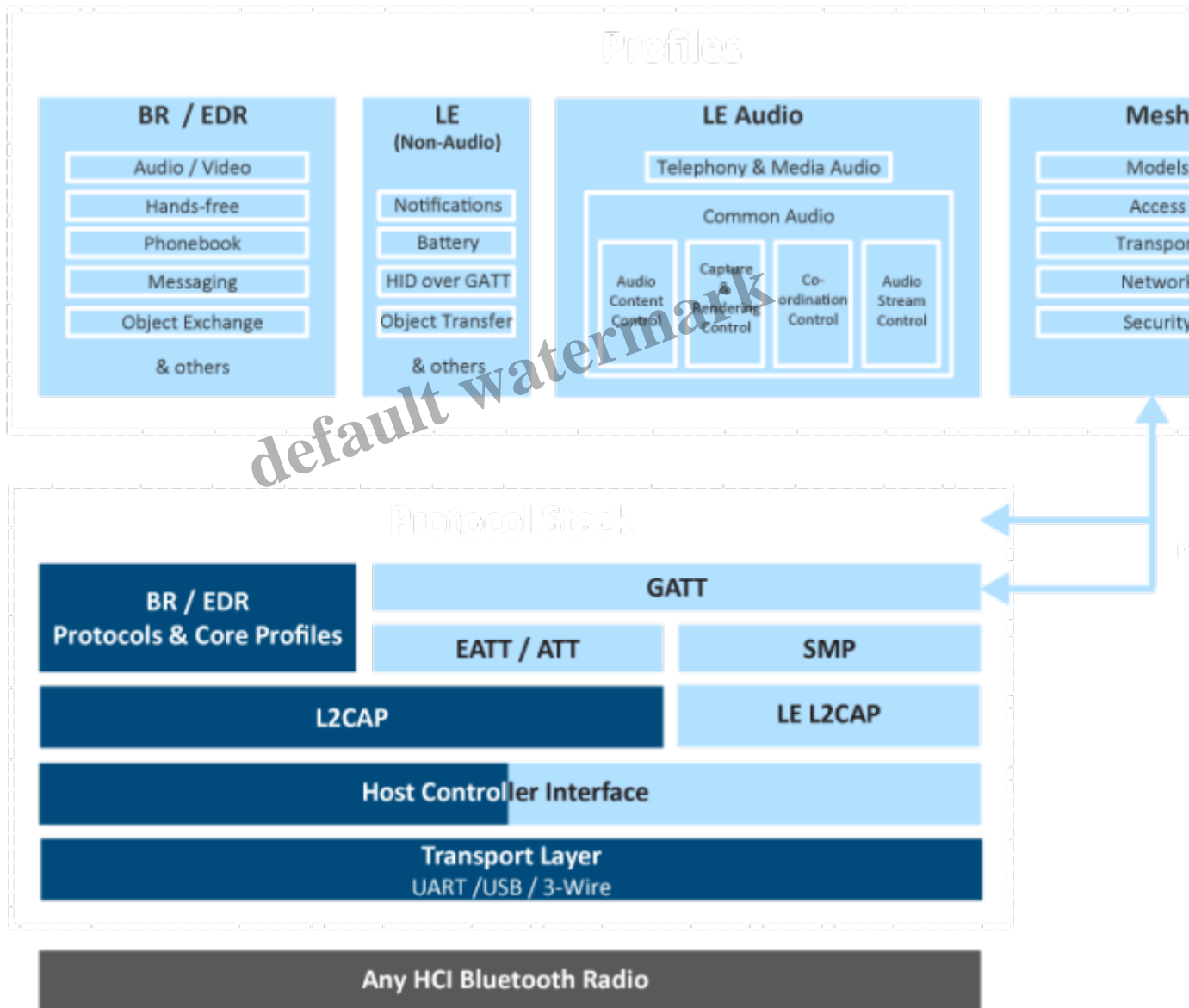


## Blue SDK

### Description

# Blue SDK



## Why Bluetooth in the Car?

Discover

## BlueSDK is your Safe route to market



Industry-leading Bluetooth solution for 25 years



Proven for automotive and other requirements across many different operating systems



Hardware-agnostic and designed for embedded systems with restricted MIPs and memory



Rich set of flexible APIs, macros, & utilities, extendable to add features & functionalities



