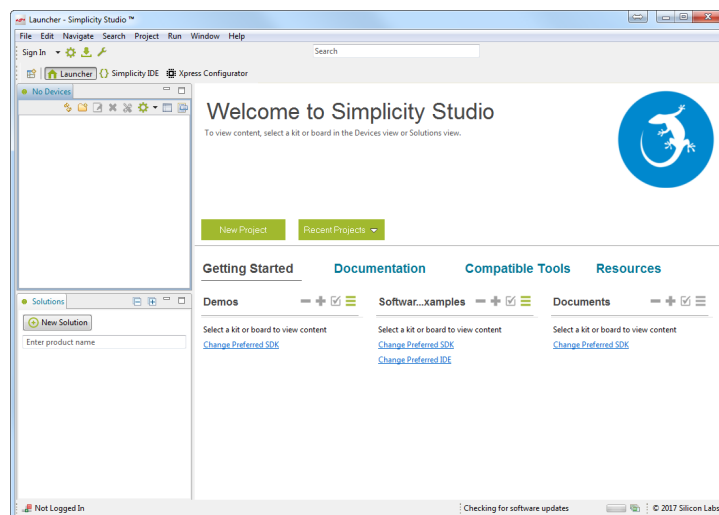


1. Getting Started

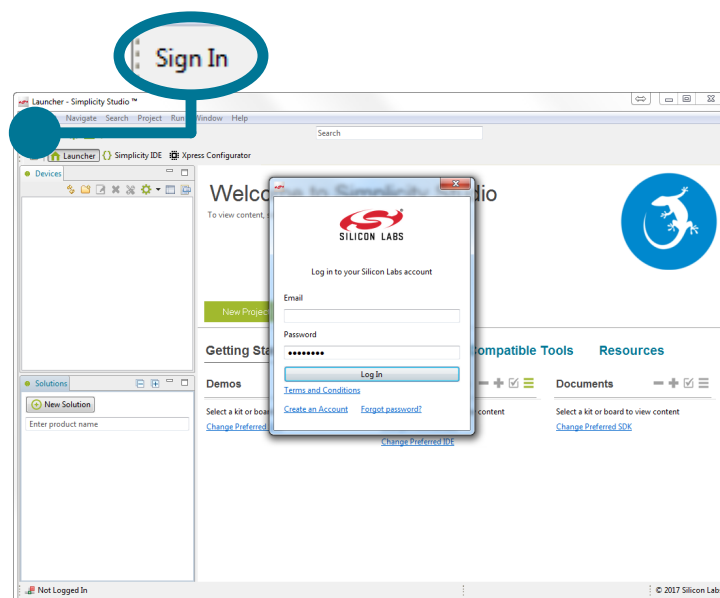
Install Simplicity Studio

Simplicity Studio is a free software suite needed to start developing your application. Download the latest version of Simplicity Studio from the Silicon Labs website:

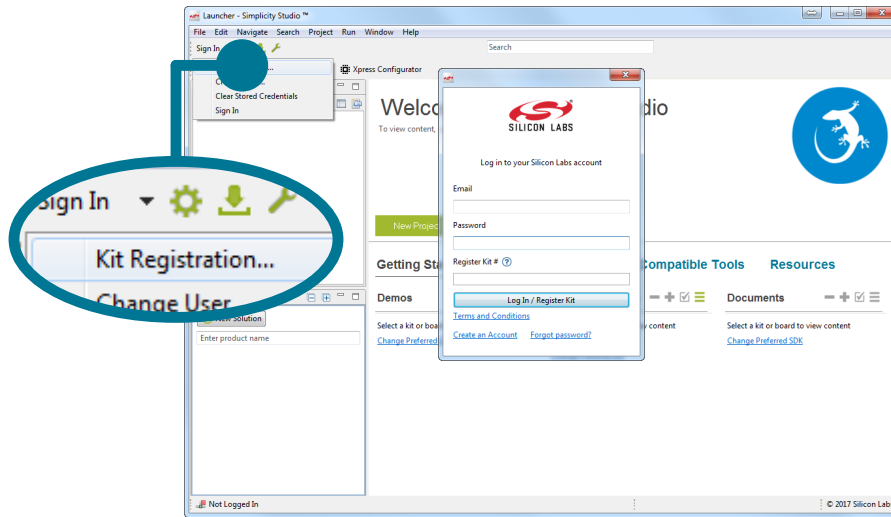
<http://www.silabs.com/simplicity-studio>



