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MAT-203

Developing Matter Products for Smart Home Ecosystems

Daniel Benson | August 2023



Agenda

- Introduction to Matter Developer Journey
- Matter and the Ecosystems
- Ecosystem Features
- Matter Challenges
- Silicon Labs Developer Journey
- Getting Started with Matter development

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Introduction to Matter Developer Journey

Introduction to Matter Developer Journey: 5W's

- **WHAT:** Starting point and one-stop-shop for Matter Development with Silicon Labs and the Smart Home ecosystems
- **WHY:** Matter Development can be confusing!
 - Simplify into easy-to-understand steps
- **WHO:** Silabs, Ecosystems, CSA, Matter product developers
- **HOW:** Consolidate the needs of the developer and ecosystems into a single flow.
 - Make a product that can work with all the major ecosystems supporting Matter
 - Learn their differentiating features and certification programs
- **WHERE:** Published to the silabs.com website
 - Constantly updated to include the latest resources and documentation from Silicon Labs, CSA, and the Ecosystems
- **WHEN:** Now!

SILICON LABS Products Applications Ecosystems Resources Company English

Wireless Matter Matter Developer Journey

Matter Developer Journey With Silicon Labs

Silicon Labs can accelerate the development of Matter devices, starting by outlining each step in the process and helping you along each stage of your project including guiding you along the path of key Ecosystem providers. We're here to simplify your development journey and help you get your devices to market faster and more efficiently.

We've outlined below three key stages of the Matter development journey, along with what's required to successfully complete each stage.

[Getting Started](#) [Develop](#) [Deploy Product](#)

1. Learn and Explore 2. Choose Your Hardware Platform 3. Buy Your Dev Kit 4. Create User Accounts 5. Set Up Dev Environment

1. Introduction to Matter - Learn and Explore

Matter: A Unified Approach to IoT Device Development
Matter drives the convergence between the major IoT ecosystems to create one easy, reliable, and secure wireless protocol to connect all IoT devices and networks.

Additional Resources from Silicon Labs
[Matter Product Brief](#)
[Matter Technology Training](#)
[Matter Production Simplified](#)
[Matter Connectivity Standard FAQ: Volume 2](#)
[Matter Workshop - Matter-over-Thread in Simplicity Studio](#)

Whitepapers
[Fundamentals of Matter and Smart Home Ecosystems](#)
[Matter Security: Applying Privacy Fundamentals](#)
[Bridging Existing Smart Devices with New Matter-Based Devices](#)
[Fundamentals of Matter and Smart Home Ecosystems](#)
[Matter Certification: The Value It Brings to IoT Devices](#)
[Understanding The Path to Certifying Your Matter Devices](#)

Blogs
[Matter 1.1: Enhancements for Developers and Devices](#)

csa connectivity standards alliance
The connectivity Standards Alliance is the standards defining organization for Matter. matter was created on the promise of reliable and secure connectivity.

Additional Resources from CSA
[Introduction to Matter - Connectivity Standards Alliance](#)
[Matter Executive Overview](#)
[Video: Matter - Making the Smart Home a More Connected, Comfortable and Helpful Place](#)
[Video: Matter and Developers - Connectivity Standards Alliance](#)
[Video: Matter Network Transport - Connectivity Standards Alliance](#)
[Video: Matter Security and Privacy](#)

