



Understanding The Path to Certifying Your Matter Devices

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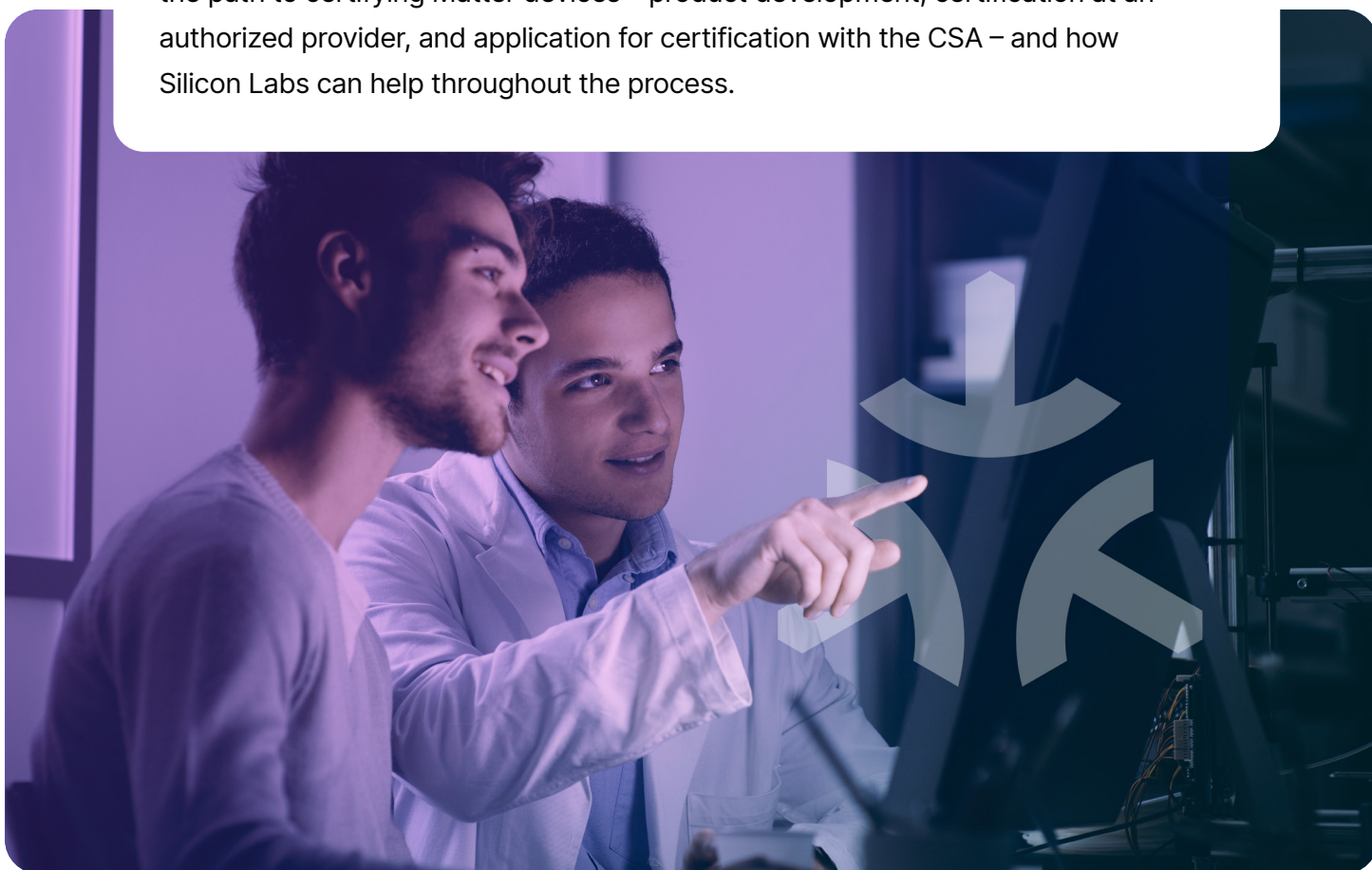


Introduction

To guarantee end users that your Matter device will deliver on its promise of being a reliable, secure, and unifying Internet of Things (IoT) device, it is imperative to obtain Matter certification, or a tangible acknowledgment that your product complies to the defined [Connectivity Standards Alliance \(CSA\) specifications](#).

