



Learn how to use HomeKit for End Device Applications

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Agenda

- **Introductions**
- **HomeKit Development Process**

Presenters



Daniel Benson

Senior Ecosystems Development
Engineer

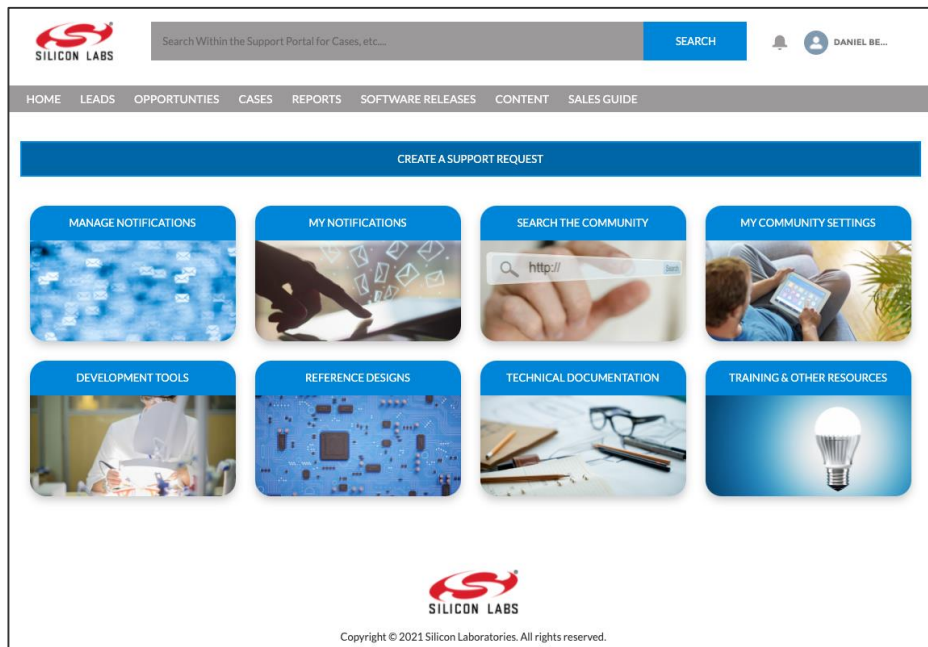
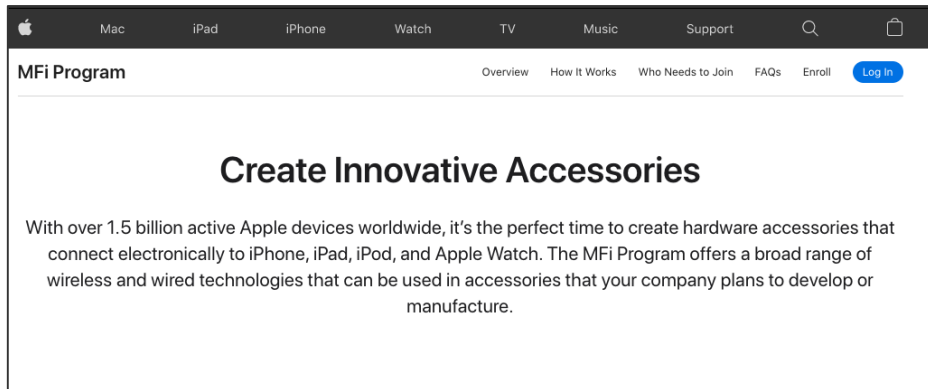


Mithil Raut

Segment Applications Engineer



Silicon Labs HomeKit SDK Access Requirements



- Silicon Labs HomeKit SDK access in Simplicity Studio is restricted to **MFi Licensee registered and verified** members.
- In order to **register** and gain HomeKit SDK access, customers should take the following steps:
 1. Obtain a MFi (Made for iPhone) account and agree to the MFi license. Visit mfi.apple.com/ to get started.
 2. Obtain a silabs.com registered account. Visit silabs.com to register if you don't already have an account setup.
- To **verify**, customers should create a support ticket on siliconlabs.force.com portal.

