MATTER SERIES

# Presentation Will Begin Shortly

tech talks UPCOMING SESSIONS

| | |
|---|---|
| FEB 9TH | Matter: Evaluation to Certification |
| MAR 9TH | Certifying a Matter Device: Thread and Wi-Fi |
| APR 6TH | Getting Started: Matter Over Wi-Fi |
| MAY 4TH | Start Your Matter Development Journey |
| JUN 1ST | Future-Proofing Matter Security with Secure Vault |

**We will begin in:** 0:00

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tech talks

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2023 tech talks
WEBINAR SERIES

# Welcome

## Start Your Matter Development Journey

Daniel Benson


SILICON LABS

# Agenda

01 Matter and the Ecosystems

02 Ecosystem Features

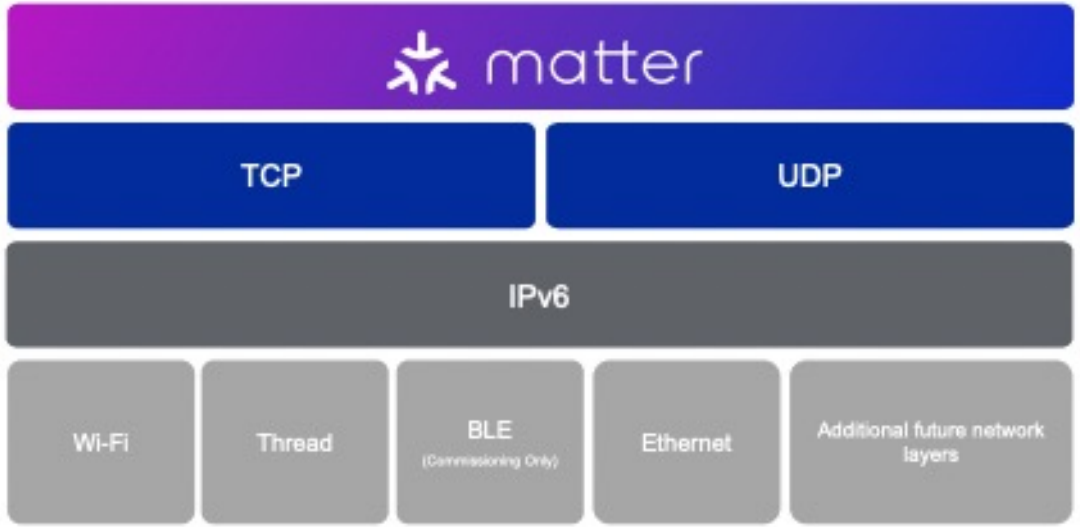
03 Matter Challenges

04 Silicon Labs' Developer Journey

05 Getting Started

# 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

**PREVIOUSLY** — **MARKET IN TRANSITION** — **2023 AND BEYOND**

**Fragmentation** → **Unification**

| | | |
|---|---|---|
| amazon | Works with Alexa, Works with Ring | Wi-Fi, Z-Wave, Bluetooth, zigbee |
| Apple | Works with Apple HomeKit | Wi-Fi, Bluetooth |
| Google | works with nest, WEAVE | Wi-Fi, Bluetooth, THREAD |
| COMCAST | works with XFINITY Home | zigbee |
| SmartThings | Works with SmartThings | Z-Wave, zigbee |

- **Focus is on the application and end-user experience**
  - Devices just connect and work
  - No more walled gardens and less confusion for users
- **Happening now!**
  - Silicon Labs is committed to a seamless transition while working with the Ecosystems
  - Products today which can support the future
  - Actively partnered with the alliances/working groups