1. Download the software and follow the installation instructions.
2. When asked to sign in, enter your Silicon Labs username and password. Sign up for a new account if you don't already have one. This is required to gain access to all of the software components.



3. After signing in, register your kit with Simplicity Studio. If the kit is not registered, Simplicity Studio will only enable access to the Micrium Kernel; however, if the kit is registered, Simplicity Studio will enable access to all the other applicable Micrium components as well. The ten-digit serial number required for registration is on the box of the kit.

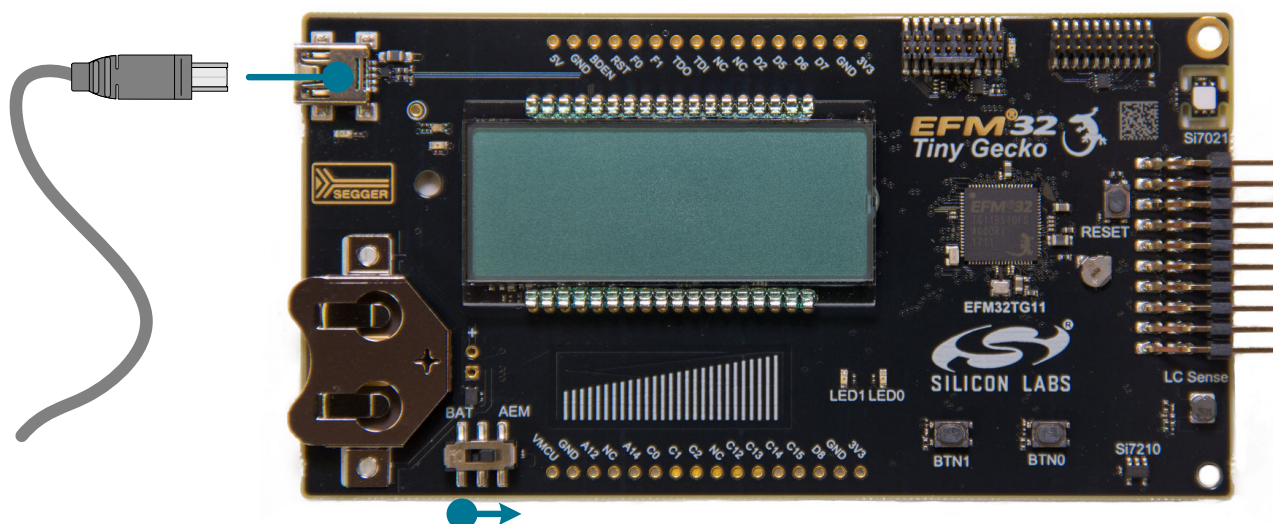


4. The installation wizard automatically selects the recommended software for the connected device or selected product line. To adjust the installed software, click the **[Update Software]**  button in the **[Launcher]** area. In the dialog that opens, select the desired software under the **[SDKs]** tab and tools under the **[Tools]** tab.
5. Finalize the installation. A restart of Simplicity Studio, as well as logging out and back in, may be required.

