Wi-Fi glossary

About this document

Scope and purpose

This document provides expansion and a brief description of the Wi-Fi terminologies frequently used in Infineon documentation related to wireless products.

Intended audience

This document is intended for the customers who refer to Infineon Wi-Fi documents.

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Terms A-B

AP

Access Point

A networking hardware device that allows other Wi-Fi devices to connect to a wired network

ACI

Adjacent Channel Interference

Interference caused by extraneous power from a signal in an adjacent channel. (Source Wikipedia)

AMPDU

Aggregated MAC Protocol Data Unit

If Multiple Mac Protocol Data units are aggregated to form one frame – then the aggregation is termed as *A-MPDU* aggregation

ASPM

Active State Power Management

Active-state power management (ASPM) is a **power management** mechanism for **PCI Express** devices to garner power savings while otherwise in a fully active state. Predominantly, this is achieved through active-state link power management; i.e., the PCI Express serial link is powered down when there is no traffic across it.

Source: Wikipedia

BA

Block Acknowledgement

The bitmap-based frame that is used to acknowledge multiple MAC Protocol Data Units (MPDU) received over a single Transmit Opportunity (TXOP) instead of individual acknowledgement frames corresponding to each MPDU.

BI

Beacon Interval

The interval that defines how often the beacon frame is being broadcast by the AP. Typically fixed as 100 ms.

Terms C-F

BSS

Basic Service Set

A set of stations (STAs) organized in a group by a common AP.

BSSID

Basic Service Set Identifier

An identifier for the BSS, typically defined by the MAC address of the AP.

Terms C-F

CSMA/CA

Carrier Sense Multiple Access/Collision Avoidance

This is the protocol responsible for controlling access to the shared medium. In Wi-Fi, devices always need to listen for any other transmissions in the same frequency band for a pre-defined period of time before trying to access the medium and in case Wi-Fi any transmission is detected by physical or virtual carrier sensing methods the device needs to back off following an exponential algorithm.

CTS

Clear To Send

Protection frame of short duration which ensures the medium is free when responded on a Request To Send frame (RTS).

CW

Contention Window

In shared medium access, this window value is used and adjusted to take random backoffs across multiple STAs as part of the Distributed Co-ordination Function (DCF).

Cirrent Agent

Cirrent (a Cypress subsidiary) provides IoT Network Intelligence (INI), a cloud-based analytics platform that delivers unprecedented insights into connectivity, networking, and other product-performance parameters and so the broader growth of IoT products in the field.

Terms C-F

CLM

Country Locale Matrix

The regulatory process at Cypress centers around what is called a CLM (Country Locale Matrix). CLM is a Cypress term and refers to a set of interlocking databases that represent a regulatory configuration for a given Country Code (CCode). Cypress implements Per Product CLM databases for a specific customer project as well as legacy master CLM databases (containing 10s of thousands of entries of information). The preferred interface method with Cypress is to use Per Product CLMs.

DCF

Distributed Coordination Function

Communication timing method for ad-hoc networks and before a BSS is established, which governs most of the frame exchanges for WLAN devices.

DHD

Dongle Host Driver

Infineon proprietary Wi-Fi host driver that provides a connection between the host operating system (OS) and the dongle media (WLAN module).

DTS

Device Tree Source

A device tree (also written devicetree) is a data structure that describes the hardware components of a computer so that the operating system's kernel can use and manage them.

Device Tree Source files (also known as Flattened Device Tree file) are a tree structure consisting of nodes with associated properties and child nodes, compiled using Device Tree Compiler (DTC) into a binary formatted file called DTB file.

DTB

Device Tree Blob

A device tree is a data structure that describes the hardware components of a computer such as the CPU, memory, and peripherals so that the operating system's kernel can use and manage them. DTB is a binary format of Device Tree Source (DTS) files.

DTSI

Device Tree Source Include

Common files that describe the hardware. These are included in the *.dts files of several platforms.

Terms G-I

DTIM

Delivery Traffic Indication Map

For broadcast and multicast traffic, this map determines when and which STAs are supposed to receive the traffic.

EAP

Extensible Authentication Protocol

Extensible Authentication Protocol is a widely used authentication framework, adopted in Wi-Fi security related exchanges (WPA/WPA2, etc.)

EDCA

Enhanced Distributed Channel Access

Similar to DCF; modified to reduce the statistical wait time of higher-priority traffic frames getting access to the medium.

FMAC

Full Media Access Control

Fully validated variant of the brcmfmac driver typically found in Linux kernel. Infineon provides patchsets on top of the regular brcmfmac driver addressing some limitations and defects and is provided as part of the quarterly release.

FW

Firmware

Implements the 802.11 Phy and mac layer along with the hardware interface device driver, distributed as a binary.

