Abstract

WICED™ Studio provides a complete development environment to allow one to quickly create an IoT solution utilizing Cypress' world-class Wi-Fi and Bluetooth/BLE connectivity technologies. This document also provides the details of many supported features and modes, and limitations associated with supported hardware development platforms.

Contents

WICED™ Studio Development Package

Cypress' WICED™ (Wireless Internet Connectivity for Embedded Devices) Studio is a software development platform allowing rapid IoT application development. WICED Studio is a comprehensive environment supporting Wi-Fi, Bluetooth Classic (BT), and Bluetooth Low Energy (BLE). WICED Studio provides the flexibility to use MCUs from both Cypress and third-parties while integrating with various Wi-Fi, BT, and BLE devices and modules.

WICED Studio provides the tools necessary to develop, build, program, and debug IoT applications that utilize Cypress wireless technology.

Cypress provides a steady release cadence for WICED Studio enabling new features, fixes, and improvements. Cypress tests and supports these releases and its features with the MCUs and platforms defined in this document to provide easy migration from one version to the next. If customers chose to create solutions, platforms, or both that are not defined in this document, they are responsible for testing and technical support of these platforms.

To find answers to questions while using the features and platforms mentioned in this document, Cypress has an active professional community managed by Cypress engineers at community.cypress.com. If an answer to a question does not already exist, you can post on the forum. For support on items not listed in the document, please contact one of our Cypress Ecosystem Partners at community.cypress.com/community/partners for development and production support.

WICED Studio solution includes the following features and capabilities:

- A cross-platform installer supporting Windows, Linux, and macOS environments

- An Eclipse-based IDE with integrated programming and debugging support

- Integrated GNU compiler/linker tools

- Includes royalty free ThreadX library and support for FreeRTOS

- Integrated support for several Cypress and third-party development kits where the core WICED™ applications may run on Cypress or third party MCUs

- A rich set of WICED™ connectivity APIs that allow for simplified programming of Wi-Fi and BT/BLE connectivity

- Integrated support for various cloud services to help connect IoT devices to the cloud quickly

- An extensive set of *snip* applications that serve as examples of how to utilize the Wi-Fi and BT/BLE APIs

- More complex *demo* applications that utilize various APIs and *snips* to create a more complete solution

RTOS Support

WICED™ Studio supports both the FreeRTOS and ThreadX RTOS environments. Though most functionality is supported in both environments, there are some differences that developers should be aware of.

Feature	FreeRTOS	ThreadX
RTOS, network stack, peripheral stack source code	All portions of the RTOS and accompanying Board Support Package (BSP) and peripheral stack are provided in source form.	The core RTOS, NetX stack, USB-X, and so on are provided in binary form. To gain access to source code for these components, a separate license agreement with Express Logic must be executed.
USB stack support	Not supported	Supported via USB-X, binary only
Ethernet interface support	Not supported	Supported

Table 1. RTOS Environment Feature Support

Platform Board Support Package Features

WICED™ Studio includes support for several Cypress kits and platforms. These platforms are tested and supported by Cypress via platform configuration files that define the pin usage, clocks, available interfaces, memory configurations, and so on. Derivative board configurations are created and tested by customers and Cypress Ecosystem Partners. WICED Studio provides the flexibility to utilize different combinations of third partyy MCUs and Cypress Connectivity Devices, as listed in Table 2. Platform support and testing for these different configurations are the responsibility of customers and Cypress Ecosystem Partners.

The platforms listed in Table 2 are tested with each WICED™ Studio release.

Chipset	Platform	WICED/Host MCU	Flash	RAM
CYW20706A2	CYW920706WCDEVAL	CYW20706A2	No on-chip-flash (OCF)	~100K of app RAM
CYW20719B1	CYW920719Q40EVB-01	CYW20719B1	1 MB OCF	~448K of app RAM
CYW43340	BCM943340WCD1	STM32F417	1 MB External + 1 MB Internal	192 KB
CYW43362	BCM943362WCD4	STM32F205	1 MB Internal	192 KB
CYW4343W	CYW94343WWCD1	STM32F411	1 MB External + 512 KB Internal	128 KB
CYW43364	BCM943364WCD1	STM32F411	1 MB External + 512 KB Internal	128 KB
CYW43907	CYW943907AEVAL1F	CYW43907	8 MB External	2 MB
CYW54907	CYW954907AEVAL1F	CYW54907	Flash: 8 MB External	2 MB
PSoC6 + CYW4343W	CY8CKIT-062-WiFi-BT	PSoC6	1 MB Internal + 64 MB External (16 MB used in WICED Studio)	288 KB

Table 2. List of Platforms Tested during WICED Releases

Because of differences in peripheral support, memory configurations, and other platform capabilities, some features are only available on certain hardware platforms as listed in Table 3.