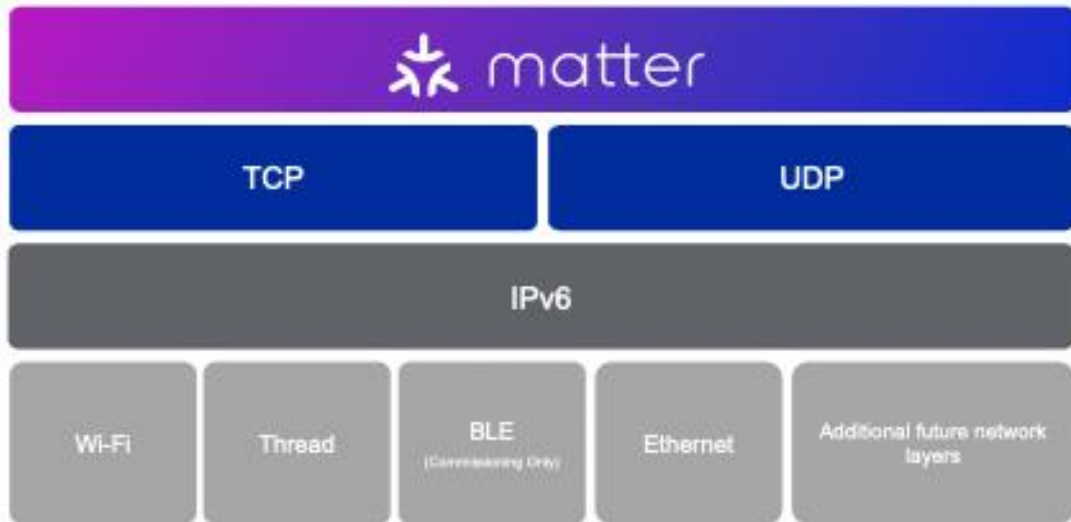


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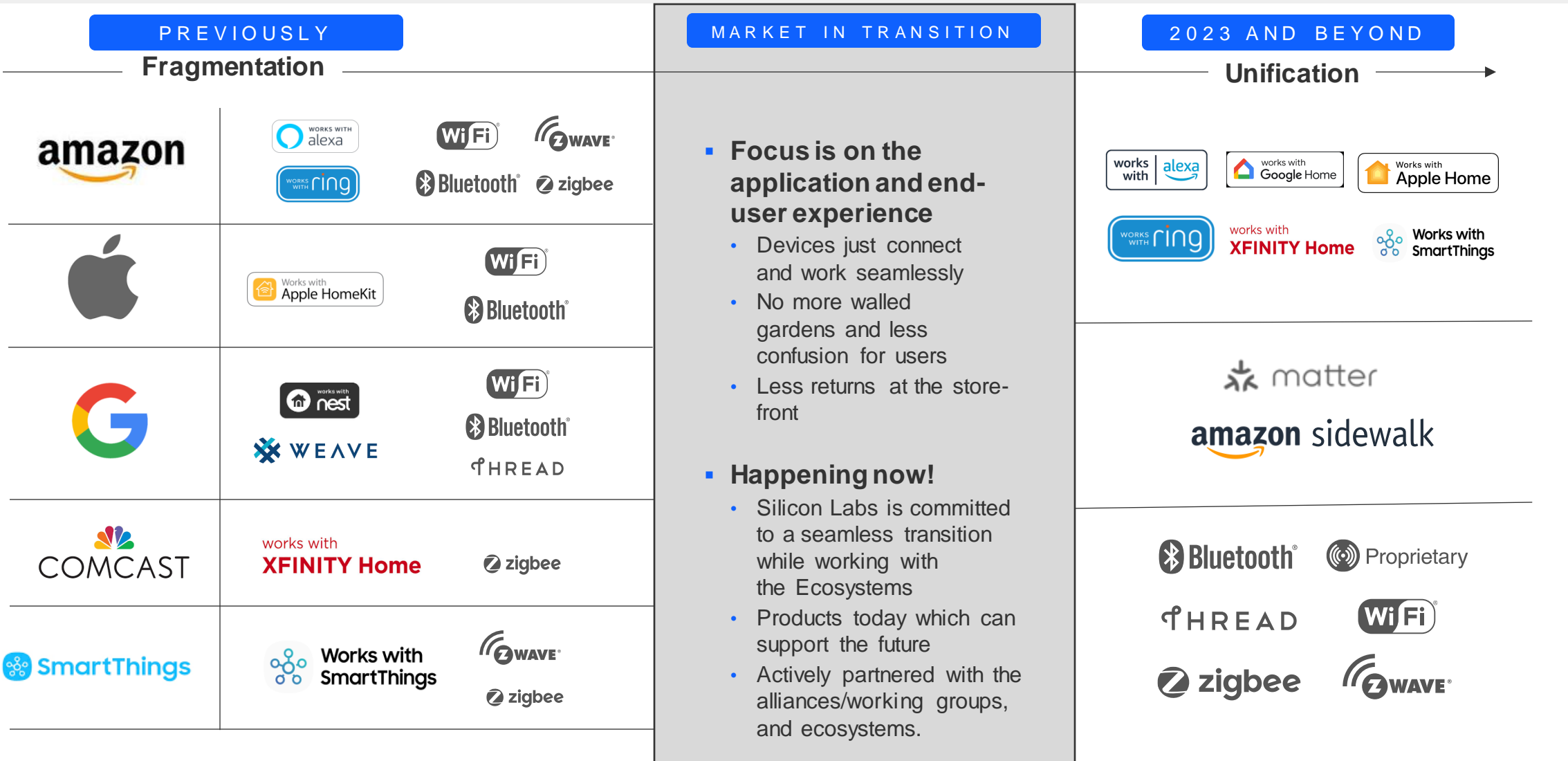
Matter and the Ecosystems