works with Alexa · works with Google Home · Works with Apple Home

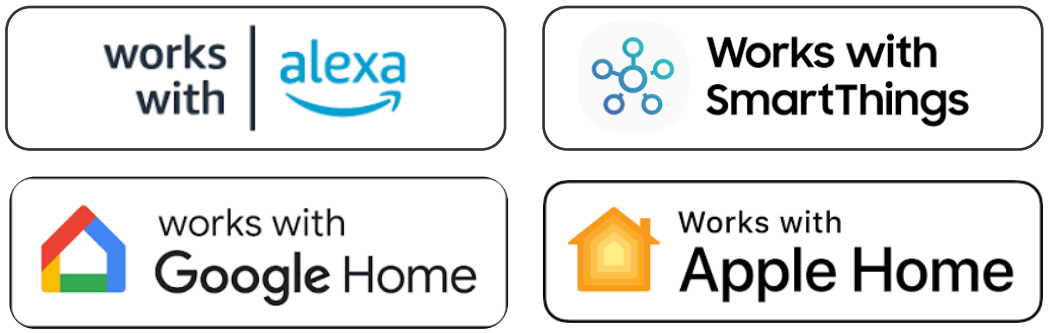
Works with Ring · works with XFINITY Home · Works with SmartThings

matter

amazon sidewalk

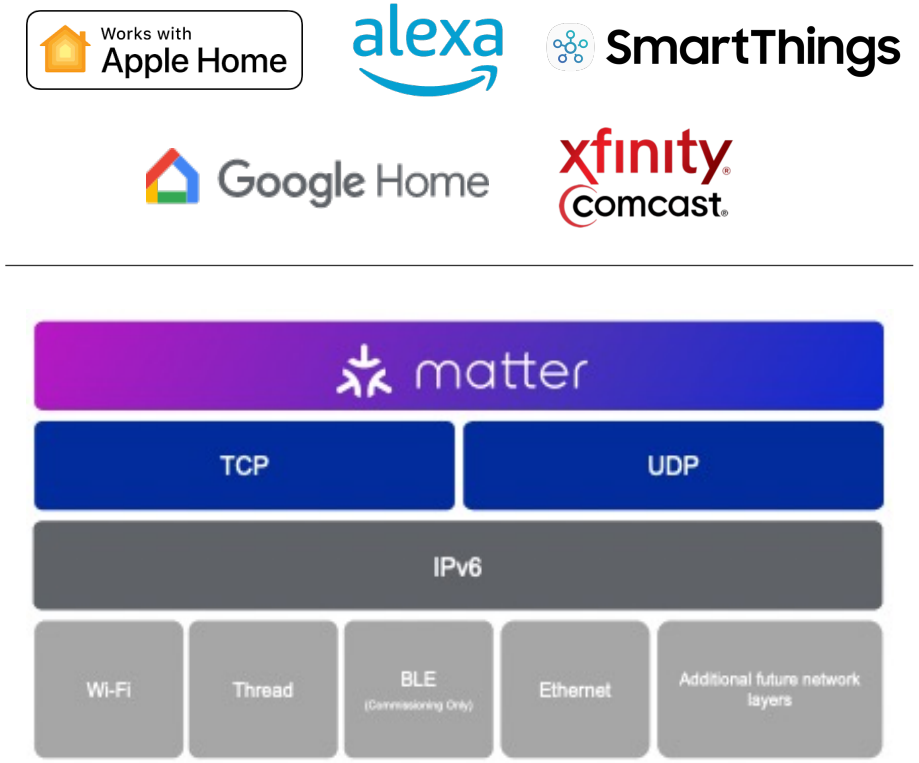
Bluetooth · Proprietary · THREAD · Wi-Fi · zigbee · Z-Wave