Feature w/ Links	Supported Platforms	Notes
OTA	All WiFi Platforms	Allows for OTA update of WICED applications; cannot update BT and Wi-Fi firmware Reference Documents: ${INSTALLDIR}\43xxx_Wi-Fi\doc\WICED-OTA.pdf
	All BT Platforms	Reference Documents:

Feature w/ Links	Supported Platforms	Notes
		${INSTALLDIR}\doc\WICED-Firmware-Upgrade-Library.pdf* *${INSTALLDIR}\doc\WICED-Secure-Over-the-Air-Firmware-Upgrade.pdf
OTA2	CYW954907AEVAL1F, CYW943907AEVAL1F, CYW920719Q40EVB-01	OTA2 supports update of the entire WICED image Reference Documents: *${INSTALLDIR}\43xxx_Wi-Fi\doc\WICED-OTA2.pdf*
USB host and device	CYW954907AEVAL1F, CYW943907AEVAL1F	Supported in ThreadX RTOS only
Advanced Host Power Management	CYW954907AEVAL1F, CYW943907AEVAL1F	Reference Document: *${INSTALLDIR}\43xxx_Wi-Fi\doc\WICED-Powersave-App-Note.pdf*
Secure Boot Mechanism	CYW954907AEVAL1F, CYW943907AEVAL1F	CYW43907 Reference Document: *${INSTALLDIR}\43xxx_Wi-Fi\doc\WICED-OTA2.pdf*

Table 3. List of Features Available by Hardware Platform

WICED™ APIs

WICED™ APIs are designed to reduce the number of steps needed to create connections over Wi-Fi, Bluetooth, or both. Developers do not need to be experts in connectivity technologies, as the APIs will program many of the settings for the types of connections that the developer is trying to create. The result is that the functionality that often takes dozens of commands and domain-specific knowledge can be done with a few WICED APIs.

The WICED™ Studio environment includes documentation for the APIs that are derived directly from the WICED™ Studio source code. As new APIs are created or as existing APIs are augmented, the documentation stays synchronized.

Functional Support

The WICED™ Studio provides functionalities in several different areas including:

- Core Wi-Fi Technologies
- Core Bluetooth/BLE Technologies
- Bluetooth/BLE Protocols and Profiles
- IP Connectivity Protocols
- Kit/Platform Support

This technical brief provides in-depth details on the functionality offered in these areas.

Core Wi-Fi Technologies

Wi-Fi Standards
The Wi-Fi cores and chipsets supported in the WICED™ Studio are compliant with many Wi-Fi Alliance specifications. Cypress performs internal Wi-Fi pre-certification testing against the following specifications on all WICED™ releases:

- Wi-Fi CERTIFIED n
    - Both 2.4 and 5 GHz bands
- Wi-Fi CERTIFIED ac in 5 GHz
- Wi-Fi Direct®
- Wi-Fi Protected Setup™
- WMM® (Wi-Fi Multimedia™)

In addition to these active Wi-Fi programs, interoperability testing with legacy Wi-Fi CERTIFIED a and Wi-Fi CERTIFIED b/g devices are covered in our interop test lab.

Table 4 lists the WICED supported chipsets and the Wi-Fi certification program against which the chipsets are tested.

Certification	Wi-Fi Chipsets
Wi-Fi CERTIFIED n – 2.4 GHz	CYW43340, CYW43362, CYW43364, CYW43903, CYW43907
Wi-Fi CERTIFIED n – 5 GHz	CYW43340, CYW43903, CYW43907
Wi-Fi CERTIFIED ac	CYW54907
Wi-Fi Direct®	CYW43362, CYW43907, CYW54907
Wi-Fi Protected Setup™	CYW43340, CYW43364, CYW43903, CYW43907
WMM® (Wi-Fi Multimedia™)	CYW43340, CYW43362, CYW43364, CYW43903, CYW43907

Table 4. List of Chipsets and Associated Wi-Fi Certification Program

Wi-Fi Firmware Offloads

Each Wi-Fi core supported by WICED™ contains an Arm® core that implements the Media Access Control (MAC) layer. Additionally, the firmware that runs on the embedded Arm implements several host offloads. Host offloads implement functionality that allow for the host MCU to either process fewer packets or allow the system to stay in a lower power state for longer duration. Both ultimately result in decreasing overall system power.