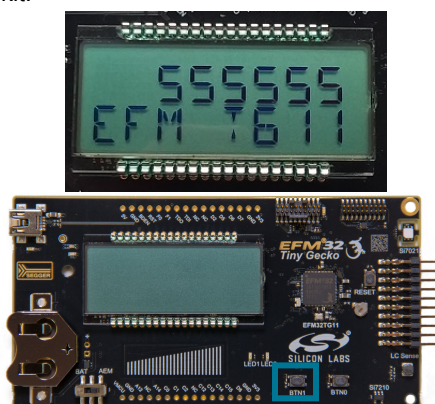
Play with the Pre-Programmed Demo While Waiting

The EFM32TG11 Tiny Gecko STK comes pre-loaded with a demo called **[lcd]**. This example demonstrates the use of the EFM32TG11 MCU's segment LCD controller.

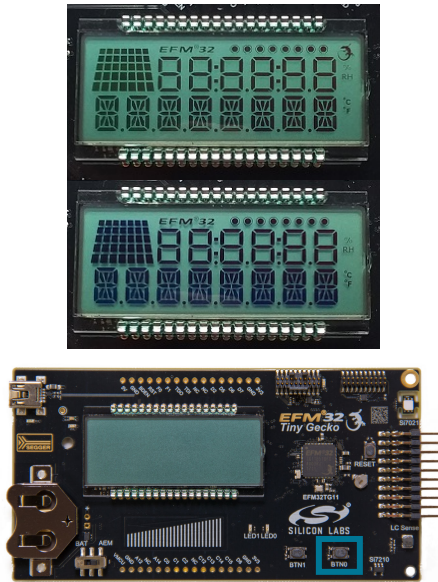
1. To run the demo, power the STK from the debug USB connector on the left and set the switch to the **[AEM]** position. Alternatively, insert a CR2032 battery and set the power-switch to **[BAT]**.



2. The display on the kit will cycle through displaying various information on the segment LCD. To pause the demo on the current screen, press the pushbutton **[BTN1]** on the kit.

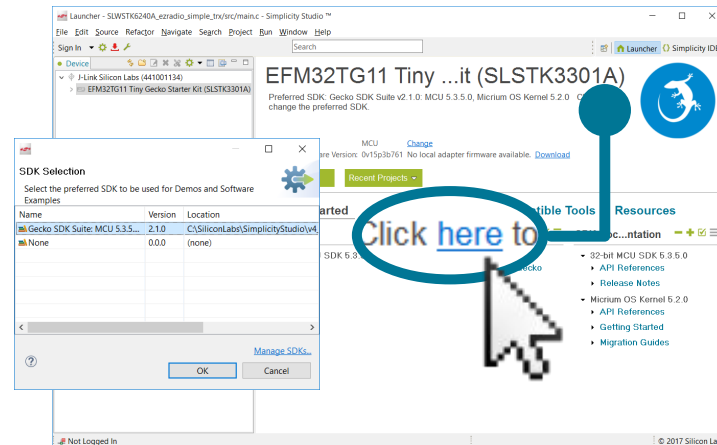


3. Additionally, the display has a feature called charge redistribution, which can be used to reduce the power consumption of the display at the cost of lower display contrast. To enable or disable charge distribution, press the pushbutton **[BTN0]** on the kit.