# 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

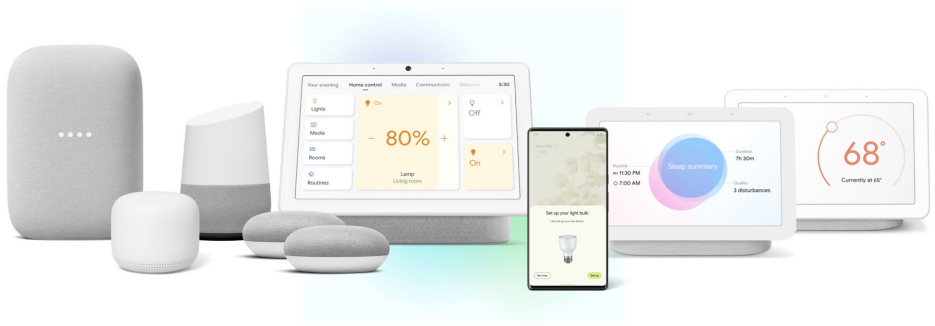


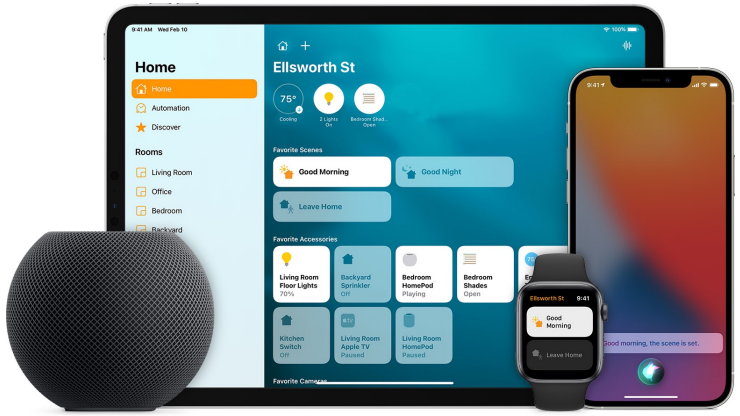

- Matter gives us a common application language, but ecosystems define how that language is used.
- The ecosystems define the experiences that the end consumer will have with Matter.
- Ecosystems are the primary way that users will interact with matter devices.

# Matter & The Ecosystems – The primary interface to the user



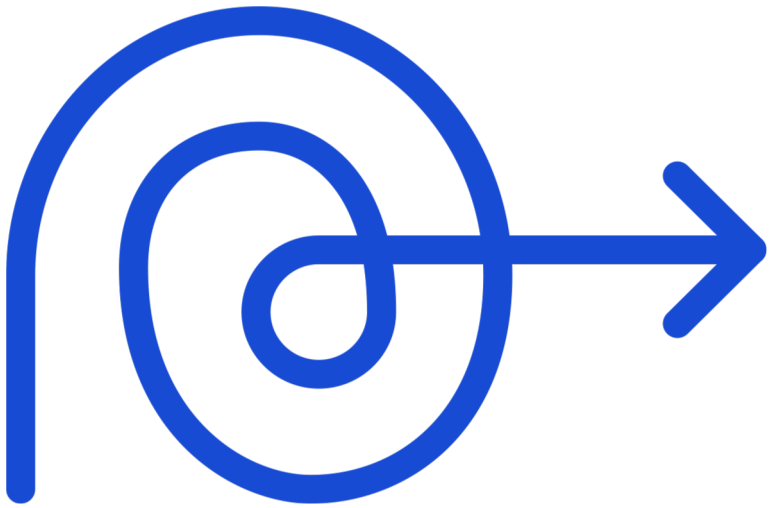
Google matter



# Ecosystem Features

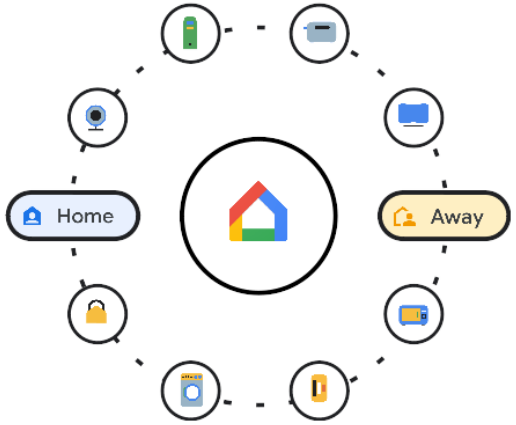
# Why build with the Ecosystems?