SDK Access Request Via Support Ticket

- Before granting you access to the HomeKit SDK, Silicon Labs needs to verify your MFi license. To do so please **create a support ticket** on <https://siliconlabs.force.com/> with the following details.
- Once Silicon Labs verifies your MFi license, HomeKit SDK access will be granted to your account, and you will be **notified via the support ticket**.

*Full Company Name _____

*Name of Primary Contact _____

*Company eMail of Primary Contact _____

Contract Number _____

Contract Version _____

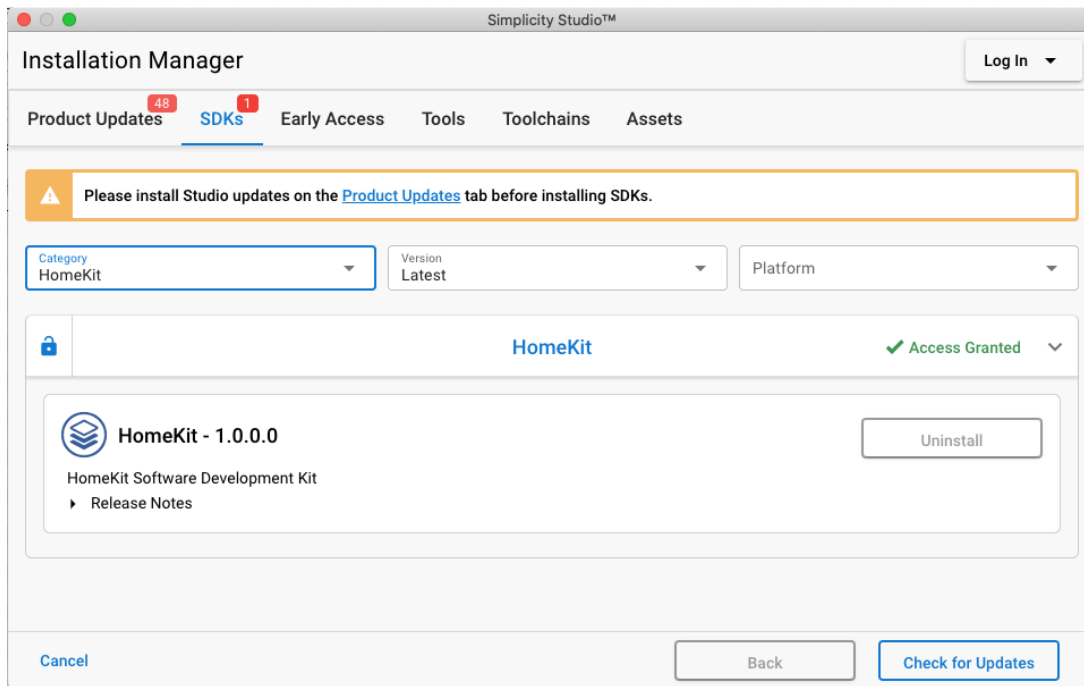
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(MFi account number) _____