Matter & The Ecosystems



- Matter is an open standard for the application layer of smart home products managed by the Connectivity Standards Alliance (CSA).
- Driven by over 220 CSA Member companies including the largest smart home ecosystem brands such as Google, Apple, Amazon and Samsung SmartThings.
- Increases interoperability between ecosystems
- Reduces complexity for product developers
- Simplifies setup and control for better user experience
- Native IP support to allow connectivity to the wide web

Matter & The Ecosystems – Past, Present, and Future



Matter & The Ecosystems – Promises of Interoperability



- A key promise of Matter is that a certified device should be able to interoperate with any other certified Matter device
 - Any end device should work with all of the major smart home ecosystems
- All devices, controllers, and bridges use the same interaction, system, and application cluster models – a common application language
- Any member company can contribute new features to the spec and codebase

Matter & The Ecosystems – Defining how Matter is used

- Matter gives us a common application language, but ecosystems define how that language is used.
- The ecosystems define the experiences that the end consumer will have with Matter.
- Ecosystems are the primary way that users will interact with matter devices.



Matter & The Ecosystems – The primary interface to the user



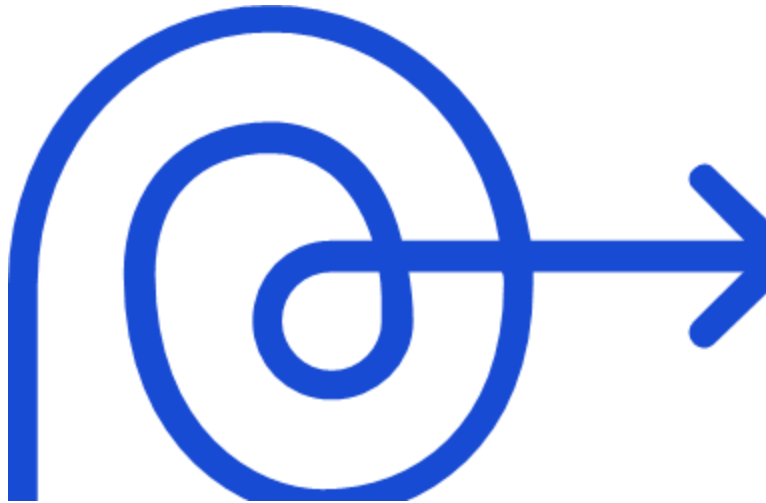
Google matter



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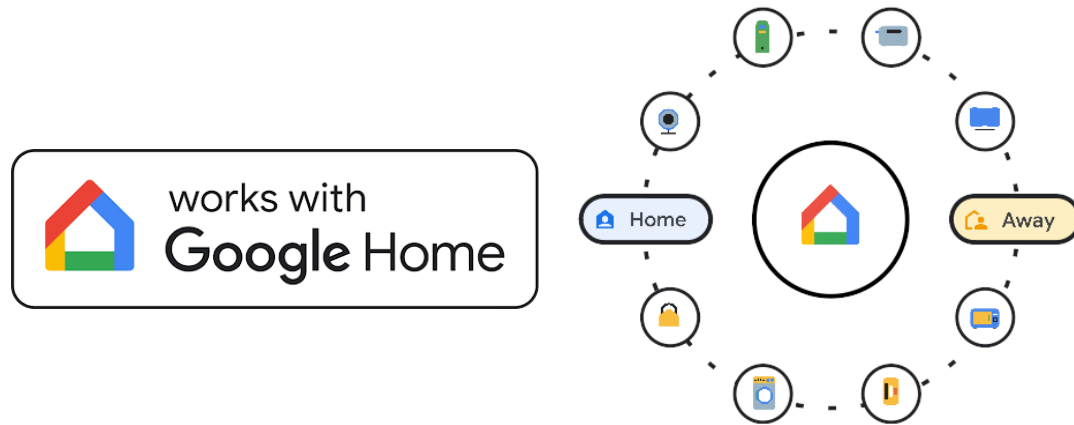
Ecosystem Features