Devices with Matter certification also guarantee interoperability with other certified Matter products.

But as with any new technology, there are a lot of questions about why and how to certify devices. The many advantages of certifying your Matter device (the why) are discussed in our prior white paper, [Matter Certification: The Value it Brings to Your Matter Devices](#). This whitepaper will focus on addressing the common “how do I certify my device” question by exploring the details on the three key parts in the path to certifying Matter devices – product development, certification at an authorized provider, and application for certification with the CSA – and how Silicon Labs can help throughout the process.



A General Overview of the Matter Certification Process for End Devices

To make it easier for product developers to understand the path to achieving Matter certification, the CSA broke down the process into eight clearly defined steps as shown in Figure 1.

If achieving Matter certification is a goal for your product, it is important to take care of steps 1 and 2, becoming a [member of the CSA](#) and requesting a vendor ID (VID), which was formerly known as manufacturer ID, code from [CSA Certification](#) as soon as possible. To further simplify how to think about the certification process, the remaining steps in the certification path can be divided into three groups – product development, testing, and application – which we will examine in more detail next.

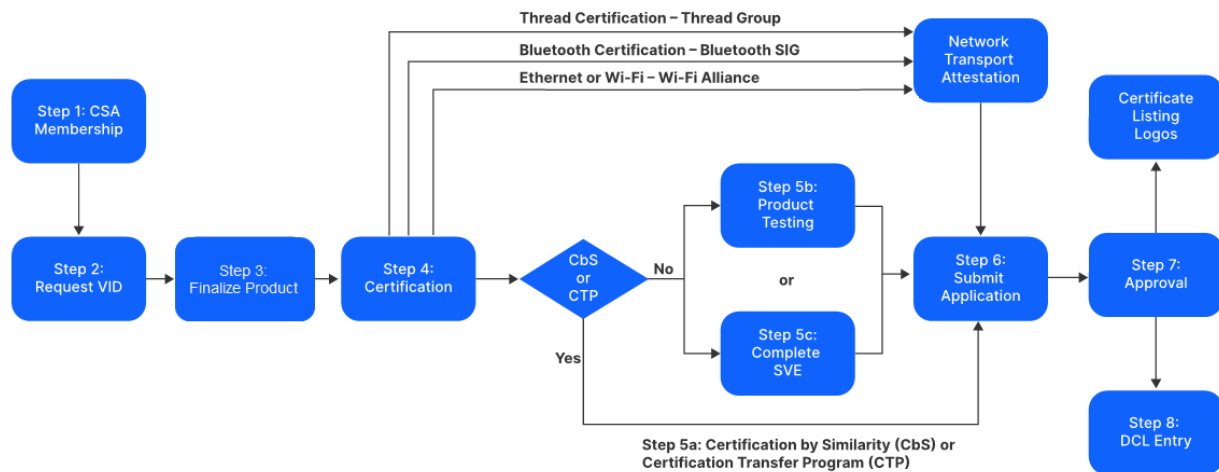


Figure 1. An overview of the eight-step Matter certification process.



Consider Matter Certification Needs Early in the Product Design and Development Process

When developing a product that will ultimately need to achieve Matter certification, planning for the certification process early will undoubtedly make the certification process much smoother. If you already have the certification process in mind when you start designing your product, there are a number of choices you can make that will ultimately simplify steps later in the certification process.

One crucial choice that needs to be made early on is the selection of a network transport option for your device (Step 4 in Figure 1). Since Matter is an IP-based protocol that operates as an application layer on top of technologies like Wi-Fi and Thread, a network transport layer that achieves the necessary certifications from relevant standards organizations is required. Appropriate certification is also required if a Matter device use Bluetooth Low Energy (LE) for commissioning (which many do). By ensuring any of these technologies used in your devices are properly certified by the appropriate standards organization early on, you will be prepared to complete the appropriate CSA Attestation of Network Transport Protocol forms during the application process.