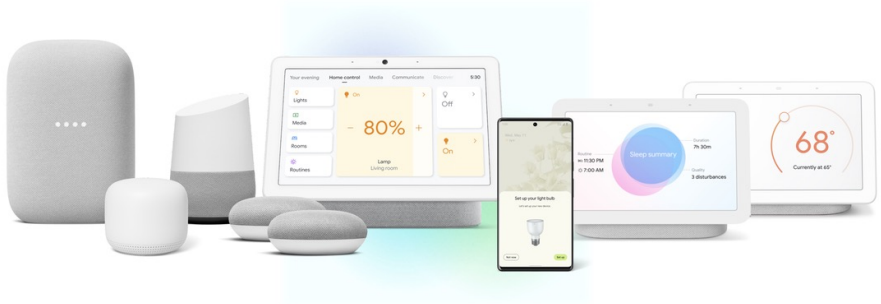
- **Complications and concerns**
  - “Isn’t this just adding another step and another bar to entry into the smart home world?”
  - “The ecosystems will commoditize me, how will I be able to differentiate my product?”
- **The ecosystems provide a guaranteed sales channel and scaling partner for your new product**
  - Some of largest and most recognizable brands in the world
- **They provide a familiar brand and application interface to the end user**
- **They support you through the development process**
  - 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

# Ecosystem Features - Google

works with Google Home




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
  - Integration with Google Cloud Analytics
  - Fully online Works with Google Home certification program and test suite

# Ecosystem Features - Amazon

works with alexa


matter


- **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
  - Bridging to legacy Zigbee devices
  - Alexa Connect Kit

# Ecosystem Features - Apple

Works with Apple Home

Developer

- **Apple in the Market**
  - Second largest smart phone user base with over 1.3 Billion iOS users
  - Most recognizable and valuable brand in the world
  - Works with Apple Home branding
- **Differentiation**
  - Support Matter on multiple interfaces to customers with Apple TV 4K and HomePod family of devices
  - Full integration into iOS, macOS, tvOS, audioOS, watchOS, and iPadOS
  - Support for legacy HomeKit products
    - Support over BLE standalone, Thread, and Wi-Fi

# Ecosystem Features – Samsung SmartThings

Works with SmartThings



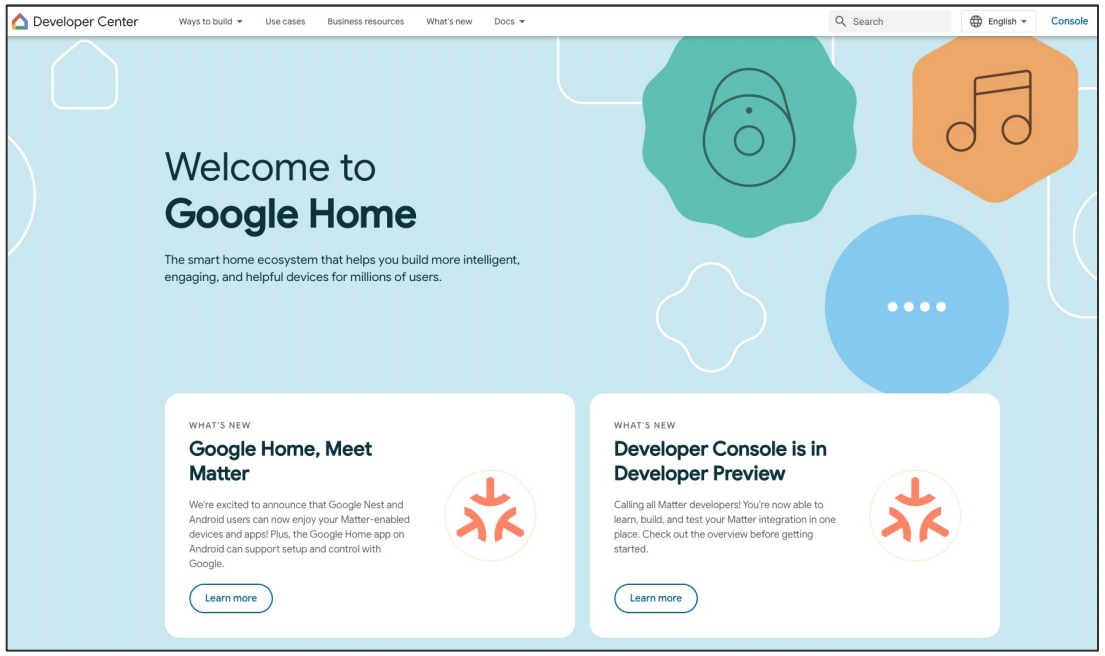
- **Samsung SmartThings in the Market**
  - Second largest consumer electronics brand with massive market share in smart phones, appliances, and TV's
  - Second most recognizable and valuable brand in the world
  - Works with SmartThings branding
- **Differentiation**
  - Integrating SmartThings Hub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