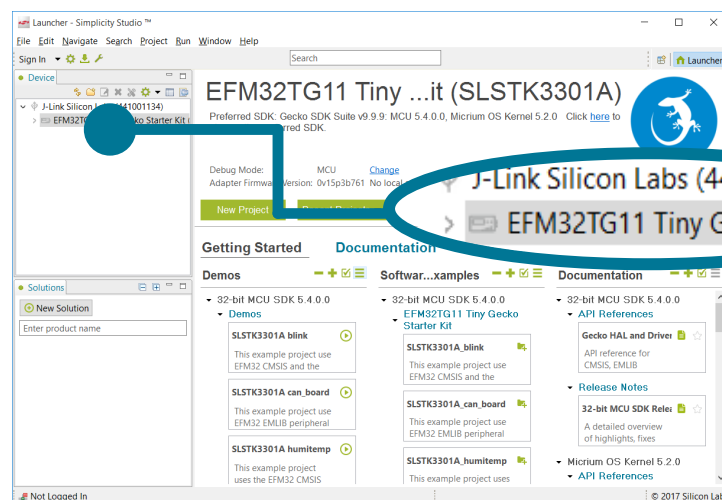


Detect Your Device

1. Provide power and a debug connection to the kit by connecting the provided USB cable between the kit and a computer. Use the USB connector in the upper left of the board.
2. Ensure the power selector switch on the STK is in the **[AEM]** position.
3. Click the **[Refresh]** button in the **[Device]** area. The board may take some time to appear due to driver installations for the debug adapter.
4. Once an item with the name **[J-Link Silicon Labs]** appears, expand by clicking the arrow, and verify that the detected devices matches the kit. Click the EFM32TG11 Tiny Gecko Starter Kit.
5. Make sure that a Gecko SDK is selected as the preferred SDK by clicking **[Click here to change the preferred SDK]** at the top of the launcher page.



6. The **[Launcher]** view will now display a number of available resources, including pre-compiled demos, examples, documentation, tools, and other resources.



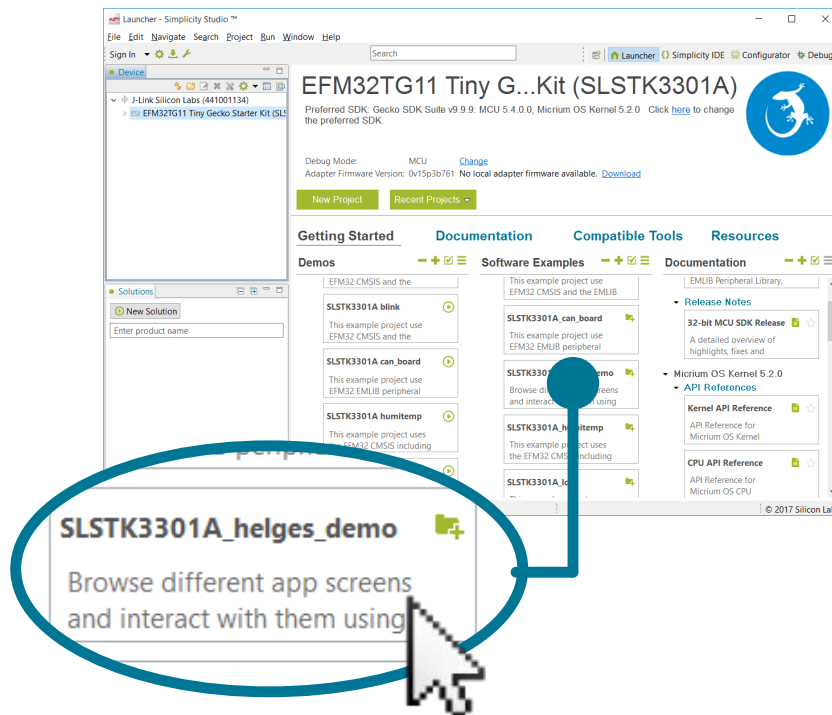
Launch an Example Project

There are two types of projects in Simplicity Studio:

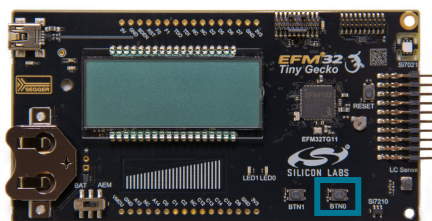
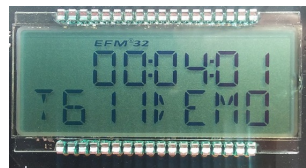
- Demos are pre-compiled, enabling them to be downloaded and run immediately without opening the associated project and compiling it.
- Example projects are source code, so they can be opened in the IDE, modified, built, and downloaded to the target device.

Demos are typically available as both demos and examples.

