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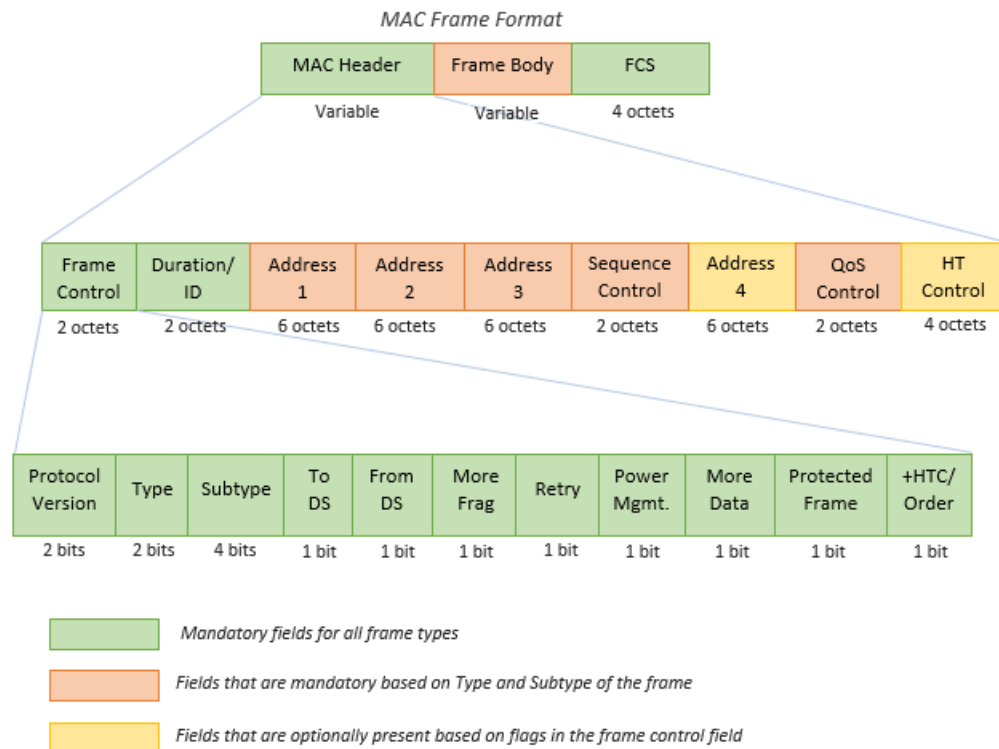
Wi-Fi Training Program 2025

Module 4

Question 2:

Describe the frame format of 802.11 MAC header and explain the purpose of each fields

Solution:

MAC Frame Format

MAC Header	Frame Body	FCS
Variable	Variable	4 octets

Frame Control	Duration/ ID	Address 1	Address 2	Address 3	Sequence Control	Address 4	QoS Control	HT Control
2 octets	2 octets	6 octets	6 octets	6 octets	2 octets	6 octets	2 octets	4 octets

Protocol Version	Type	Subtype	To DS	From DS	More Frag	Retry	Power Mgmt.	More Data	Protected Frame	+HTC/ Order
2 bits	2 bits	4 bits	1 bit	1 bit	1 bit	1 bit	1 bit	1 bit	1 bit	1 bit

▢ Mandatory fields for all frame types

▢ Fields that are mandatory based on Type and Subtype of the frame

▢ Fields that are optionally present based on flags in the frame control field

1. Frame Control (2 octets)

This field contains:

- **Protocol Version – 2 bits**

- **Type – 2 bits (Management == 0, Control == 1, Data == 2)**

- **Subtype – 4 bits (Specifies exact frame subtype)**

- **To DS / From DS – 1 bit each (Distribution System indicators)**

- **More Frag, Retry – 1 bit each (Fragmentation and retransmission info)- if no ACK**

- **Power Mgmt., More Data – 1 bit each (Power saving & buffering indicators)**

● **Protected Frame – 1 bit (Encryption status)**

● **+HTC/Order – 1 bit (High Throughput Control or strict ordering)**

2. Duration/ID (2 octets)

● **Indicates duration the medium is reserved or an association ID.**

3. Addresses 1–4 (each 6 octets)

● **Used for source, destination, transmitter, and receiver addresses depending on the frame's direction and subtype.**

4. Sequence Control (2 octets)

● **Used to manage fragmentation and ordering of frames.**

5. QoS Control (2 octets)

● **Present in QoS data frames for prioritizing traffic.**

6. HT Control (4 octets)

● **Used for high throughput features (e.g., beamforming, aggregation).**