Preferred Network Offload (PNO)

PNO allows the Wi-Fi Firmware to monitor and join Wi-Fi networks automatically. WPA-Personal security negotiation and roaming between APs on the network are supported.

TCP Keepalive Packets

The Wi-Fi Firmware can be programmed to generate arbitrary TCP packets to a target IP address at a specified interval. Because IoT devices often operate in low power modes with infrequent traffic being sent or received, the TCP Keepalive feature is needed to prevent Wi-Fi access points and routers from timing out an IoT device's connection because of inactivity.

Packet Filtering

The Wi-Fi device can be programmed to only pass up packets that match a set of filters passed to the Firmware from the host. Packets that do not match the active filters are discarded. Typically, a sleeping host would program a set of packet filters that match the expected traffic and decide whether to ignore and go into a low power state or wake up the device if a matching packet is received.

Address Resolution Protocol (ARP) Offload

IP networks often have many ARP packets, which are used for IP address discovery. Many of these are layer-2 Wi-Fi broadcast packets, that would normally require processing on the MCU host. The ARP offload functionality allows for the Wi-Fi FW to both filter ARP packets and automatically respond to ARP packets directed at the WICED™ IoT device.

Offload Support Table

Although all Firmware offloads are supported in all Wi-Fi chipsets, the number of filters can vary depending on the Wi-Fi chipsets. Table 5 lists the FW offloads that are supported by chipset.

Offload	Chipset	Limits
Preferred Network Offload	CYW43340, CYW43362	4 networks
	CYW43364, CYW43903, CYW43907, CYW54907	8 networks
TCP Keepalive Packets	CYW43340, CYW43362	2 keepalives
	CYW43364, CYW43903, CYW43907, CYW54907	4 keepalives
Packet Filtering	CYW43340, CYW43362	2 filters
	CYW43364, CYW43903, CYW43907, CYW54907	4 filters

Offload	Chipset	Limits
ARP Offload	All	2 maximum monitored addresses

Table 5. List of Supported FW Offloads by Chipset

Additional Wi-Fi FW Features

Table 6 lists additional Wi-Fi FW features that are utilized by demo and snip apps and can be used for customer features.

Feature	Description	Supported Platforms
AP/STA mode	Allows for the Wi-Fi device to instantiate multiple interfaces, one that acts as an Access Point (AP) and one that acts as a Wi-Fi station device (STA). These can be on the same channel or different channels utilizing the virtual simultaneous dual band (VSDB) feature.	CYW943907AEVAL1F, CYW954907AEVAL1F, BCM943364WCD1, BCM94343WWCD1
Wi-Fi Direct	Allows for peer-to-peer communication between Wi-Fi devices without the need for an AP.	CYW943907AEVAL1F, CYW954907AEVAL1F, BCM943364WCD1, BCM94343WWCD1
WMM (Wireless Multimedia)	WMM is an 802.11 quality of service (QoS) implementation developed by Wi-Fi based on a subset of the draft 802.11e standard supplement.	CYW943907AEVAL1F, CYW954907AEVAL1F, BCM943364WCD1, BCM94343WWCD1
Fast BSS Transition (802.11r)	Speeds up the re-association process when Client moves from one AP to another AP in the enterprise network	CYW943907AEVAL1F, BCM943364WCD1, BCM94343WWCD1, BCM943340WCD1

Table 6. List of Additional Wi-Fi Features Available by Hardware Platform

Core Bluetooth/BLE Technologies

Bluetooth Standards

All Bluetooth/BLE cores and chipsets supported in the WICED™ Studio support a base set of Bluetooth functionalities:

- BR and EDR data rates
- Bluetooth Low Energy (BLE)

Additionally, each chip supports one of several Bluetooth SIG specification revisions. The following are the major features that are supported in each specification:

- Bluetooth 4.2
    - o LE Secure Connections
    - o LE Privacy 1.2
    - o Data Length Extension
- Bluetooth 5.0
    - o 2 Mbps phy data rate
    - o SAM (Slot Availability Mask)
    - o LE Channel Selection
    - o High Duty Cycle Non-Connectable Advertisement

Note: Chips or cores that support a later Bluetooth specification also include the supported features of previous specifications. See Table 7 for details on the features supported for each device.