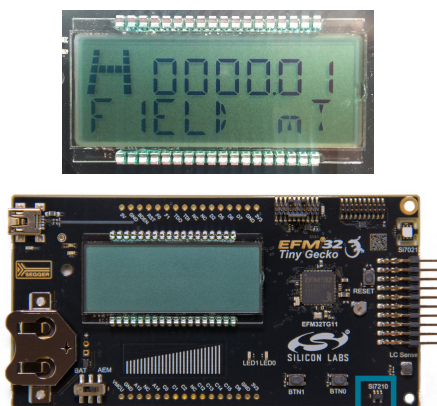
1. Under **[Getting Started]** in the Launcher, scroll down in the **[Software Examples]** column until you find **[SLSTK3301A_helges_demo]**. Click it, then answer **[Yes]** when a dialog opens asking to switch to the IDE perspective and create the example project.



2. Click the **[Debug]** button  in the menu bar along the top to compile and download the demo to the MCU. Once downloaded, the kit is running **[Helge's Demo]**. This demo showcases some of the EFM32TG11 MCU and kit features.
3. The display on the kit will show the EFM32 logo, as well as the current elapsed run time of the demo, with the text "TG11DEMO". This is the first screen of the demo. To move to the next screen, press the pushbutton **[BTN0]** on the kit. Pressing **[BTN0]** will advance to the next screen during every step of the demo.



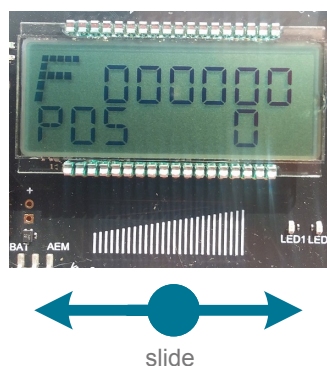
4. The second screen displays the intensity of the magnetic field, in mT, near the Silicon Labs Si7210 Hall Effect sensor, mounted on the bottom-right of the kit. Placing a magnet near this sensor will update the display with the strength of the field.



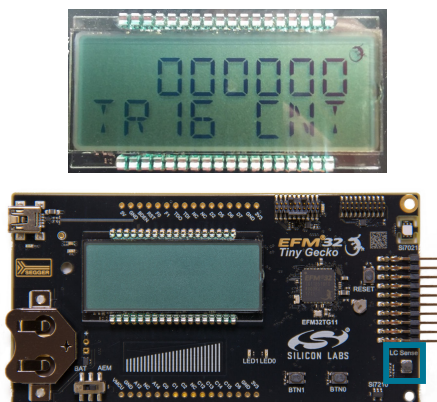
5. The third screen shows the temperature and humidity measured by the Silicon Labs Si7021 Humidity and Temperature Sensor, mounted on the top-right of the kit. Pressing the pushbutton **[BTN1]** will toggle the temperature between Fahrenheit and Celsius.



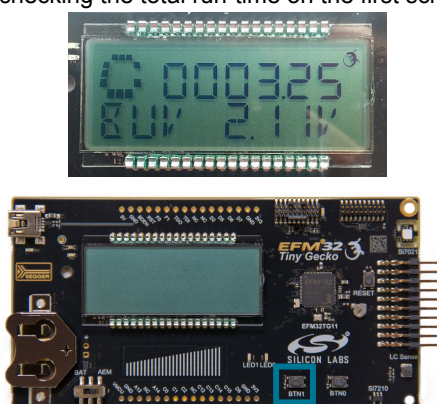
6. The fourth screen shows data coming from the capacitive sense slider. The EFM32TG11 Tiny Gecko has an advanced SAR-based capacitive touch peripheral with up to 64 inputs that provides the touch measurements. The top line of the display, next to "F", displays the force of the capacitive touch, while the line next to "POS" displays the position of the touch on the slider, from 0 to 64, from left to right.