It is also important to know which network transport protocol versions the CSA supports. At the time of the Matter 1.0 launch, the supported versions were as follows:

- Bluetooth LE v4.0 or later
- Ethernet
- Wi-Fi 4 (802.11n) or later
- Thread 1.3.0 or later

Selecting certain Silicon Labs development kits or system on chip (SoC) solutions can help further simplify network transport protocol attestation. We offer several Matter-compliant development kits for Thread, Wi-Fi, and Bluetooth LE that are already certified by the proper organizations. These kits range from compact, feature-packed low-cost prototyping platforms to multi-node advanced multiprotocol kits for robust, secure mesh networks. The ability to carry over certification testing varies by technology, and how the protocols were modified, and is summarized, along with the CSA's requirements, in Table 1.

Transport	Certification Body	CSA Requirements to Certify	Customer Inheritance from Silicon Labs
Thread	Thread Group	Follows the Thread Group requirements to certify end products to gain intellectual property rights (IPR) protections from members and to use the logo.	Customers can inherit our Thread System on Chip certification testing using libraries and skip all testing They must still submit certification paperwork and pay a fee.
Bluetooth LE	Bluetooth SIG	Follows the Bluetooth SIG requirements to certify end products to gain IPR protections from members and to use the logo.	Customers can inherit our Bluetooth LE Component (Tested) testing results and skip some elements of their own testing, or inherit our end product/subsystem results and skip all testing. It is likely that most customers will only be able to use our Bluetooth LE Component Certification because they may need to make changes to the Bluetooth LE design.
Wi-Fi	Wi-Fi Alliance	End product makers don't need their own Wi-Fi Alliance Certification if they are not using the logo.	Can use Silicon Labs' Wi-Fi certification ID if product was not Wi-Fi Alliance certified.
Ethernet	N/A	Ethernet has no formal certification body but does have informal testing at test houses.	N/A

It is also important to note that the Matter certification process does not have any requirements for achieving Ecosystem badging such as Works with Google Home or Works with Alexa. However, both the CSA and Silicon Labs recommend that if customers are familiar with seeing these badges on current products, to provide continuity, it is likely best to obtain the appropriate badges for your Matter devices even though it is not required for Matter certification.

Additionally, since one of the pillars of the Matter protocol in general is to provide better security for IoT devices, the Matter certification has a security attestation component to complete during the application process. Security needs should be considered early during development as well to ensure you will not have any issues completing the attestation during the application process. While there are some [general requirements for security from CSA](#), there are additional security features that are not required that you should consider implementing to better protect your devices from local and remote attacks such as those included in [Silicon Labs' Secure Vault](#).

Performing Matter Certification Testing at an Authorized Test Provider

For a new Matter device to obtain CSA certification, you must send your device to a third-party [authorized test laboratory](#) (ATL), unless the product successfully completed testing at a specification validation event (SVE) as these products are eligible to be submitted for certification already. The CSA requires working with a third-party ATL to ensure testing consistency and that unbiased testing is performed.

Determining the right time to submit your product to an ATL is tricky but also crucial. If you send your product in too early and make changes to your device, you may invalidate your certification. However, you do not want to have a fully completed product with its release gated based on achieving certification either. Instead, you need to find the sweet spot between having a well-developed product and your planned product release. At Silicon Labs, our engineers are happy to provide guidance based on our experience to help customers determine the right time during the development cycle to have this testing done.

Additionally, to prevent unknown scenarios from coming up during testing, prior to submitting your device to an ATL there are test harnesses specifically for Matter that you should run as you wrap up the development process. These test harnesses will allow you to start testing against certification requirements before submission. To build confidence your device will pass without issue, Silicon Labs regularly runs the Matter code base against the test harnesses. Therefore, if you are using our development products, the closer you stay to what we already tested, the more likely you are to have smooth test process.

When testing is complete, the test facility will arrange for testing samples and Protocol Implementation Conformance Statement (PICS) documents to be submitted to the CSA. A PICS document is the complete list of supported functions and is a critical document for the certification team to have because the team will perform a comparison of the PICS against the test results. If there are features declared in the PICS that were not tested, the certification team will request that those features be properly tested and that you resubmit your application. The test facility will also issue a final report to the CSA.