Terms G-I

HCF

Hybrid Co-ordination Function

HCF defines the ability for a WLAN device to transmit multiple frames within an allotted amount of time known as Transmit opportunity (TXOP). During this TXOP, an 802.11 radio may send multiple frames in what is called a frame burst. A short interframe space (SIFS) is used between each frame to ensure that no other radios transmit during the frame burst.

Terms G-I

HE/HEW

High Efficiency/High Efficiency Wireless

The new 6th generation wireless standard, 802.11ax, which aspires to quadruple the average throughput per user over the latest 802.11ac specification and improve the efficiency of medium utilization.

IBSS

Independent Basic Service Set

Service set that allows wireless devices or stations to communicate with each other without any medium or central device like AP.

IE

Information Element

Blobs of data of varying size in management frames. Each data blob is tagged with a type number and a size, and it is understood that an information element of a certain type has its data field interpreted in a certain way.

(WLAN) Wi-Fi computer communication in various frequencies including, but not limited to, 2.4 GHz, 5 GHz, 6 GHz, and 60 GHz frequency bands.

IP

Internet Protocol

The Internet Protocol (IP) is the principal communications protocol in the Internet protocol suite for relaying datagrams across network boundaries. Its routing function enables internetworking, and essentially establishes the Internet.

IP has the task of delivering packets from the source host to the destination host solely based on the IP addresses in the packet headers. For this purpose, IP defines packet structures that encapsulate the data to be delivered. It also defines addressing methods that are used to label the datagram with source and destination information.

IPC

Inter Process Communication

Mechanism to allow communication between processes and synchronize them.

Terms J-L

LTS

Long Term Support

The variant of the kernel that does not need to be upgraded every 10 weeks, instead supported for 6 years.

LKM

Loadable Kernel Module

A chunk of code that is added to the kernel while running; mostly driver modules that can be dynamically loaded into the kernel while running.

Terms M-P

MIMO

Multiple Input Multiple Output

In Wi-Fi, multiple-input and multiple-output, or MIMO is a method for multiplying the capacity of a radio link using multiple transmission and receiving antennas to exploit multipath propagation.

Source: Wikipedia

MAC

Media Access Control

Layer 2 of the Wi-Fi protocol stack which deals with carrier sensing, medium contention, random backoffs, frame management and processing, power management, etc.

MIB

Management Information Base

The MIB, or Management Information Base, is an ASCII text file that describes Simple Network Management Protocol (SNMP) elements as a list of data objects. Think of it as a dictionary of the SNMP language - every managed object referred to in an SNMP message must be listed in the MIB.

Source: https://www.dpstele.com/snmp/mib/white-paper/what-mib-manager.php

Terms Q – S

MMC

MultiMedia Card

Superset of SD, SDIO, MEM combo. A driver is available under the Linux mmc subsystem.

NVRAM

Non-Volatile Random Access Memory

A type of RAM that retains data after the host device's power is turned off. Typically, NVRAM is board-specific and responsible for tuning the RF behavior of Infineon Wi-Fi device.

PSK

Pre-Shared Key

Pre-shared key or previously shared key. In cryptography, prior to the actual communication/data transfer between two parties, to secure the transaction, a password/passphrase is shared between the two parties. In WLAN, this is the password used to authenticate the users/client devices.

P2P

Peer to Peer

Methods that allow you to discover, request, and connect to peers without an intermediate access point, more commonly known as Wi-Fi Direct

PMKSA

Pairwise Master Key Security Association

A security association created after successful 802.1x negotiation as a part of or when a pre-shared key is configured and used for future connections.

Terms Q – S

SDIO

Secure Digital Input Output

An extension of the SD cards to cover I/O functions. This interface is used as a high-speed communication bus between the host processor and Wi-Fi chip to communicate with each other.

Terms T – Z

SISO

Single Input Single Output

Only one antenna is used as a transmitter and one antenna is used as a receiver.

SoftAP

Software Access Point

Software Access Point or Software enabled access point.

A softAP lets users configure their Wi-Fi network names and passwords into headless products. End users can connect their wireless devices to the softAP to access the network.

STA

Station

Any device that connects to an AP in a WLAN.

SSID

Service Set Identifier

A sequence of characters that is used to name a wireless network, and to which the client Wi-Fi devices are connected using a authentication method such as WPA-PSK, WPA2-PSK, or EAP.

Terms T – Z

TDLS

Tunneled Direct Link Setup

Provides a seamless way to stream media and other data faster between devices already on the same Wi-Fi network without involving the AP.

Wi-Fi 6

The new 6th generation of wireless standard is called Wi-Fi 6 or 802.11ax or High-Efficiency Wireless, which aspires to quadruple the average throughput per user over the latest 802.11ac specification.

Revision history

Major changes since the last revision

Date	Version	Description
2021-03-29	**	Initial release

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