Flexible architecture by clear abstraction of platform-specific code

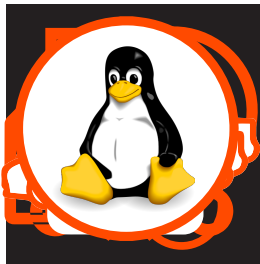


Complete control over all aspects of stack operation prior to compilation & during run time



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Audio integration of ALSA, PulseAudio, gStreamer, supporting third-party codecs



Blue SDK RapidLaunch easily integrates Bluetooth into a Linux system



Industry-leading Bluetooth solution for 20+ years



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Audio integration of ALSA, PulseAudio, gStreamer, supporting third-party codecs



Blue SDK RapidLaunch easily integrates Bluetooth into a Linux system

## Blue SDK supports Bluetooth® Classic and Bluetooth® Low Energy

Classic and Low Energy devices use different hardware and software stacks: Bluetooth® Classic devices can't communicate with Bluetooth® Low Energy and vice versa. As for some applications, the power consumption of Bluetooth® Classic is still too high. The Bluetooth® SIG developed a standard lower power consumption to overcome this obstacle.

## Blue SDK supports LE AUDIO

The latest version of Blue SDK enables advanced audio streaming over Bluetooth Low Energy. A new codec, called LC3, provides improved audio quality at roughly half the bitrate compared to the traditional Bluetooth audio codec.

- LE AUDIO PROFILES Completely New Audio Profiles Architecture
- AUDIO QUALITY Better Audio & Voice Quality at Half the Bitrate
- MULTI-STREAM AUDIO Multiple, Independent, Synchronized Audio Streams
- BROADCAST AUDIO Broadcast Audio Streams to Unlimited Devices

Discover

## Experts of the Bluetooth® SIG

OpenSynergy Bluetooth® experts are members of the Bluetooth® SIG Core Specification and Automotive Working Groups. This team is continuously advancing the features of Blue SDK to remain compliant with the latest Bluetooth® specification version.

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## Benefits

- Compliant to Bluetooth® specification version v5.3 as well as all earlier specification versions including v4.2, v5.0, 5.1, and 5.2
- Shortens time-to-market
- Reduces development costs and testing cycles
- Designed for ease of use
- Enables fast and easy integration into any operating system
- Reduces engineering risk and total project cost
- Fully customizable
- Low cost of ongoing ownership

- Developed and supported by Bluetooth® experts who are members of the Bluetooth® SIG Core Specification and Automotive Working Groups
- Integrates with most Bluetooth® compliant radio hardware
- Designed for embedded systems with restricted memory and MIPS

## Features

- State-of-the-art Bluetooth® host stack supporting latest Bluetooth® specifications
- Supports both Classic and Low Energy functionality
- Includes debug logging and protocol sniffer capable of analyzing stack operation and traffic
- Integration with leading third-party protocol analyzer formats
- Pre-integrated Bluetooth® profiles
- Powerful stack application programming interface (APIs) offering full control of Bluetooth® stack
- Simple Linux integration
- Linux audio integration
- Support for 32 and 64-bit systems
- 2 Msym/s PHY for LE
- LE Long Range PHY
- LE Isochronous Channels: enables LE Audio, new topologies, and new use cases
- LE Advertising Extensions
- Dynamic LE Power Control
- Periodic Advertising

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Contains all core components in the Bluetooth® core specification v5.3:

- RFCOMM
- L2CAP
- SDP
- Security Manager

- SCO Manager
- HCI
- Connection Manager
- Device ID Profile
- Dual Mode topology
- LE Privacy: supporting resolvable and non-resolvable private addresses and Link Layer Privacy with network and device privacy modes
- Dual Mode topology permits BR/EDR/LE devices to communicate over the LE physical channel allowing simultaneous use of both BR/EDR and LE physical channels to any device
- L2CAP Connection Oriented Channels allows non-GATT based L2CAP data connections over LE
- Link Layer Topology supporting Low Energy scatternet
- Low Duty Cycle Directed Advertising permits “background advertising” for lower power use
- 32-bit UUID support for Low Energy advertising
- BR/EDR and LE Secure Connections

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## Profiles

A full set of profiles that specifically address the automotive markets are compatible with the Blue SDK and are offered separately, allowing the developers to select only those applications required for their product solution. Each profile SDK has been pre-integrated and tested with the Blue SDK to ensure operation on any hardware platform. Documentation and Visual Studio project files are included as an aid to the developer to shorten development time and achieve a quick time to market.