Submitting Your Matter Certification Application to the CSA and Approval

Once third-party testing is complete, your certification application can be submitted via the CSA [web tool](#). The following documents are required for certification:

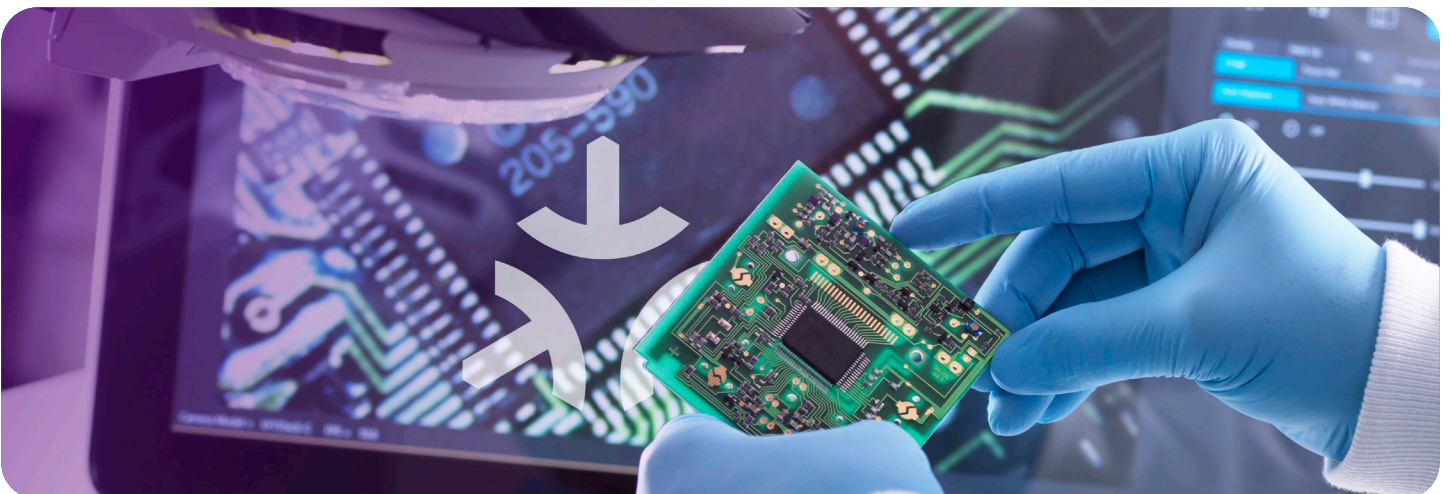
- [Declaration of Conformity \(DoC\)](#)
- Protocol Implementation Conformance Statement (PICS)
- [Network Transport Attestation](#) – Note that multiple attestation forms may need to be completed, for example, if the device uses Thread and Bluetooth LE for commissioning.
- [Security Attestation](#)
- Your CSA assigned vendor ID (VID) – This should automatically appear in the application.
- The product ID (PID) – The unique identifier that the manufacturer uses to uniquely identify a product with the same vendor ID (format detailed in the Matter certification).
- Device Type – The Matter defined Device Type. For end products, you will enter this in the “Technical Subcategories” field of the application. Also note that if a device has multiple end points (such as a Matter bridge), the product as a whole must have an overall device type selected.

After you submit your application, it will enter the CSA review queue. The CSA certification team will review the application and issue an action when the review is complete. The action will either be an approval, or an email detailing a list of items that need to be addressed to continue processing the application. This list could include requesting answers to questions about the device, rectifying mismatches between the PICS submitted and the test cases performed, or submitting missing documents.