Why build with the Ecosystems?



- Complications and concerns
 - “Isn’t this just adding another step and another bar to entry into the smart home world?”
 - “The ecosystems will commoditize me, how will I be able to differentiate my product?”
- The ecosystems provide a guaranteed sales channel and scaling partner for your new product
 - Some of largest and most recognizable brands in the world
- They provide a familiar brand and application interface to the end user
- They will support you through the development process and provide help and guidance
 - It is in their best interest to ensure the market of products they work with is broad and diverse, meeting all users needs
 - Gives you back more time in development to work on differentiation using your company’s strengths

Ecosystem Features - Google



Google  matter



■ Google in the Market

- Over 3 billion Android devices worldwide have access to the Google Assistant with built-in Google Home app integration
- Estimated ~100 million smart home devices sold to date
- Works with Google Home branding

■ Differentiation

- Extensive documentation and tools for improving developer experience
 - Google VS Code Extension
 - Google Home Sample App
- Home and Away Intelligence Clusters
 - Localized information about state of the smart home for automation
- Automation scripting and templating
- Integration with Google Cloud Analytics
- Fully online Works with Google Home certification program and test suite

Ecosystem Features - Amazon



■ Amazon in the Market

- Large installed base of Alexa smart speaker products
- Amazon Web Services dominates the cloud infrastructure market
- Large online marketplace
- Works with Alexa branding

■ Differentiation

- Matter Simple Setup
 - Matter specific implementation of the Frustration Free Setup
 - Seamless commissioning of new Wi-Fi Matter products
- Bridging to legacy Zigbee devices
- Alexa Connect Kit
- Integration with AWS IoT Core Services

Ecosystem Features – Samsung SmartThings



Works with SmartThings



■ Samsung SmartThings in the Market

- Second largest consumer electronics brand with massive market share in smart phones, appliances, and TV's
- Second most recognizable and valuable brand in the world
- Works with SmartThings branding

■ Differentiation

- Integrating SmartThings Hub support with Matter Controller and OpenThread Border Router functionality into TV's, appliances, and charging hubs with Hub Everywhere initiative
- Support for Zigbee and Z-Wave legacy devices through Aeotec SmartThings Hubs
- Online Works With SmartThings certification program
- Extensive online documentation and console for Matter development

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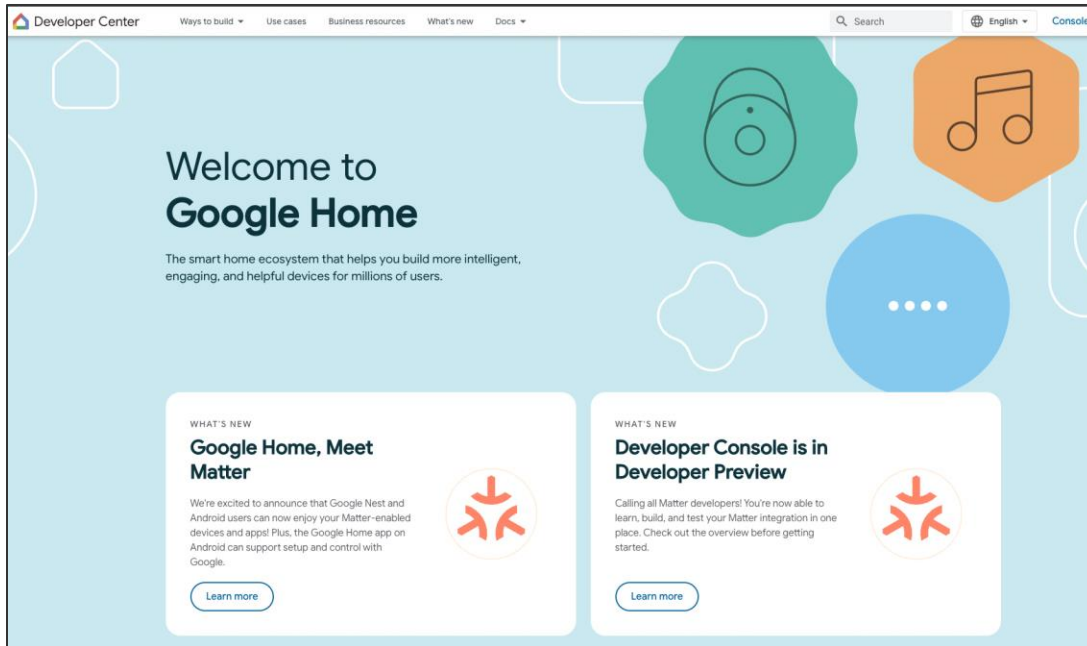
Matter Challenges