### Bluetooth® LE Audio Profiles with Version

- Audio Input Control Service (AICS), v1.0
- Audio Stream Control Service (ASCS), v1.0
- Basic Audio Profile (BAP), v1.0.1
- Broadcast Audio Scan Service (BASS), v1.0
- Common Audio Profile/Service (CAP/CAS), v1.0
- Call Control Profile (CCP), v1.0
- Coordinated Set Identification Profile/Service (CSIP/CSIS), v1.0.1
- Media Control Profile/Service (MCP/MCS), v1.0
- Microphone Control Profile/Service (MICP/MICS), v1.0
- Published Audio Capabilities Service (PACS), v1.0.1
- Telephone Bearer Service (TBS), v1.0
- Telephony and Media Audio Profile (TMAP), v1.0
- Volume Control Profile/Service (VCP/VCS), v1.0
- Volume Offset Control Service (VOCS), v1.0
- Low Complexity Communication Codec (LC3), v1.0

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### Bluetooth® Classic Profiles with Version

- Advanced Audio Distribution Profile (A2DP), v1.3.2
- Audio Video Remote Control Profile (AVRCP), v1.6.2
- Basic Imaging Profile (BIP), v1.2.1
- Basic Printing Profile (BPP), v1.2
- Calendar, Task, Notes Profile (CTN), v1.0
- Device ID Profile (DI), v1.3
- File Transfer Profile (FTP), v1.3.1
- Generic Audio/Video Distribution Profile, v1.3
- Generic Object Exchange Profile, v2.1.1
- Hands Free Profile (HFP), v1.8
- Hardcopy Cable Replacement Profile (HCRP), v1.2
- Headset Profile (HSP), v1.2
- Health Device Profile (HDP), v1.0
- Human Interface Device Profile (HID), v1.1.1
- Message Access Profile (MAP), v1.4.2
- Object Push Profile (OPP), v1.2.1
- Personal Area Networking Profile (PAN), v1.0
- Phone Book Access Profile (PBAP), v1.2.3
- Serial Port Profile (SPP), v1.2
- SIM Access Profile (SAP), v1.1
- Video Distribution Profile (VDP), v1.1

#### Included Profiles, Sample Apps

- Serial Port Profile, Service Discovery Application Profile, and Device ID Profile
- Multi-Profile Specification (MPS) Support
- They provide insight into the basics of connection management, link security and service discovery.
- Visual Studio projects. They allow demos to be built and executed almost immediately on a Windows platform.

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#### Low Energy SDK and LE Services/Profiles

- ATT/EATT (Enhanced ATT) protocol and GATT client/server profile included with sample applications Serial Port Service: • bi-directional serial port such as dual mode stack or single mode LE capability
- Alert Notification Profile/Service (ANP/ANS), v1.0
- Battery Service (BAS), v1.0
- Device Information Service (DIS), v1.1
- Find Me Profile (FMP), v1.0
- HID over GATT Profile/Service (HOGP), v1.0
- Heart Rate Profile/Service (HRP/HRS), v1.0
- Health Thermometer Profile/Service (HTP/HTS), v1.0
- Immediate Alert Service (IAS), v1.0

- Internet Protocol Support Profile [IPv6 w/6LoWPAN] (IPSP), v1.0
- Link Loss Service (LLS), v1.0.1
- Object Transfer Profile/Service (OTP/OTS), v1.0
- Proximity Profile (PXP), v1.0.1
- Scan Parameters Profile/Service (ScPP/ScPS), v1.0
- Transport Discovery Service (TDS), v1.0
- Tx Power Service (TPS), v1.0

## Comprehensive Documentation

Clear and complete documentation including:

- Implementer's Guide
- Porting Guide
- Complete API Guide

^

## Multi-Profile Operation

Concurrent profile operation can be managed using the Bluetooth® System Manager, a framework that can be expanded to manage and control several profiles over multiple connections.

^

## Transport Layer

An adapter transport layer which is responsible for correctly handling sending/receiving data from the Bluetooth® controller. Blue SDK includes implementations for:

- UART
- USB (includes a Windows USB driver)
- HCI 3-wire
- Official SDIO support for NXP/Marvell controllers

^

## Software Updates

Stack and Automotive-based profiles are constantly maintained and kept up-to-date with the most recent Bluetooth® SIG specification versions.

Datasheet

[Blue SDK](#)

Whitepaper Bluetooth® Low Energy

Request Whitepaper

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2022/02/24

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