



Learn how to use HomeKit for End Device Applications

Daniel Benson, Mithil Raut



Agenda

- Introductions
- HomeKit Development Process



Presenters



Daniel Benson

Senior Ecosystems Development Engineer



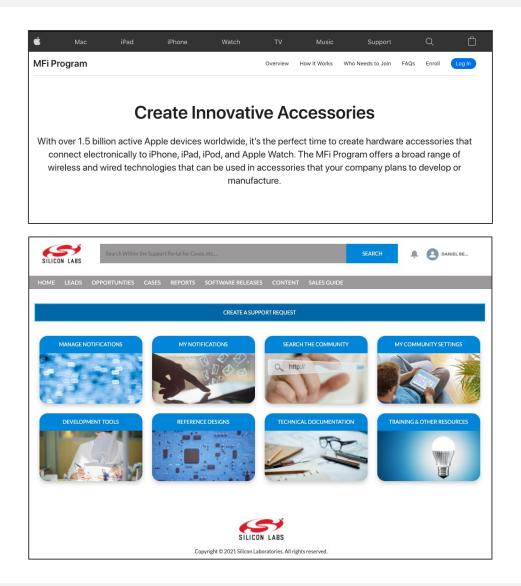
Mithil Raut

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:
 - Obtain a MFi (Made for iPhone) account and agree to the MFi license. Visit <u>mfi.apple.com/</u> to get started.
 - 2. Obtain a <u>silabs.com</u> registered account. Visit <u>silabs.com</u> to register if you don't already have an account setup.
- To verify, customers should create a support ticket on <u>siliconlabs.force.com</u> 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 <u>https://siliconlabs.force.com/</u> 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	
* Account Number (MFi account number)	
Account Type	
Account Subtype	
License Type	



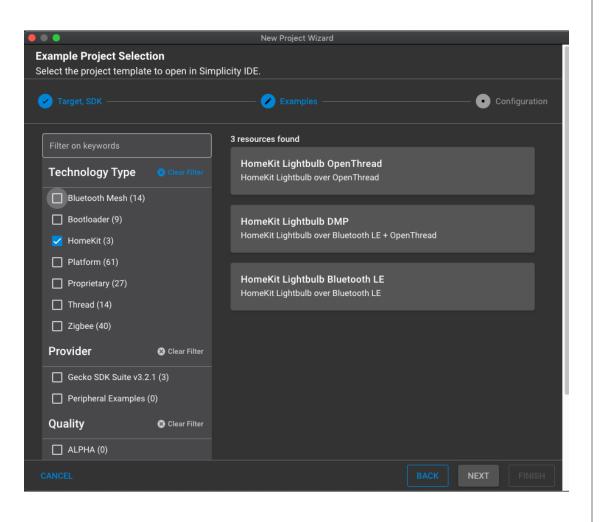
Downloading the HomeKit SDK in Simplicity Studio 5

		Simplicity Studio ^{TI}	м			
Installation Manager					Log In	•
Product Updates SDKs	Early Access Tools	Toolchains	Assets			
A Please install Studio updates on the Product Updates tab before installing SDKs.						
Category HomeKit	▼ Version Latest		•	Platform		•
8		HomeKit			✓ Access Granted	~
HomeKit - 1.0.0. HomeKit Software Developm Release Notes					Uninstall	
Cancel				Back	Check for Updates]

- 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

homekit_lightbulb_dmp OVERVIEW SOFTWARE COMPONENTS CONFIGURATION TOOLS					
▼ Filter : Configurable Components □ Installed Components □	Components Installed by You	Q Search keywords, component's name			
✓ HomeKit	HomeKit Logging	Install			
⊘ HomeKit App Common					
⊘ HomeKit Display					
⊘ HomeKit HAP	Description Logging feature based on Segger RTT.				
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HomeKit Logging 🔅	PRODUCTION				
HomeKit MFi HW authentication					
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⊘ HomeKit PAL Mbed TLS					
⊘ HomeKit PAL over BLE					
⊘ HomeKit PAL over Thread 🔅					
HomeKit prevent EM2					
Homekit Side-channel					
⊘ Silicon Labs HomeKit OTA		View Dependencies			
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- 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.



