Answers for Session 3d - Data Transfer and Aggregation

1. In the TXOP case,If the sender keeps on sending the data receiver without checking contention medium 2nd time What about remaining devices which are in queue to send/receive data ??

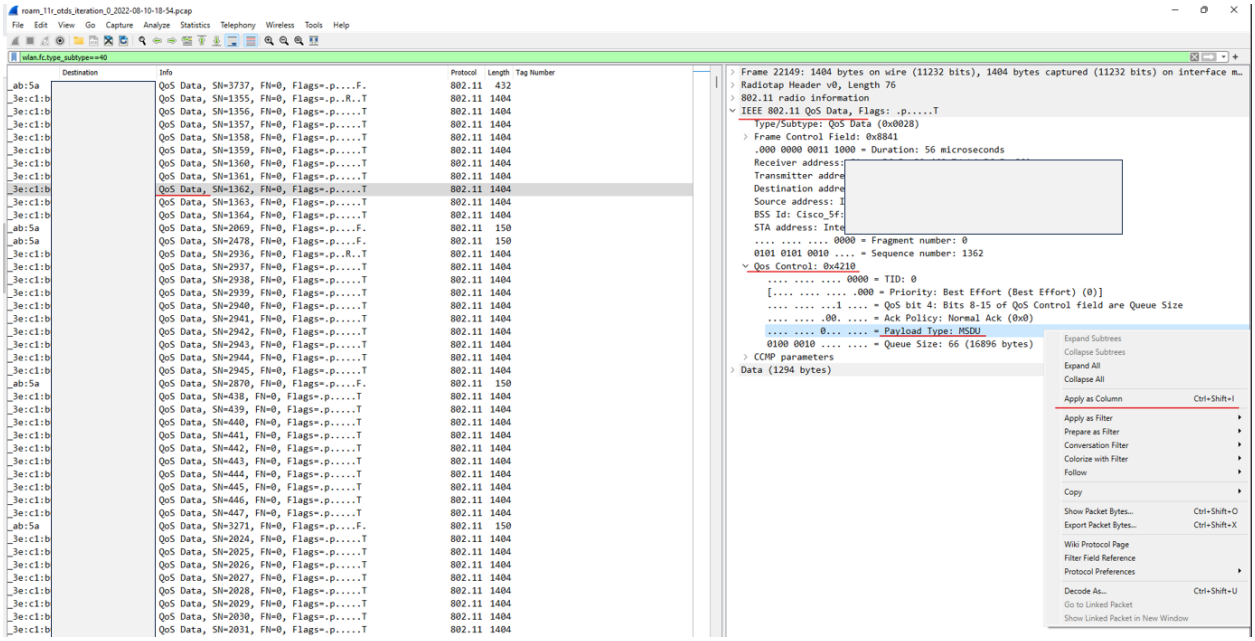
In a TXOP (Transmission Opportunity) case, a sender can continuously transmit data to a receiver without checking for contention on the medium for a specific time. For Every txOP there is a time limit. So that other devices are not starving.After the time specified to that client is finished

2. How to add data rate and Payload column in wireshark

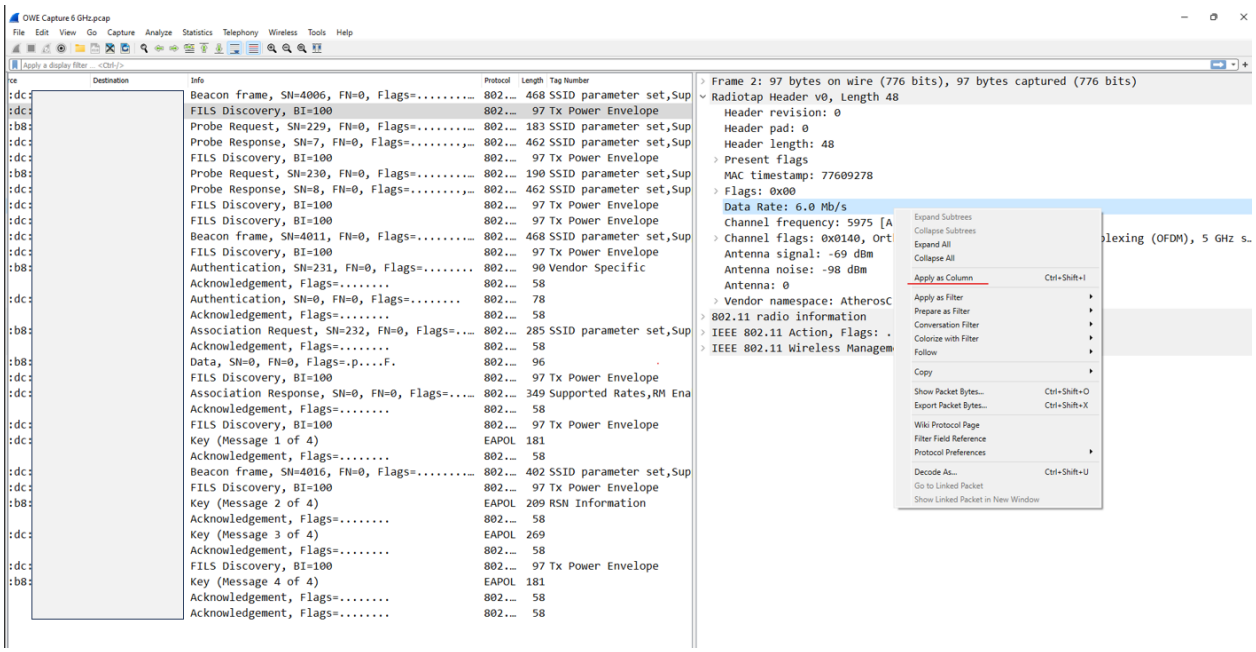
You can add any parameter into the column by selecting the field, right clicking and selecting as apply column.