Matter Challenges



- Where to start!?
 - Complex and time-consuming
 - CHIP Tool, OpenThread Border Routers, Raspberry Pi
 - Ecosystem Border Routers
- Steep learning curve of Thread
 - Understand OpenThread Border Routers, Router devices, and End Devices
 - CLI commands to start up Thread network
 - How does CHIP Tool interact with OpenThread Border Router application?
- Proof of concepts can be hard to create
 - Too many pieces and too many options
 - Develop a smart phone app for control?
 - CHIP Tool is confusing and not easy to demo
 - Ecosystems all have different tools, which do I use?

Matter Challenges – How can the Ecosystems help?



- Ecosystems provide an easier path to get started with Matter
 - No need to setup your own Border Router and Thread Network, or Matter controller/application
 - Provides much cleaner and realistic proof of concept
- Alleviates many of the early technical challenges
 - Initial startup is reduced to minutes instead of hours or days
 - Allows end device makers to focus on their products and what differentiates them from competition
- Provides support for developers with documentation, sample applications, and tutorials
- Making a product for one of the ecosystems with Matter is making a product for all ecosystems
 - Interoperability with all ecosystems is required

Matter Challenges – How can Silicon Labs help?



- How to solve this confusion and leverage the ecosystems?
 - Silicon Labs is simplifying the development experience and accelerating time-to-market for our customers
 - Silicon Labs wants to educate developers on the benefits of adopting Thread and Low Power Wi-Fi for Matter devices
- What do our customers need?
 - A clear, step-by-step guide on how to get started with Matter
 - Education materials on Matter, Thread, Wi-Fi, and how it all works with the Ecosystems
 - Scripts, tooling, and tutorials to support them as they begin development
 - Software delivery that meets them where they are at in their development and software updates to pick up critical changes and fixes
 - Sample apps to help get started that work well with ecosystems

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Deep Dive: Silicon Labs Matter Developer Journey

Matter Developer Journey Flow

Start Your Matter
Development Journey
with Silicon Labs

Unmatched Silicon,
Software, and Tools for
Matter Development



Matter Developer Journey: Getting Started

- **Broken down into 5 easy to understand steps**
 - Learn and Explore
 - Choose your hardware platform
 - Buy your dev kit
 - Create user accounts
 - Set up Dev Environment
- **Designed for the user to learn about Matter and its benefits**
 - Get a base understanding of the protocol, and where to start your development
 - Resources provided by Silicon Labs, the Connectivity Standards Alliance, and the smart home ecosystem brands
- **Walk the user through the initial steps to begin Matter product development**

The screenshot shows the Silicon Labs website's 'Matter Developer Journey' page. The page is titled 'Matter Developer Journey With Silicon Labs' and features a navigation menu with 'Getting Started', 'Develop', and 'Deploy Product'. A progress bar indicates five steps: 1. Learn and Explore (active), 2. Choose Your Hardware Platform, 3. Buy Your Dev Kit, 4. Create User Accounts, and 5. Set Up Dev Environment. The main content area is titled '1. Introduction to Matter - Learn and Explore' and includes a sub-section 'Matter: A Unified Approach to IoT Device Development'. It lists 'Additional Resources from Silicon Labs' such as 'Matter Product Brief', 'Matter Technology Training', 'Matter Production Simplified', 'Matter Connectivity Standard FAQ: Volume 2', and 'Matter Workshop - Matter-over-Thread in Simplicity Studio'. It also lists 'Whitepapers' and 'Blogs'. At the bottom, it features the 'connectivity standards alliance' logo and a section for 'Additional Resources from CSA' including 'Introduction to Matter - Connectivity Standards Alliance', 'Matter Executive Overview', and several videos.

