

As a Matter of FAQ

Connected smart home devices have the potential to make home life more convenient, comfortable, and secure. Previous attempts to standardize smart home interoperability have met with only limited success. The Matter standard is uniquely positioned to break through previous standardization barriers. Matter will impact home users, smart home device manufacturers, and retailers. This FAQ addresses many of the questions you may have regarding the Matter standard and its impact on the smart home.

What is Matter

► What is Matter?

Matter is a standard and a certification process to allow devices and ecosystems to communicate seamlessly and securely together, simplifying development for manufacturers, and increasing product compatibility for consumers.

► What Matter is not?

Matter addresses only local connectivity between devices, controllers, and apps. It does not address anything related to the cloud.

There is no “Matter app,” so the user must select one or more apps as provided by a generic ecosystem, retailer, or device manufacturer.

► How is Matter different than other standards?

Matter is open source, including an SDK and a test suite which are free to use.

Matter has the support of most of the smart home industry.

Matter is IPv6-based, which unifies the communication protocol.

► What is the Connectivity Standards Alliance (CSA)?

Previously known as the Zigbee Alliance, the recently rebranded CSA is driven by its board members which include Amazon, Apple, Google, IKEA, Legrand, NXP Semiconductors, Resideo, Samsung SmartThings, Schneider Electric, Signify, Silicon Labs, Somfy, and Wulian. Their focus is to develop, promote, and certify solutions with universal open standards. There are over 400 member companies representing EMEA (40%), Americas (30%), and China (25%).

Benefits of Matter

For consumers:

- Confidence that smart devices will work reliably together, taking the guesswork out of the purchasing process.
- Choice from a broader range of brands, eliminating ecosystem silos.
- Less risk of device obsolescence.
- A simplified and unified user experience for device onboarding.
- Local device control resulting in faster interactions and operation even without Internet access.

For Developers:

- A single IP-based connectivity protocol built on proven technologies to simplify the development process, and lower development costs.
- Inclusion into most of the generic voice control IoT ecosystems (Amazon Alexa, Apple HomeKit, Google Home, Samsung SmartThings, etc.) with no additional development effort.
- Allows developers to focus on developing innovative products.

For Retailers:

- Drives growth by simplifying the purchasing process.
- Expands the smart home category to more retailers.
- Lowers operational costs.

Drawbacks and Potential Issues of Matter

► Technology

Matter is new from the ground up, and requires more memory and CPU processing than other, lighter-weight protocols. This may eliminate the possibility of upgrading some devices to Matter that are currently in use. Additionally, this may increase the manufacturing cost of some low-end devices to support Matter.

► Cloud

Since Matter does not address anything related to the cloud, solution providers must continue to provide proprietary cloud services and a user app to support remote device access and OTA for periodic updates.

► Commoditization

The category of simpler smart home devices, such as sensors, plugs, and bulbs, may become commoditized. There will be an increasing need for smart device suppliers to develop high-quality products with competitively unique features.

Participants

► Who supports Matter?

Matter has the support of most of the smart home industry, including generic smart home ecosystems such as Amazon Alexa, Apple HomeKit, Google Home, and Samsung SmartThings.

Within the 400 member companies of the CSA, more than 250 member companies are participating in Matter development, representing almost every significant smart home device.

► How can a device manufacturer differentiate itself from other Matter devices?

Matter risks reducing smart devices into commodity products, all with similar functionality. To rise above commoditization, device manufacturers should develop differentiated products providing unique value to the consumer.

Since generic ecosystem Apps do not expose non-standard user experiences, device manufacturers must develop their own Matter App, providing users access to their proprietary and unique features.

Other custom Matter app benefits include:

- Over-the-Air (OTA) firmware updates to enhance device reliability and provide security updates.
- Device usage data to drive quality and product improvements.
- Ability to own the customer relationship.

Timeframe

► When will Matter be available?

The Matter standard is scheduled for release in Q3 2022 (as of the writing of this FAQ). The Matter release schedule has shifted several times during its definitional development, so the date may move again.

It is expected that initial Matter devices will be in production within three months of the final specification approval. Widespread adoption will likely occur within one year.

► Is there a roadmap of future features for Matter?

Yes, work is already underway to define the next version of Matter. It is expected to be finalized approximately one year after Matter's initial release. This update will include several more device categories and possibly additional connectivity options such as cellular. Less significant updates are expected every few years beyond that.

There are also discussions regarding its use in commercial buildings, industrial IoT, and medical applications.

Connectivity

► Does Matter replace other Smart Home systems?

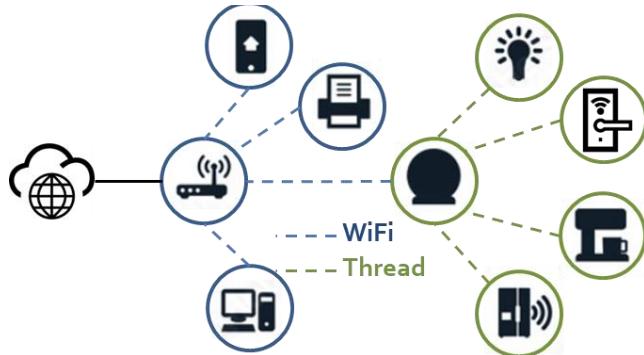
No, Matter does not replace other Smart Home systems because Matter itself is not a Smart Home system. Matter connects devices in the home but has nothing to do with their automation and control. Such tasks require a higher-level system that is compatible with Matter.