7. The fifth screen shows the ultra-low power LESENSE peripheral in action. On this screen, LESENSE is monitoring the LC sensor on the bottom right of the kit. When it senses closeness of metal, the "TRIG CNT" is incremented by one. Move a piece of metal up to the top of the LC Sense coil to try this out.



8. The sixth screen features the backup mode of the EFM32TG11 Tiny Gecko. The upper line of the display shows the current AVDD supply voltage, while the lower line displays the voltage of the back-up domain. This mode leverages a 20 mF super-cap to keep the RTC and some memory alive on the MCU in the event of power-loss. To try it out, power the kit from a CR2032 battery, remove the USB cable (if attached), and press **[BTN1]** until "C" is displayed to enable charging of the super-cap. Then, wait until the back-up domain voltage is above 2.3 V. At this point, you can move the power-switch on the kit away from the **[BAT]** position, effectively disconnecting the battery from the EFM32TG11 Tiny Gecko. Wait for ~5 seconds, then turn the switch back to **[BAT]**. The application will resume at the backup-domain screen, rather than starting back at the run-time screen. You can then verify that the application has continued to run during this time by checking the total run-time on the first screen.



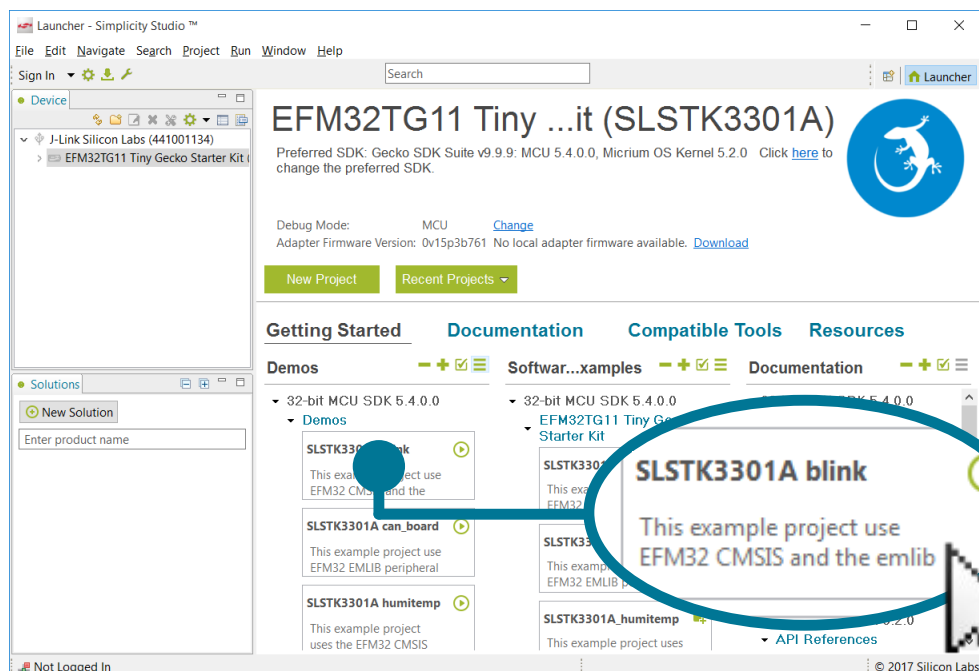
Utilize the Available Resources

The next section includes additional resources available for the kit, including software examples, documentation, and application notes.