Table 7 lists the supported Bluetooth/BLE chipsets and the Bluetooth SIG specification.

Chipset	Bluetooth SIG Specification	Specification Features
CY20706A2	BT 4.2	4.2 Features: LE Secure connections, DPLE, LE Privacy 1.2
CYW20719B1	BT 5.0	LE 2 Mbps, SAM, LE ch selection #2, High Duty Cycle Non-Connectable Adv
CYW4343W	BT 4.2	LE Secure connections
CYW43340	BT 4.0	4.0 Features: Bluetooth Low Energy

Table 7. List of Bluetooth Specification Support by Chipset and Support Features

Features, Profiles, and Protocols

In addition to the core Bluetooth/BLE and Wi-Fi FW functionality, WICED™ Studio provides a proven Bluetooth/BLE stack and a comprehensive set of IoT protocols for Wi-Fi.

Each of the profiles and protocols provided in WICED™ Studio are validated in our System Validation Test (SVT) labs.

Wi-Fi/IP Protocols

Protocol	Description	Wi-Fi Chipsets
TCP/UDP/IP	TCP/IP/UDP is the foundation of all the IoT protocols. A stack is provided both for the ThreadX and FreeRTOS environments supporting both IPv4 and IPv6 networks.	All
HTTP/HTTPS	Both client and server support, HTTP1.1/ HTTP2 specification	All
MQTT	MQTT is tested against Amazon Cloud services as well as the test.mosquito.org service	All
COAP	The COAP protocol is tested against the Exocite IoT hub	All
AMQP	WICED AMQP (Advanced Message Queuing Protocol) client library	All

Table 8. Wi-Fi/IP Supported Protocols

Bluetooth/BLE Features and Profiles

Table 9 lists the profiles that are actively supported in WICED Studio for BT and BLE chipsets.

Profile or Feature	Description	Chipsets
BR/EDR	Classic BT with Enhanced Data Rate	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
BLE	Bluetooth Low Energy	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
BLE Mesh	Version 1.0. Sample app includes sample for power ON/OFF, battery level, light control, transition, and sensor (client and server)	CYW20706A2, CYW20719B1
Apple HomeKit, iAP2	Version RC8. Sample applications for light bulb and lock. Apple MFi is license required.	CYW20706A2, CYW20719B1

Profile or Feature	Description	Chipsets
Audio gateway profile	BT audio gateway profile version 1.5	CYW20706A2, CYW4343W, CYW43340
Handsfree profile	BT Hands-free profile version 1.5. SCO Offload - voice data routing over I2S/PCM interface. Tone generation for Out of Band ring-tone is NOT supported by the app	CYW20706A2, CYW20719B1
A2DP source	Version 1.0. Support SBC encoding	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
A2DP Sink	Version 1.0. I2S bus can be master or slave	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
AVRCP Target	Version 1.5 (including absolute volume)	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
AVRCP Controller	Version 1.3	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
PBAP client	BT Phonebook profile client version 1.3. Supported feature - download phonebook and call log (incoming, outgoing and missed calls)	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
HOGP Host	HID over GATT profile, host side	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
HOGP Device	HID over GATT profile, device side	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
BT HID Host	HID Host version 1.1	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
BT HID Device	HID Device version 1.1	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
BLE GATT Client	Sample app to show vendor specific BLE client profile implementation	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
BLE GATT Server	Sample app to show vendor specific BLEGATT device and service	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
Voice over HOGP	mSBC audio data sent from HOGP device to HOGP host (LE voice remote and Set-top-box use case)	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
Wake on LE	Wakeup host using LE command (LE voice and Set-top-box use case)	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
Serial Port Profile	Version 1.1	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
BLE Serial over GATT	Cypress proprietary service to send data over GATT service using RFCOMM protocol.	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
Apple AMS	Apple Media Service	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
Apple ANCS	Apple Notification Center Service	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
Low Power Modes	Low power modes are supported on all chips. The appropriate	CYW20706A2, CYW20719B1, CYW4343W, CYW43340

