

Qualcomm[®] Bluetooth Mesh

Extends the range of Bluetooth[®] wireless technology by helping to turn Bluetooth enabled devices into a mesh network.

Qualcomm Bluetooth mesh is a protocol designed to run over existing Bluetooth low energy compatible devices, helping to add mesh networking capability for a security focused Bluetooth wireless network for the Internet of Things (IoT).

Qualcomm Bluetooth mesh is designed to allow devices to send and receive messages, act on received command and control messages, and repeat those messages to nearby devices, helping to extend the range of Bluetooth wireless technology by turning Bluetooth-enabled devices into a mesh network for the IoT.

Qualcomm Bluetooth mesh supports the Bluetooth Special Interest Group (SIG) mesh networking standard and is a SIG mesh implementation and evolution of CSRmesh™. CSRmesh, our Bluetooth mesh technology, was introduced to the industry in 2014 and has seen commercial success in a number of applications globally and we hope that Qualcomm Bluetooth mesh will continue the legacy.

Bluetooth mesh networking supports many-to-many (m:m) device communications and helps developers and system integrators create IoT solutions where tens, hundreds, or thousands of devices need to securely communicate with one another.

Qualcomm Bluetooth mesh helps customers to develop standards-based solutions that are compatible with Bluetooth SIG mesh networking specifications, supporting devices in communicating with each other in a mesh network.

Highlights

Industrial security features to support a robust network

Qualcomm Bluetooth mesh uses encryption and authentication for a security-focused and robust network, designed to send data on RF channels that coexist very well with Wi-Fi.



Helps extend the range of Bluetooth wireless technology

Qualcomm Bluetooth mesh can assist in extending the range by turning Bluetooth-enabled devices into a security-focused mesh network for the IoT.



Simple and easy to install and use

No routers or access points to buy, install and configure. Qualcomm Bluetooth mesh is designed with a simple installation and configuration procedure via Smartphone for a technology that truly enables low cost consumer plug and play.



Scalable, industrial grade solution

Qualcomm Bluetooth mesh supports scalability for very large networks, up to 32,000 nodes, and helps to bring Bluetooth technology to the creation of industrial-grade device networks with multicast support for groups, making it ideal for lighting.





Bluetooth Mesh Applications

- Industrial Lighting
- Asset Tracking
- Wireless Sensor Networks
- Smart Buildings
- Mesh Lighting
- Beacon Management



Features

- Designed to ensure that all levels of the technology are comprehensively specified with an extensive stack solution that helps define the low-level radio up to the high-level application layer
- **Reliability:** Supports inherently self-healing networks with no single points of failure
- **High capacity for scalability of industrial grade solutions:**
 - Up to 32,000 nodes
 - Up to 127 hops per message
 - High speed radio
 - Small packet size
- Designed to provide industrial-grade security features for protection against known attacks
- **Multicast support for groups, ideal for lighting**
- Designed to directly control, configure and interact with many Bluetooth low energy devices from a mobile device
- Supports a wide variety of control and automation applications, retail advertising, commercial and industrial opportunities, and new IoT use cases like lighting, indoor positioning and asset tracking.

Qualcomm Bluetooth Mesh Capabilities



Messages are sent to individual devices; groups; or all devices.

For example:

“Switch-on living room lights”
“Lower thermostat”
“Switch-off all devices”

Multiple controllers supported:

- Android and iOS devices, smart home hubs and smart wearables
- Cloud connected devices



The underlying principles of CSRmesh and Qualcomm Bluetooth mesh are the same, although there are changes in the Protocol stack and packet structure. The table below helps to highlight the differences.

Related Products

QCA4020 Multi-mode Connectivity SoC

QCA4024 Dual-mode Connectivity SoC

CSR102x Bluetooth Low Energy SoCs

CSR102x Starter Development Kit

CSR102x IoT Development Kit

CSR102x Professional Development Kit

CSR102x Bluetooth Node Development Kit

Products of Qualcomm Technologies, Inc. and/or its subsidiaries.

To learn more visit: qualcomm.com
 or developer.qualcomm.com



	CSRmesh	Qualcomm Bluetooth mesh
Mesh Type	• Flood	• Flood
Managed Flood Features	<ul style="list-style-type: none"> • Time-to-Live • Message cache • Optional Relay Function • Proxy Function 	<ul style="list-style-type: none"> • Time-to-Live • Message cache • Optional Relay Function • Friend and Low Power Function
ECDH-based Provisioning	• P-190 elliptic curve	• P-256 elliptic curve
Security Features	• Network Key	<ul style="list-style-type: none"> • Network Key • Application Key • Device Key
Qualcomm SoCs	<ul style="list-style-type: none"> • CSR101x • CSR102x • QCA4531 	<ul style="list-style-type: none"> • CSR102x • QCA402x