Matter Developer Journey: Develop

- **Provide key steps and resources for use during active Matter product development**
 - Develop your product
 - Test & Iterate
 - Certify Product
- **Guide the user to important and useful links and resources from the CSA and Ecosystems for certification and branding**
 - How to obtain "Works With..." certifications

The screenshot displays the Silicon Labs website's 'Matter Developer Journey With Silicon Labs' page. The page is structured as follows:

- Navigation:** Top navigation includes 'SILICON LABS', 'Products', 'Applications', 'Ecosystems', 'Resources', and 'Company'. A breadcrumb trail shows 'Wireless // Matter // Matter Developer Journey'.
- Section Header:** 'Matter Developer Journey With Silicon Labs'.
- Introduction:** A paragraph explaining that Silicon Labs can accelerate the development of Matter devices by outlining each step and helping users along the path of key ecosystem providers.
- Stages:** A progress bar with three stages: '1. Develop Your Product' (active), '2. Test & Iterate', and '3. Certify Product'.
- 1. Develop Your Product:**
 - Text: 'These resources will be helpful during your development cycle.'
 - Links: [Matter Specification](#) and [Silicon Labs Matter Development](#).
 - Section: 'Explore these Quick Start Videos below.'
 - Three video thumbnails:
 - Matter over Thread Light Device:** Features a smart light bulb.
 - OpenThread Border Router:** Features a circuit board.
 - Joining a Google Home Network:** Features a smartphone screen.
- Partners:** Logos for 'AMAZON ALEXA', 'GOOGLE HOME', and 'SAMSUNG'.
- Footer:** 'amazon alexa' logo and 'Amazon Alexa Resources' with a link to 'Understand Smart Home Matter Support'.

Matter Developer Journey: Deploy Product


- **Focuses on two main steps where Silicon Labs and the ecosystems can help with deployment of your product:**
 - Manufacturing your product
 - Operate product
- **Resources from Silicon Labs for improving the manufacturing process using our Custom Part Manufacturing Service (CPMS)**
- **Monitoring and updating your product in the field with the help of the ecosystems.**

The screenshot displays the Silicon Labs website page for the Matter Developer Journey. The navigation bar includes 'Products', 'Applications', 'Ecosystems', 'Resources', and 'Company'. The main heading is 'Matter Developer Journey With Silicon Labs'. Below this, a progress indicator shows three stages: 'Getting Started', 'Develop', and 'Deploy Product', with 'Deploy Product' being the active stage. Under '1. Manufacture Product', there is a sub-section for 'MATTER OVER THREAD' and 'MATTER OVER WI-FI'. Four product categories are listed with 'Buy Now' buttons: 'EFR32MG21 SoCs', 'EFR32MG21 Modules', 'EFR32MG24 SoCs', and 'EFR32MG24 Series 2 Modules'. A 'Contact Sales' button is also present. At the bottom, there are links for 'AMAZON ALEXA', 'GOOGLE HOME', and 'SAMSUNG'.

Matter Developer Journey: Ecosystem Specific Content

- Each of the sections which contain content specific to the ecosystems will have dedicate tabs at the lower part of the section
- Helps the developer to learn dedicated resources for each step of the journey for each of the chosen ecosystems
- Directs the user to necessary steps for Ecosystem certification programs


AMAZON ALEXA GOOGLE HOME SAMSUNG



What is Alexa?

Alexa is Amazon's cloud-based voice service available on hundreds of millions of devices from Amazon and third-party device manufacturers. With Alexa, you can build natural voice experiences that offer customers a more intuitive way to interact with the technology they use every day. We offer a collection of tools, APIs, reference solutions, and documentation to make it easier to build for Alexa.