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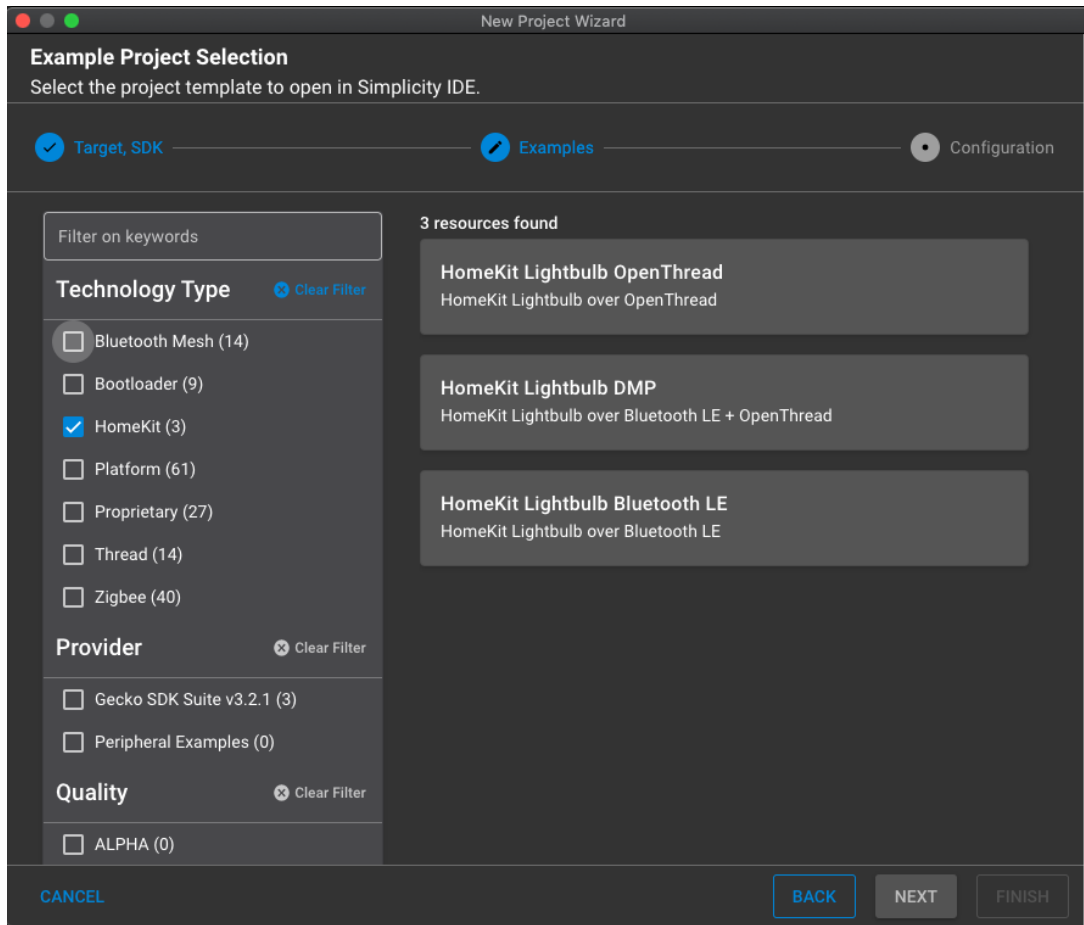
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Downloading the HomeKit SDK in Simplicity Studio 5



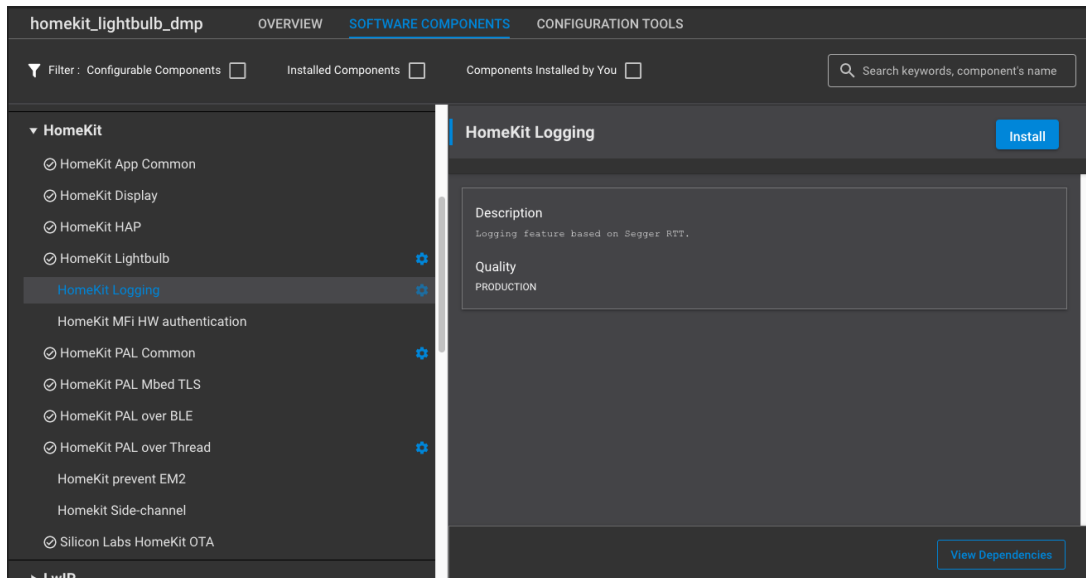
- Open Simplicity Studio 5, from the menu bar click on **Help -> Update Software**.
- In installation manager, **click on SDKs** tab. In the **Category** drop down, **click on HomeKit**. Finally, click the **Install** button.
- If the install button is grayed out, **click on Product Updates** tab and **Update All** before installing HomeKit SDK.