2. Resources

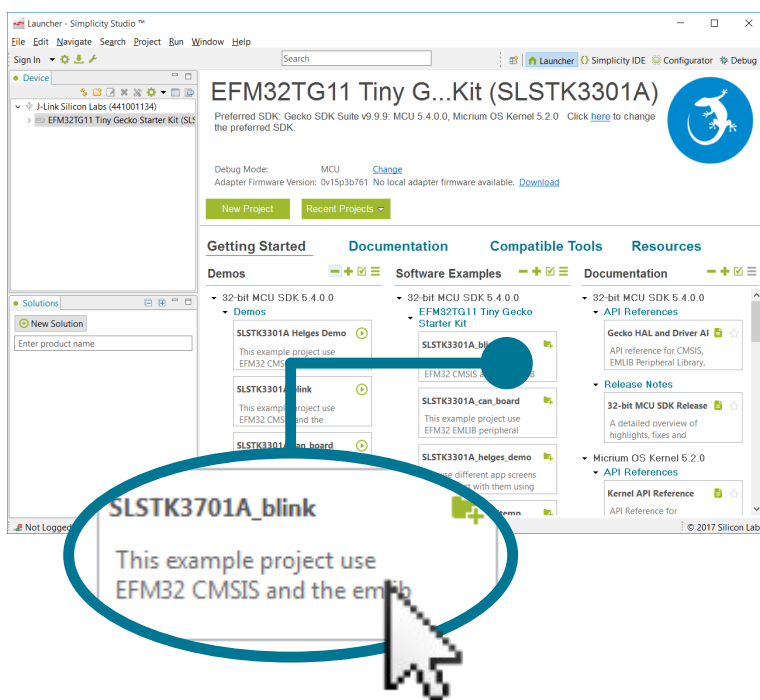
Demos

Demos are a quick and easy way to evaluate a device without compiling or debugging code. Demos can be accessed using the **[Getting Started]>[Demos]** area in the launcher.



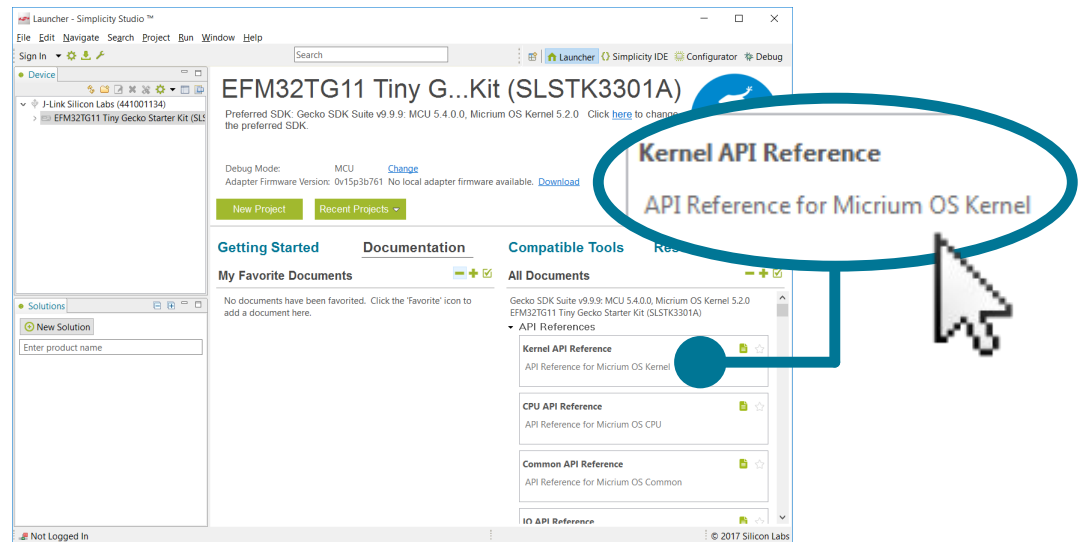
Software Examples

Software examples can be imported, compiled, and downloaded using the **[Getting Started]>[Software Examples]** area in the launcher.