# Matter Challenges

# Matter Challenges

- **Getting started with Matter development can be time-consuming and complex.**
  - Lots of initial setup and configuration – CHIP Tool and OpenThread Border Router needed to start testing Thread end devices
  - Extra hardware such as Raspberry Pi is often required
  - Setting up the development environment can be very tricky
- **High learning curve to start on Thread**
  - Need to understand the Thread models for Border Routers, Router devices, and End Devices
  - Need to learn the command line interface (CLI) commands to start up Thread network
  - Need to learn how the CHIP Tool interacts with Thread Border Router application
- **Proof of concepts can be hard to create**
  - Creating your own smart phone app is expensive and difficult
  - CHIP Tool is not the best for demo purposes in real world scenario

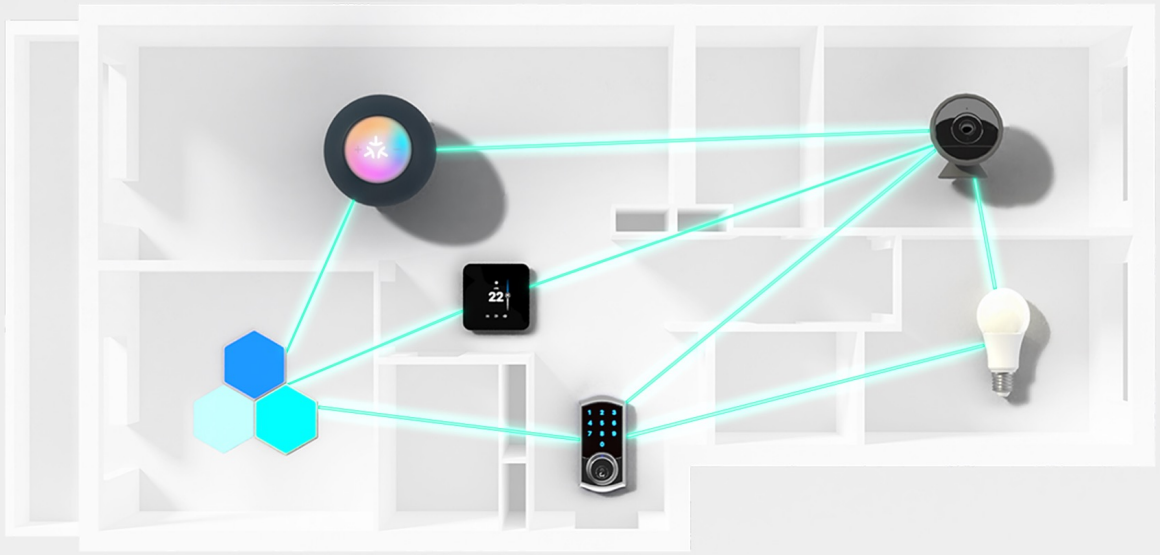
# Matter Challenges – How can the ecosystems help?