Using Simplicity Studio to Generate a Sample Application



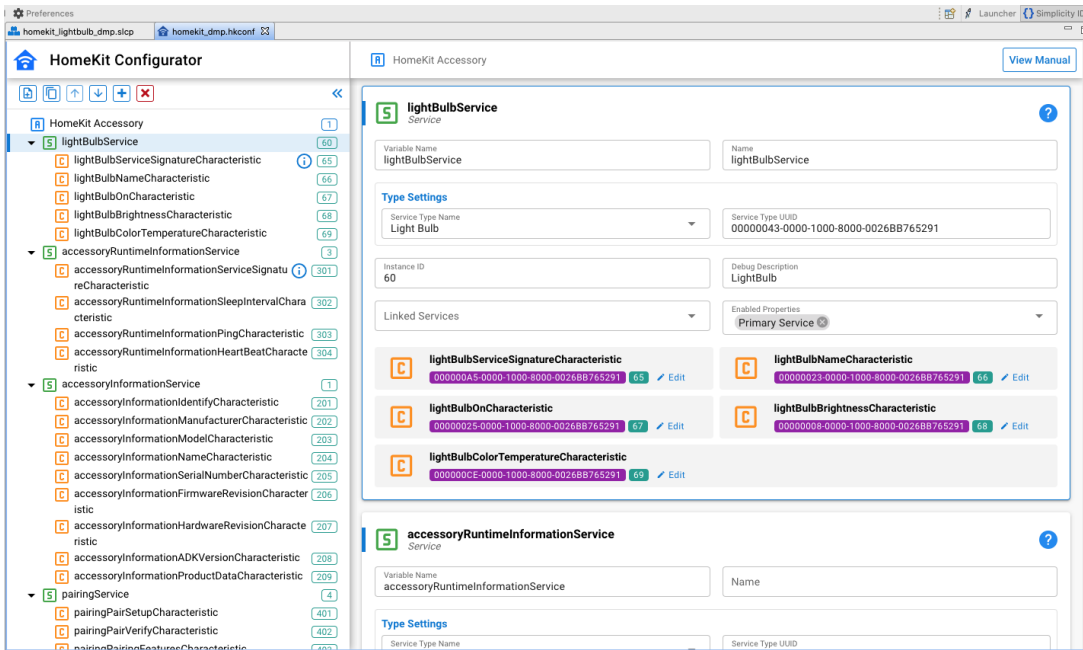
- After downloading the SDK and required dependencies, use the project wizard from File -> New Project to select your board, and desired sample application from the following:
 - **HomeKit Lightbulb OpenThread** - This is a lightbulb app only for HomeKit over OpenThread testing purposes. Not intended for production, HomeKit spec requires DMP.
 - **HomeKit Lightbulb DMP** - This is a lightbulb app using HomeKit over Bluetooth LE and OpenThread.
 - **HomeKit Lightbulb BLE** - This is a lightbulb app using HomeKit over only Bluetooth LE.
- After finishing this wizard, your project will be automatically generated.

Configuring your Sample App — Component Configurator



- The components give you control over what optional functionality you would like to include or exclude from your application.
 - HomeKit Logging
 - HomeKit MFi HW Authentication
 - HomeKit Display
 - HomeKit Prevent EM2
 - HomeKit Side Channel
- Multiple components also offer individual configurations for more granular control of the application.
- Enable or disable components for your application, then click build to create the flashable binary.