Once your device is certified, you will receive the following materials from the CSA:

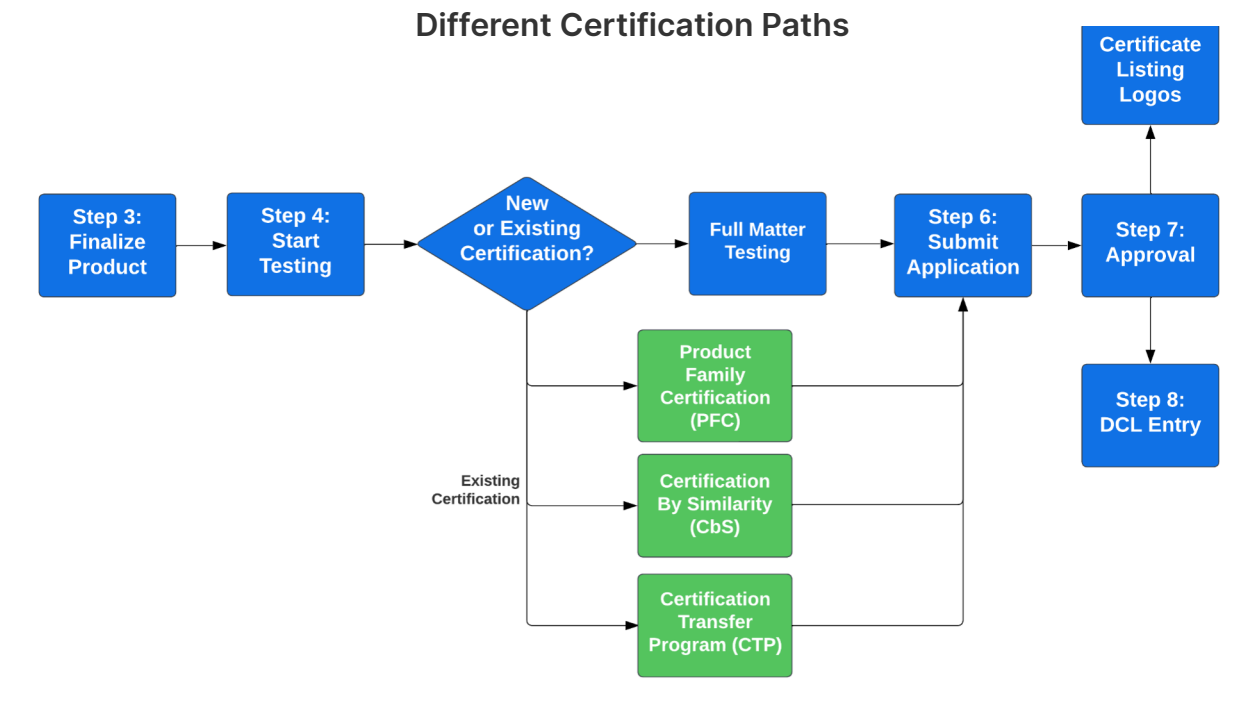
- PDF certificate of compliance sent via email
- [Public listing of certified products](#)
- Access to the Matter-certified logos authorized in your Certification Tool dashboard
- Certification declaration (CD) blob file via email
- Entry into the distributed compliance ledger

Additionally, since part of the commissioning process for a Matter device in the end user's home is for the network to request the compliance certificate to prove it is a compliant device, the CSA will also provide an online certificate that the network verification device can access. Networks will now strongly discourage end users from adding a device that is not Matter certified much like web browsers discourage users from accessing a website that has not implemented proper security measures.



Additional Certification Paths and Recertification Requirements

Throughout this paper we discussed the standard certification process for new products. However, for companies that make a family of products, or line of very similar products, the CSA is also offering Product Family Certification (PFC) and Certification by Similarity (CbS) paths.



The PFC path is designed to simplify certifying variants of the same product. To qualify for PFC, the products in the family must be the same device type and have the same base hardware and software, but could have multiple form factors, regional variations, or functional changes that do not impact the actual functional purpose of the product. For example, if the product's physical exterior has some slight variations such as the color or style, it would qualify for PFC. When taking the PFC path, the parent product must undergo full testing but the subsequent products in the family will not need to be tested.

If you plan for PFC when you initially begin product development, subsequent family products can be added to the same certification application without going through testing, and the PFC fee will cover certification for all the products in the family. Additionally, with PFC, when you need to perform a reactive update to your products such as a bug fix or a software update that requires recertification, instead of individually recertifying each product, you can recertify the whole family.