Profile or Feature	Description	Chipsets
	sleep mode is selected by the FW when app allows sleep	
Peripherals	Sample apps to demonstrate use of HAL APIs for the peripherals such as UART, SPI, I2C, etc.	CYW20706A2, CYW20719B1
iBeacon	Sample app demonstrates implementation of the Apple iBeacon specification.	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
Eddystone	Sample app demonstrates implementation of the Google Eddystone beacon specification.	CYW20706A2, CYW20719B1
Secure OTA	Sample demonstrates how to implement secure over the air FW upgrade over BLE	CYW20706A2, CYW20719B1
GATT DB	Sample application to configure GATT database over WICED HCI	CYW20706A2, CYW20719B1, CYW4343W, CYW43340
ANP/ANS	Sample apps for Alert Notification profile (ANC: Client and ANS: Service)	CYW20706A2, CYW20719B1
BAS	Sample apps for Battery Service profile (BAS - Service, BAC - Client)	CYW20706A2, CYW20719B1
HRP/HRS	Sample apps for Heart Rate profile (HRC - Client, HRS - Server)	CYW20706A2, CYW20719B1
OPP Server	OPP server (OBEX based). Receive files, vcards, and so on over OPP	CYW20706A2
BR/EDR HID Host	HID Host version 1.1	CYW20706A2, CYW20719B1
BR/EDR HID Device	HID Device version 1.1	CYW20706A2, CYW20719B1

Table 9. List of Actively Supported BT/BLE Profiles

Demo Projects

WICED™ Studio includes demo projects that give the developers examples on how to use the protocols and APIs. The demo projects are contained in one of the two forms:

1. Snip projects: Snip projects are meant to detail a single piece of functionality. There are dozens of snip projects included with the Studio and each has comments in the main file describing the APIs and functionality being demonstrated
2. Full demo projects: Full demo projects bring many pieces together to create a baseline for an IoT product.

Table 10 and Table 11 provide an example of a few demo projects offered in WICED Studio. For the complete list, see the *apps* folder in WICED Studio.

Wi-Fi Demo Projects

Demo Project	Description	Supported Platforms
Appliance	Mimics a very basic user interface to control a home appliance such as a washing machine or dryer	CYW943907AEVAL1F, BCM943364WCD1, CY8CKIT-062-WiFi-BT
aws_iot	Demonstrates how to utilize the WICED Wi-Fi APIs, mqtt protocol and aws authentication snip app to interface with the Amazon Web Services Cloud	CYW943907AEVAL1F, BCM943364WCD1, CY8CKIT-062-WiFi-BT

Demo Project	Description	Supported Platforms
azure_iot_hub	Demonstrates how to utilize the WICED Wi-FI APIs and AMQP v1.0 protocol with interface to the Microsoft Azure cloud	CYW943907AEVAL1F, BCM943364WCD1, CY8CKIT-062-WiFi-BT
coap_exocite	Demonstrates how to utilize the WICED Wi-FI APIs and the coap protocol to interface with the Exocite IoT cloud	CYW943907AEVAL1F, BCM943364WCD1
aliyun_mns	Demonstrates how to utilize the WICED Wi-FI APIs to interface with the Alibaba cloud	CYW943907AEVAL1F, BCM943364WCD1
temp_control	Measures the temperature of the WICED evaluation board and displays temperature and setpoint status on a local webpage	CYW943907AEVAL1F, BCM943364WCD1
wifi_onboarding	Shows how Wi-Fi Device onboarding works. This onboarding method is applicable for WiFi-only devices and does not require any additional hardware like BLE. This method hosts a HTTPS server first and then puts the device in AP + STA mode.	CYW943907AEVAL1F, BCM943364WCD1

Table 10. List of Wi-Fi Demo Projects

BT/BLE Demo Projects

Demo Project	Description	Supported Platforms
Hello sensor application BLE GATT Server	Hello Sensor application shows an example of a BLE vendor specific GATT device and service.	CYW920706WCDEVAL, CYW920719Q40EVB_01
Hello client application BLE vendor specific GATT	Hello Client application shows an example implementation of a BLE vendor specific GATT client profile	CYW920706WCDEVAL, CYW920719Q40EVB_01
SPP (Serial Port Profile) application	SPP application uses SPP profile library to establish, terminate, send and receive SPP data over BR/EDR. This sample supports single a single SPP connection.	CYW920706WCDEVAL, CYW920719Q40EVB_01

Table 11. List of BT/BLE Demo Projects

Security

WICED Studio provides a suite of security protocols in the Cypress Enhanced Security Layer. This layer uses mbedTLS cipher suites and cryptographic algorithms and handles all network authentication methods and provides libraries that are used by various *snip* and demo applications and can be used by customers for their application development.