Configuring your Sample Application — HomeKit Configurator



- The HomeKit Configurator is an easy-to-use tool to help you build your own HomeKit accessory database with an intuitive GUI instead of coding.
- You can modify an accessory by adding or changing its services and characteristics. Services and characteristics can be custom or predefined based on the HomeKit specification.
- The HomeKit configuration is saved as a .hkconf file and **located at config/hkconf folder** in your HomeKit project.
- For details, refer **section 3 of AN1327: Configuring a Project in the HomeKit SDK.**

HomeKit ADK Structure in the GSDK



Lightbulb Accessory



HomeKit Accessory Protocol (HAP)



Platform Abstraction Layer (PAL)



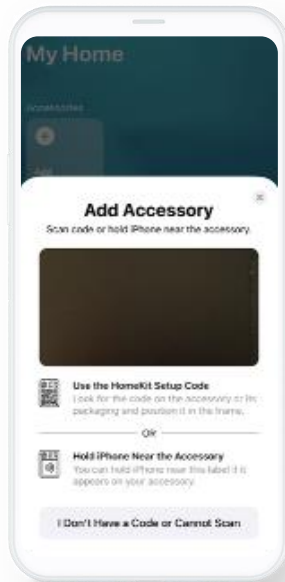
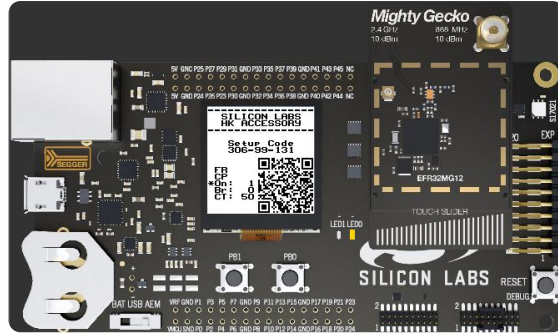
OpenThread & Bluetooth LE



Gecko SDK Platform

- **Source code for the HomeKit ADK can be found in `util/third_party/homekit`**
 - **This contains all the Apple provided HomeKit Accessory Protocol (HAP) code, as well as the Silicon Labs PAL implementation.**
- **The application specific code can be found in `app/homekit`.**
 - **This contains lightbulb specific code such as `App.c`, and this is where all vendor specific code should be placed.**
 - **The HomeKit Lightbulb component, which is included by default for all HomeKit Lightbulb sample applications, is also located here.**

Controlling the HomeKit DMP Application



- After building and flashing your HomeKit Lightbulb Application, a QR code will appear on the display.
- Scan this using your iOS device.
 - Your iOS device will pair with the Lightbulb using HomeKit over BLE.
- If you have set up a HomePod Mini, it will then automatically send the Thread network credentials to the device and it will join the HomePod's Thread network.
 - You can now control the Lightbulb using HomeKit over Thread via your HomePod Mini.