- **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

# Developer Journey

# Developer Journey – How can Silicon Labs help?



- **How to solve this confusion and leverage the ecosystems?**
  - Silicon Labs is working to simplify the development experience and accelerate 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
- **Where do we start and how to do the ecosystems come into play?**

# Coming Soon: Matter Developer Journey

**Start Your Matter Development Journey with Silicon Labs**

Unmatched Silicon, Software, and Tools for Matter Development

# Example: Silicon Labs' Developer Journey for Google Home


1. Learn & Explore
2. Matter & SiLabs Hardware
3. Google Integration
4. Test & Iterate
5. Field Trial
6. Matter Certification
7. Google Certification
8. Launch
9. Monitor & Update

# 1. Learn & Explore

Google Home

**Google Home Developer Center (GHDC) Resources**

- Use Cases
- Documentation
- Business Resources

**Matter Specific Resources**

- Get Started for Device Developers
- Matter Primer 101 Documentation
- Matter Code Labs
- Phone and Web App Developer Matter Code labs and docs
- Google Home and Away Intelligence Clusters

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**GitHub**

- Silicon Labs Matter Github (SMG) Docs

**Webpages**

- Silicon Labs Matter
- Ecosystems
- Silicon Labs Community Matter Resources

## Developer

**Join Connectivity Standards Alliance**

- Explore working groups and tiger teams

**Explore Silicon Lab's Content**

- Getting started
- Demos
- Hardware
- Kits & Boards
- About Matter

# 4. Test and Iterate

Google Home

- **After creating the image test pairing and controlling the device (Use an Android phone and supported Google device)**
  - Pair - Silicon Labs Mighty Gecko
  - Or Wi-Fi device once instructions are added
- **Test all device functionality through:**
  - Google Virtual Assistant
  - Nest Hub UI
  - Google Home App
- **Use GHDC and the Google Home VS Code Extension**
- **Test the application layer functionality and interoperability with the Google Home cloud backend.**
- **Google Home Test Suite has specific tests for each device type and will be used for Works with Google Home Certification**
- **Use the Google Home Cloud Logging and Analytics to quickly discover, diagnose, and address issues.**
  - https://console.cloud.google.com/logs/
  - https://console.cloud.google.com/monitoring/dashboards
  - **Note:** these will be blank unless you have created a project and integration and have active data coming in

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- Add documentation to SMG to point to Google Home Developer Console Test Suite and Google Home Cloud Logging and Analytics
- Apps & FAEs help provide support when issues arise with our platform
- Add Ecosystem devices to CI/CD QA pipelines using the Automated Test Suite with Pigweed RPC
- Continue to add new features, sample apps, and cluster and device type support based on updates to the Matter spec

## Developer

**Use CSA Matter Test Harness to prepare for Matter certification and go through test cases**

- Why Certify (CSA)
- Certification Tools (CSA)

**Use Google Home Test Suite from Google Home Developer Console to test device functionality**

- Specific tests available per device type

# Getting Started

# Recommended Matter Solutions

matter


**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®

Wi Fi®


## HARDWARE

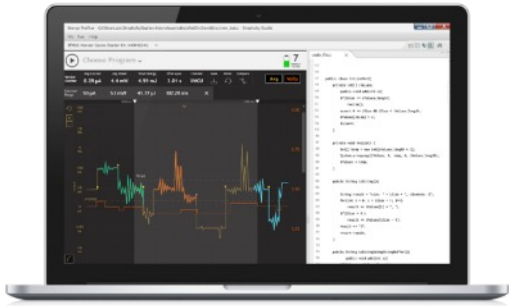
- Field-proven SoCs and modules for Thread and Wi-Fi with Bluetooth
- Robust and reliable wireless foundation for Matter devices

matter


## CERTIFICATION

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

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
  - Provides Matter Info, Getting Started, Demos, Hardware, Kits and Boards

## Training

- 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

# Q&A

MATTER SERIES

# Join Us Next Month

tech talks UPCOMING SESSIONS

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SILICON LABS | ARROW

SCAN TO REGISTER

# Matter Workshops

Attend an in-person workshop that will enable you to quickly develop an IoT product leveraging Matter

- Free MG24 Multiprotocol Explorer Kit
- Locations and dates in the US, Canada, and Europe now through June
- Customized workshops for smart home, industrial, healthcare, and consumer applications

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# Thank You


Watch ON DEMAND

silabs.com/training