

BLUETOOTH® 4.1 QUICK REFERENCE GUIDE

Bluetooth® 4.1 is an evolutionary update to the Bluetooth Core Specification. It rolls up adopted Bluetooth Core Specification Addenda (CSA1, 2, 3 & 4) while adding new features and benefits. Bluetooth 4.1 **improves usability** for consumers, **empowers innovation** for product developers and **extends the technology's foundation** as an essential link for the **Internet of Things**.

NEW FEATURES & BENEFITS

1) Improving Usability

Bluetooth 4.1 extends the Bluetooth brand promise to provide consumers with a simple experience that “just works”. It is engineered to work seamlessly with popular cellular technologies like LTE. It is designed to maintain connections with less frequent manual re-connection and delivers more efficient data exchange.

Advantages	Features	New for 4.1?	End User Examples
Engineered to work seamlessly with cellular technologies like LTE	Mobile Wireless Service Coexistence Signaling	Introduced with CSA3	“It’s important my LTE smart phone provides me with a high-quality user experience. I expect all of the technologies (Bluetooth, LTE, etc.) in my phone to work together seamlessly.”
	Train Nudging & Generalized Interlaced Scanning	Yes	
Maintain connections with less frequent manual intervention	Low Duty Cycle Directed Advertising	Yes	“When I’m swimming, I can’t carry a phone, but I want all my workout information captured on my Bluetooth Smart wearable device. When I’m finished with my swim and get close to my Bluetooth Smart compatible phone, the devices automatically reconnect and my information is efficiently synced to the application on my smartphone.”
Exchange data more efficiently	L2CAP Connection Oriented Channels	Yes	

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2) Empowering Developer Innovation

Bluetooth 4.1 provides developers with even more flexibility to create innovative Bluetooth products and solutions.

Advantages	Features	New for 4.1?	End User Examples
Device supports multiple roles simultaneously (Enables a Bluetooth Smart Ready product to act as a Bluetooth Smart Ready Hub and Bluetooth Smart peripheral at the same time)	Dual Mode Topology and Link Layer Topology Software Features	Yes	<p>“I love my Bluetooth Smart enabled watch. Not only does it alert me to a message on my smartphone, but it captures data from my heart rate monitor when I run, and later sends it to the app on my tablet so I can share it with my running club.”</p>

3) Enabling the Internet of Things

Bluetooth 4.1 lays the groundwork for IP-based connections extending the central position for Bluetooth technology in the Internet of Things.

Advantages	Features	New for 4.1?	Examples
Devices will be able to setup a dedicated channel for communication (This is a foundational step for future support of IPv6 at the sensor level)	L2CAP Dedicated Channels	Yes	<p>“As a developer, I’m interested in using technologies that will provide the capacity for IP connectivity in the future.”</p>

Descriptions for all Bluetooth 4.1 features are available at:

<https://www.bluetooth.org/en-us/specification/adopted-specifications>

ADDITIONAL UPDATES WITH BLUETOOTH 4.1

- Eliminated the mandatory ‘one new feature’ requirement for using the specification Bluetooth 4.1—see core specification for details
- Increased flexibility and simplified the requirements for using Bluetooth Smart and Bluetooth Smart Ready trademarks—see [brand guide](#) for details
- Simplified end product and subsystem specification naming conventions—see brand guide for details

GET MORE INFORMATION

For the latest Bluetooth 4.1 technical details, tools and other information including an FAQ, Brand Guide and more, visit: <https://www.bluetooth.org/en-us/specification/adopted-specifications>