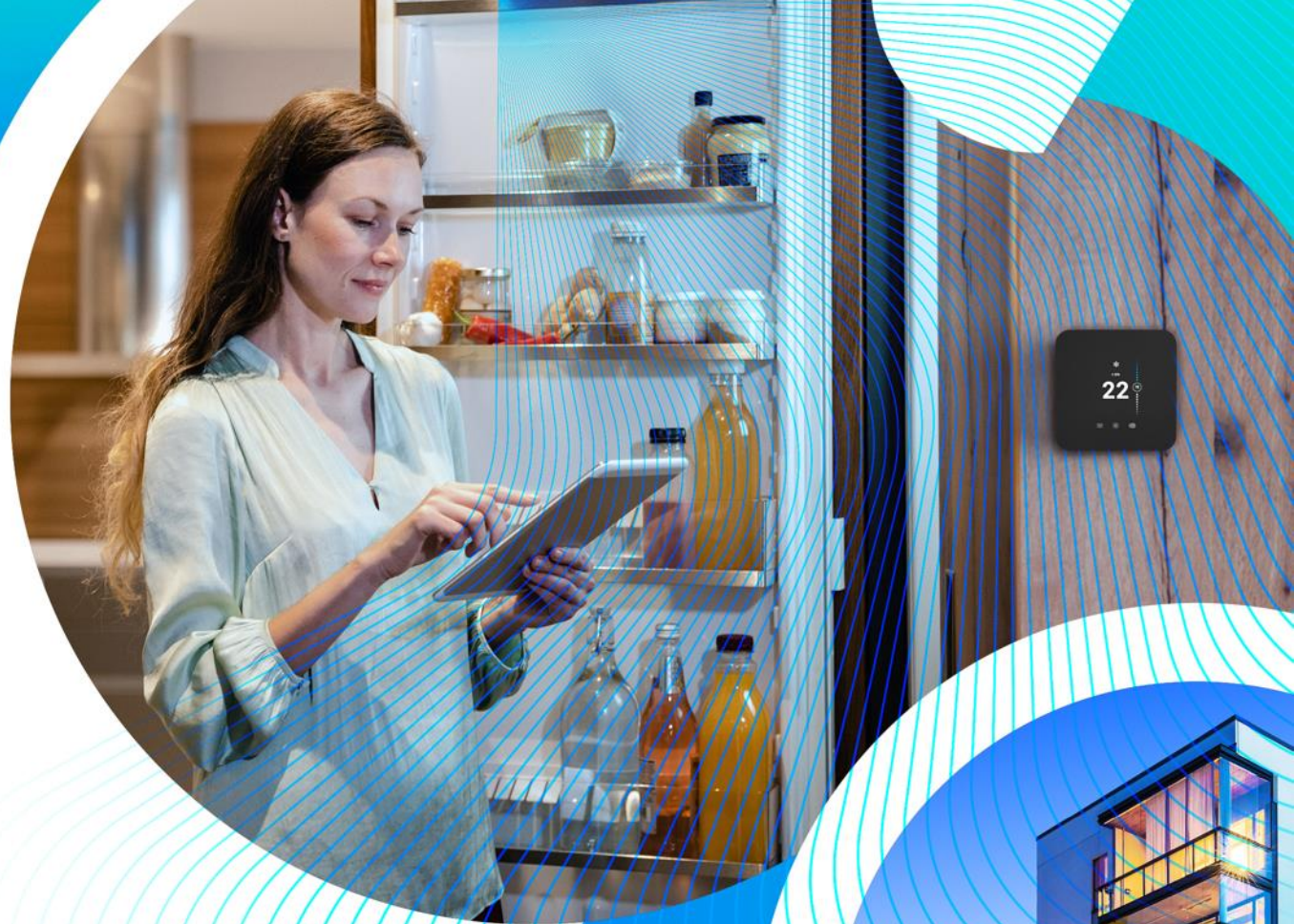
Silicon Labs HomeKit 1.0.0.0 documentation

- **HomeKit documentation can be accessed from the documentation tab in Simplicity Studio 5 after installing the HomeKit SDK.**
- **QSG179: HomeKit SDK Quick-Start Guide**
 - About the Silicon Labs HomeKit SDK
 - About Example Applications and Demos
 - Getting started with development and Development tools
- **AN1327: Configuring a Project in the HomeKit SDK**
 - Configuring Components
 - Adding GATT Characteristics
 - Adding the HomeKit Side Channel Feature
 - Configuring the Bluetooth LE Advertisement Interval
 - Setting up Thread
- **UG493: HomeKit Developer's Guide**
 - Authentication methods
 - Persistent storage
 - Memory use
 - OTA update
 - Sleep functionality
 - Security
 - HomeKit provisioning tool
 - HAT and HCA
 - Debugging

Nanoleaf Essentials



- The first set of products using the Silicon Labs implementation of HomeKit over OpenThread and Bluetooth Low Energy.
- Works seamlessly with the Apple HomePod and Apple Home app to control the light using HomeKit over OpenThread after commissioning to the Thread network via Bluetooth.



Thank you