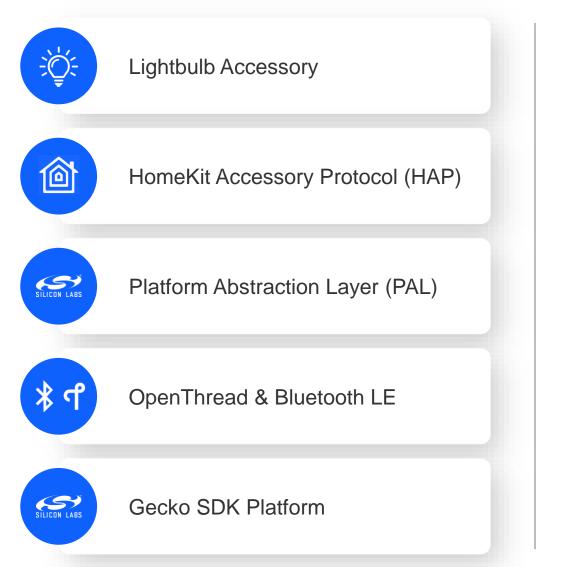
Configuring your Sample Application — HomeKit Configurator

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HomeKit Configurator	HomeKit Accessory			
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C lightBulbNameCharacteristic 66				
C lightBulbOnCharacteristic 67	Type Settings			
C lightBulbBrightnessCharacteristic 68	Service Type Name	Service Type UUID		
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C pairingPairVerifyCharacteristic (402)	Type Settings			
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- 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.



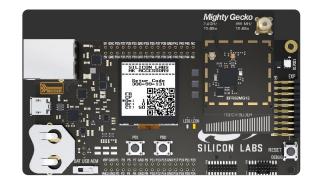
HomeKit ADK Structure in the GSDK

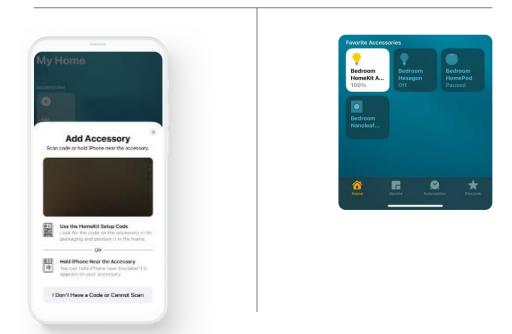


- Source code for the HomeKit ADK can be found in util/third_party/homekit
 - This contains all the Apple provided HomeKit Accessory Protocol (HAP) code, as well as the Silicon Labs PAL implementation.
- The application specific code can be found in app/homekit.
 - This contains lightbulb specific code 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

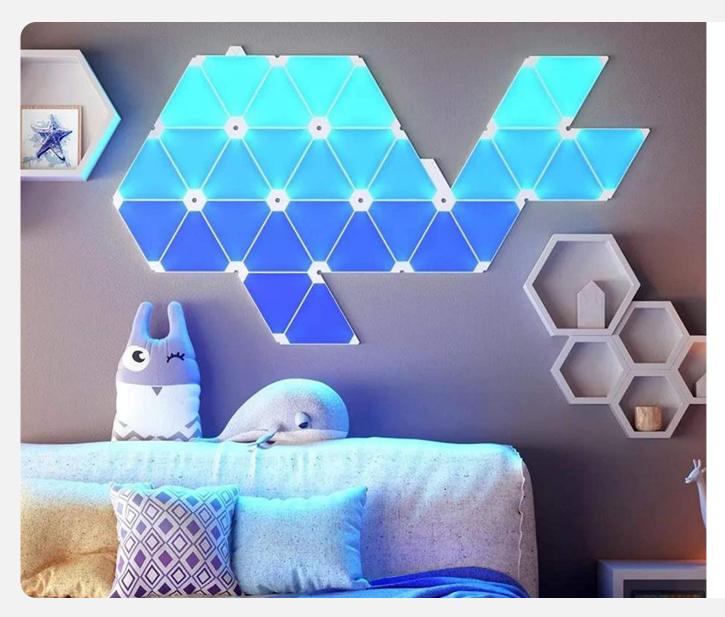
- Configuring Components
- Adding GATT Characteristics
- · Adding the HomeKit Side Channel Feature
- Configuring the Bluetooth LE Advertisement Interval
- Setting up Thread

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