AMAZON ALEXA GOOGLE HOME SAMSUNG



What is Google Home?

With Matter IoT devices supporting the Google Home ecosystem, you can access an expansive customer base and take advantage of a carefully designed and tested Google Home user experience familiar to millions of users around the world. Google tools provide you with a unified experience to develop Matter devices with seamless setup, control, and interoperability with Google Home and other ecosystems. Matter and Google Home thus enables you to launch products quickly and efficiently and grow your business faster.

AMAZON ALEXA GOOGLE HOME SAMSUNG



What is Samsung SmartThings?

Developing Matter IoT devices for SmartThings brings numerous benefits. SmartThings enhances interoperability, simplifies integration, expands device choice, and future-proofs the smart home ecosystem. It ultimately provides a better user experience and greater flexibility for SmartThings.

Matter Developer Journey: Iterative and Collaborative

- Silicon Labs is partnering with the smart home ecosystems to keep these journeys up-to-date
- We will work with customers and partners to ensure that this journey is smooth
- Use these learnings to integrate into our tools and developer flows



Matter Developer Journey: Live now!

Get started with our Matter Developer Journey here:

<https://www.silabs.com/wireless/matter>

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Getting Started with Matter Development

Recommended Matter Solutions



High-performance Low-power SoC

- Feature Rich End Devices
- SoCs and Modules
- Thread + BLE
- Low Power
- Large Flash/RAM
- Robust peripheral set
- AI/ML accelerator
- Secure Vault High



Low-cost RCP / RCP Solution

- Optimized for Hubs/Bridges
- ICs
- Thread
- Radio Coprocessor
- Requires Host MCU/MPU
- Concurrent Zigbee / Thread
- Lowest BOM count
- Secure Vault High



Lowest Power Best Security Wi-Fi 6 SoC

- Wi-Fi 6 End Devices
- ICs and Modules
- Wi-Fi 6 + BLE
- Ultra Low power
- SoC (internal ARM MCU)
- Secure (PSA L2)
- AI/ML accelerator
- SRAM/pSRAM/Flash



Lowest Power Wi-Fi 4 NCP Solution

- Wi-Fi 4 End Devices
- ICs and Modules
- Wi-Fi 4 + BT/BLE
- Ultra Low Power
- Requires external Host MCU/MPU

Silicon Labs Matter Solutions – More Than Just Silicon

THREAD

Bluetooth®

WiFi®



HARDWARE

- Field-proven SoCs and modules for Thread and Wi-Fi with Bluetooth
- Robust and reliable wireless foundation for Matter devices



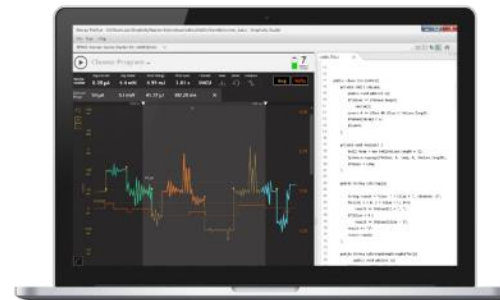
matter



CERTIFICATION

- Support for Wi-Fi and 802.15.4 end product certification
- Participation in all CSA Matter test events
- Matter certification

14
Silicon
Simplicity
Studio 5



TOOLS

- Advanced development hardware, reference designs, and tools
- Simplifies development and speeds time-to-market



SOFTWARE

- Support for all Matter devices including border routers, and bridges
- The largest semiconductor contributor to Matter GitHub

Matter Resources



Website

- [Silicon Labs Matter Web Page](#)
 - Home of the Matter Developer Journey!



Training

- Works With 2023 Matter Track On Demand
- [Matter Tech Talks](#)
- [Works With 2022 – Matter Track On-Demand](#)



Whitepapers

- [Foundations of Matter and Smart Home Ecosystems](#)
- [Matter Security](#)
- [Matter Certification](#)



Silicon Labs Matter Software

- [Silicon Labs Matter Github](#)
- [Simplicity Studio](#)



Silicon Labs Community

- [Matter Forum](#)

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Thank you for attending!