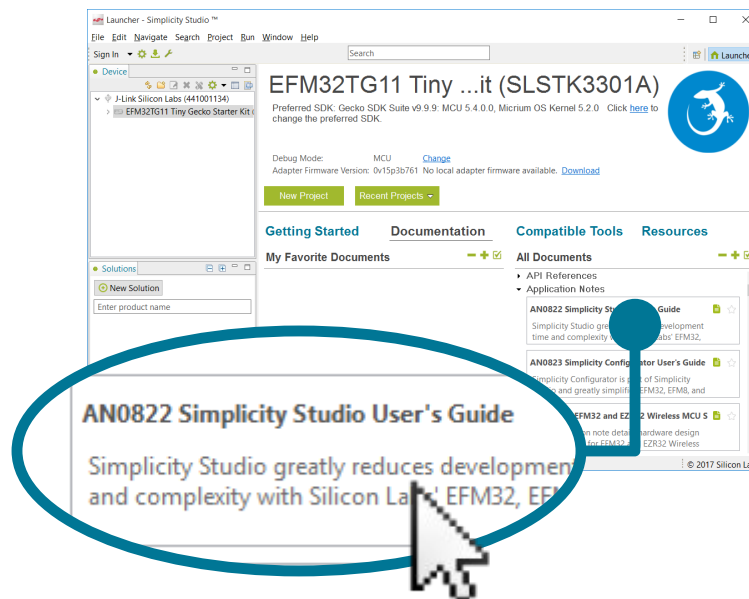
Software Documentation

Software documentation provides more information on the firmware libraries available for the selected device. Access these documents using the **[Documentation]** area in the launcher.



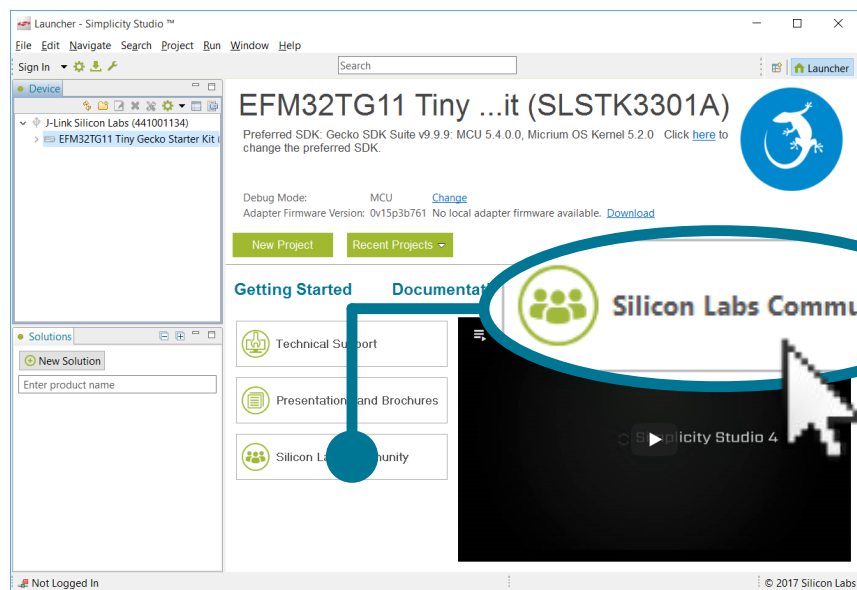
Other Documentation

Kit documentation, application notes, and device documentation can be found using the **[Documentation]** area of the launcher.



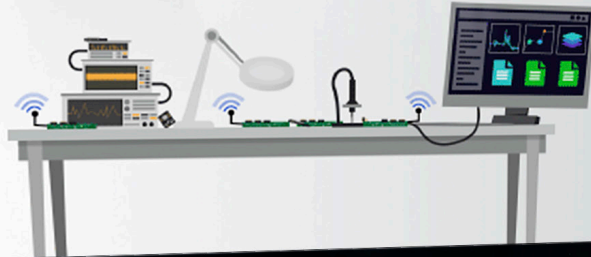
Community and Support

Have a question? Visit the community by clicking the **[Resources]>[Silicon Labs Community]** area of the launcher.



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Simplicity Studio™4



Simplicity Studio

One-click access to MCU and wireless tools, documentation, software, source code libraries & more. Available for Windows, Mac and Linux!



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