Rules and schedules are driven from a Smart Home system, and the system provides a user interface and voice control. A Smart Home system turns Matter devices into a smart home.

► What is Matter's underlying communication technology?

Matter supports Thread (802.15.4), Ethernet (802.3), and WiFi (802.11) for device control. The protocol is IP-based. Future support is envisioned for Cellular and DOCSIS. Bluetooth Low Energy (BLE) is supported for device onboarding, but not used for device-to-device communication. QR codes are also used to support onboarding. Future onboarding options may include NFC (Near-Field Communication) and UWB (Ultra-Wideband) for location services.

Data is seamlessly bridged over differing technologies (Ex: Thread to WiFi) via Border Routers, which is a function that may be integrated into any always-powered device.



► **What is Thread?**

Thread is similar to Zigbee and is a low-power wireless mesh network. It is energy-efficient (for long battery life), and supports device-to-device communication. Thread is unlike a hub architecture (e.g., WiFi), which only allows devices to link directly to a single access point.

A Thread mesh network connects to the home's WiFi or Ethernet network through a Border Router, which is a function that may be integrated into any always-powered device.

► **Is Matter compatible with current Zigbee or Z-Wave?**

ZigBee and Z-Wave are not directly compatible with Matter. However, a Bridge or Gateway can expose these non-Matter devices to a Matter network. Note that in Matter terminology, a Border Router links Matter networks such as WiFi, Ethernet, and Thread. A Bridge links non-Matter networks (Ex: ZigBee and Z-Wave) to a Matter network.

► **Can existing non-Matter devices be upgraded to support Matter?**

Existing Thread, Zigbee, or WiFi devices may possibly be field upgraded to support Matter, but only if the device contains adequate memory and CPU resources. As a rough estimate, most Linux-based devices will likely have enough resources to upgrade, and most RTOS (or non-Linux) devices will not. Upgrades will only be possible if developed and supported by the device manufacturer.

Additionally, any network of non-Matter devices could be linked to a Matter network with an appropriate Bridge.

► **In a Matter network, is a gateway or controller needed?**

No, a local Matter gateway or controller is not required. However, a controller could provide local rules and schedule features that might be desirable. A controller could be a stand-alone dedicated device, or controller could be integrated as part of another Matter device.

► **How are rules and schedules driven?**

Rules and schedules may be driven by a controller on the local network, or could be driven by a cloud application. Rules and schedules are not dictated or specified by Matter. It is desirable to drive rules and schedules from a local controller in most cases. This will minimize latency and ensure functionality during Internet outages.

Additionally, individual Matter devices within a network could be "bound" together, allowing devices to control other devices. The setup of device binding could be defined with a local user app. Then the local device control would operate autonomously from that point forward.

► What data is available to the device provider if a consumer uses a 3rd party generic ecosystem?

Matter does not specify how to provide device data or usage information back to the OEM or manufacturer. To accomplish this, the device provider should provide their own cloud access to the device or provide a user App to perform this service.

► How is OTA performed if a consumer uses a 3rd party generic ecosystem?

Matter specifies an OTA process, but does not specify how to link a 3rd party generic ecosystem back to the OEM or manufacturer. To accomplish this, the device provider should provide their own cloud access to the device or provide a user App to perform this service.

Device Types

► What devices are supported by Matter?

Device types initially supported will include bulbs, switches, plugs, door locks, thermostats, HVAC, water heaters, blinds, shades, security sensors, garage doors, and TVs. Future device support will likely include vacuums, appliances, cameras, water sensors, energy management, and medical devices.

User App

► Do device makers need to create and support their own user App?

Practically speaking, yes, devices should provide their own native user App. The Matter specification allows a Matter device to be controlled by any Matter App, however generic ecosystems, or non-device-specific apps, may not support the following capabilities:

- OTA firmware updates for new features and security patches.
- Device usage data monitored by the device maker.
- Unique and proprietary device features.

So, it is advantageous for device manufacturers to motivate users to install a device provided App with attractive features that go beyond generic Matter functionality.

► Can a Matter device be controlled by more than one App or ecosystem?

Yes, a Matter device can be controlled by any number of user Apps and Matter controllers (or an Administrative Service in Matter terminology). This capability is known as Multi-Admin support.

Usability

► How does a consumer add a Matter device to their home?

Matter supports several onboarding processes. One typical onboarding process looks like this:

- A consumer smart phone scans the QR code located on the device packaging or directly on the device.
- The smart phone asks the user to select among a list of Apps to use such as an existing generic ecosystem app (eg. Amazon Alexa), or a device-specific app that can be downloaded from the app store.

- If necessary, the user will be prompted to create a user account.
- The device will be added with no further user interaction required.