Category	Feature
TLS Extension	Server name indication (SNI Extension support)
	Maximum fragment length Extension
	Client certificate URLs Extension
	Trusted CA indication extension
	Trusted HMAC Extension
	Certificate status request
	ALPN extension
	Signature Algorithm Extension
	Certificate Revocation list
	Secure renegotiation
Key Exchange Methods	RSA key Exchange
	DHE Key Exchange
	ECDHE Key Exchange
	ECDH Key Exchange
	PSK Key Exchange
	SRP key exchange - SRP-SHA, SRP-SHA-RSA, SRP-SHA-DSS
Encryption Algorithm	AES
	Blowfish
	Triple DES
	DES
	ARC4
	Camelia
	CHACHA20_POLY1305
	ARIA cipher
	SEED CBC cipher
	XTEA
Hash Algorithm	MD2, MD4, and MD5
	SHA1, SHA224, SHA256, SHA384 and SHA512
	RIPEMD-160
Certificate Format	DER
	PEM
	PKCS7, PKCS8, PKCS11 and PKCS12
Supported ECC Curves	secp192r1 - 192-bits NIST curve

Category	Feature
	secp224r1 - 224-bits NIST curve
	secp256r1 - 256-bits NIST curve
	secp384r1 - 384-bits NIST curve
	secp521r1 - 521-bits NIST curve
	secp192k1 - 192-bits Koblitz curve
	secp224k1 - 224-bits Koblitz curve
	secp256k1 - 256-bits Koblitz curve
	bp256r1 - 256-bits Brainpool curve
	bp384r1 - 384-bits Brainpool curve
	bp512r1 - 512-bits Brainpool curve
	m255 - 255-bits Curve25519
Signature Algorithms	RSA
	ECDSA
	DSA
Pre-RSNA (Robust Security Network Association)	WEP (Open/Shared)
RSNA (Robust Security Network Association)	TKIP (WPA including Mixed mode)
	CCMP (WPA2)
	BIP (for MFP/Robust Management Frame Protection)
	Four-way Handshake and Group Key Handshake Protocol
Bluetooth Security Features	Cypress Bluetooth controller and WICED Bluetooth stack support all security algorithms needed to provide a certified Bluetooth solution to the customers

Table 12. Security Protocols Handled by the Cypress Enhanced Security Layer

Technical Support

Cypress Developer Community also hosts Forums for technical support. You can search the forum to find answer to your question. If you are unable to find the answer, you can post it on the forum. These Forums are manned by Cypress engineers to assist you with issues that you encounter while using WICED Studio with platforms and features listed in this document. For quick access, here are the links to W-Fi/Combo and Bluetooth forums respectively:

https://community.cypress.com/community/wiced-wifi/wiced-wifi-forums

https://community.cypress.com/community/wiced-studio-blueooth/wiced-studio-bluetooth-forums

If you need support beyond what is listed in this document, you can contact of our partners. List of our partners is available at https://community.cypress.com/community/partners.

Learning Resources

Cypress offers a wealth of learning resources as summarized in Table 13.

Information	Source
Cypress Wireless Solutions and Product Offerings	Wireless Product Offerings
Location to buy Kits	Cypress Kit Store
Cypress Developer Community	Community
Getting Started and Training Videos	Getting Started Videos
WICED Studio Download*	WICED Studio
WiFi Devices and WiFi + Bluetooth Combo Devices Application Notes, Support Blogs, and Help Articles	WiFi and WiFi + Bluetooth Documentation
Bluetooth Application Notes, Support Blogs, and Help Articles	Bluetooth Documentation

Table 13. Learning Resources

To learn about new features, devices, and platform support since previous release and to find the list of any known issues and solutions, see the release notes provided with every WICED Studio release.

Software Licensing

Express Logic ThreadX / NetX_Duo object files and headers are licensed by Cypress from Express Logic, Inc and provided to WICED Studio users royalty-free.

See the \Doc\WICED-Studio-License-1.0.pdf document in WICED Studio for Software Licensing details.