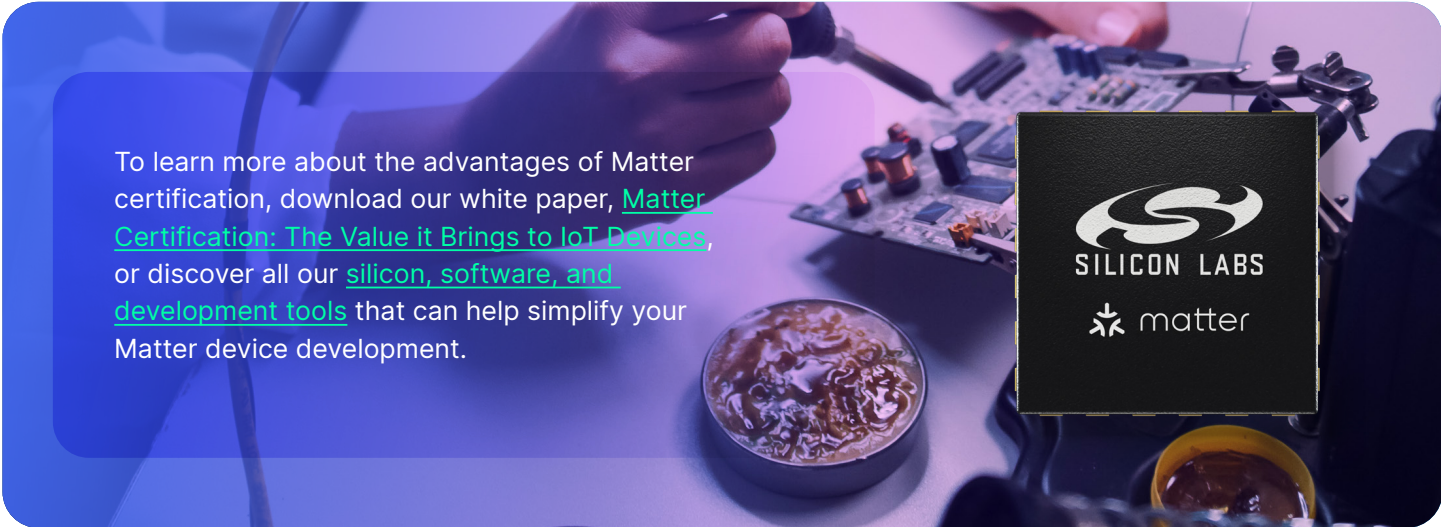
CbS is for products that are similar, meaning the products in the product line have different functional purposes but still use the same Matter software. For example, if a new command that allows Matter to control the device is added to a device, this product would fall under the CbS path. To use the CbS path, the parent products must be certified through the normal or PFC path first.

The CSA also has a Certification Transfer program designed for companies producing a product that will become a white-label product. Under this program, product certification can be transferred to another CSA member company as long as the product does not undergo any changes from its certified configuration other than firmware updates related to the new manufacturer or adding a new product enclosure.

Once your device is Matter certified, making changes and updates will likely require device recertification. Planned changes, such as the addition of new functions, and unplanned changes, such as bug fixes, software updates, and security patches, can all trigger the need for recertification. However, when you introduce a functional change to release new features, this new product has the opportunity to become a parent product for a new product family.

Silicon Labs: Your Partner for Developing Matter-Certified Devices

Just like certification is an important step for guaranteeing the interoperability and reliability of devices using other protocols, the same is true for Matter devices. While any unfamiliar process can be difficult to get started with, Silicon Labs is here to help. By partnering with Silicon Labs to develop your Matter device, you will have access to pre-certified chips for Thread, Wi-Fi, and Bluetooth LE, which will help you more easily plan for certification during development. Since we have gone through certification processes for many of our products using these protocols, and we have been heavily involved in the CSA's efforts to launch the Matter protocol, we thoroughly understand the requirements for Matter certification. Our engineers are here to offer recommendations and guidance during your product development cycle that will help you achieve consistent results and more easily meet the requirements of the Matter specification.



To learn more about the advantages of Matter certification, download our white paper, [Matter Certification: The Value it Brings to IoT Devices](#), or discover all our [silicon, software, and development tools](#) that can help simplify your Matter device development.