To add the payload. In QoS data frames got to

Go to -> QoS control -> Payload type

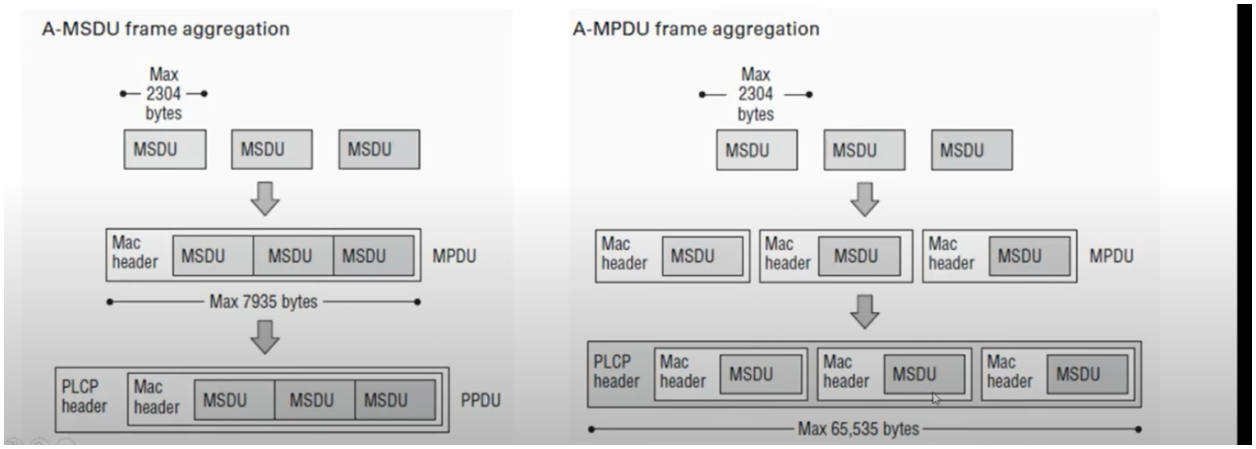


To add the data rate of any packet
Go to -> 802.11 radio information -> Data rate



3. In A-Mpdu all the msdu's are same or diff and it will go to the same destination ?

B



Yes, A-MPDU frames can have different destination addresses. This is because each MSDU in an A-MPDU frame has its own MAC trailer, which contains the destination address.

This allows A-MPDU frames to be used to transmit data to multiple destinations simultaneously. For example, a wireless access point could use an A-MPDU frame to transmit data to multiple client devices.

A-MSDU frames, on the other hand, cannot have different destination addresses. This is because A-MSDU frames have a single MAC header, which contains the destination address.

All the aggregated MPDUs must have the same 802.11 receiver address (RA) but can have different MAC-layer destination addresses (DA).

5. For AMPDU frames how the NAV timer will be calculated , I do see aggregated frames NAV timer shows as 0

The NAV timer for AMPDU frames is calculated in the same way as the NAV timer for single-frame transmissions. The NAV timer is calculated as follows:

NAV timer = SIFS + preamble duration + frame duration + DIFS
where:

- SIFS is the Short Interframe Space, which is a 16 microsecond delay.
- preamble duration is the duration of the preamble, which is 12 microseconds for 802.11n and 20 microseconds for 802.11ax.
- frame duration is the duration of the frame, which is calculated as follows:

frame duration = PHY header duration + MPDU duration + PHY trailer duration
where:

- PHY header duration is the duration of the PHY header, which is 20 microseconds for 802.11n and 24 microseconds for 802.11ax.
- MPDU duration is the duration of the MPDU, which is calculated as follows:

MPDU duration = data rate * MPDU length / 8
where:

- data rate is the data rate of the transmission in bits per second.
- MPDU length is the length of the MPDU in bytes.
- PHY trailer duration is the duration of the PHY trailer, which is 4 microseconds for 802.11n and 6 microseconds for 802.11ax.

Once the NAV timer has been calculated, it is included in the preamble of the AMPDU frame. All other devices in the vicinity will listen for the NAV timer and will not transmit until the NAV timer expires.

6.Why do aggregated frames show NAV timer as 0?

There are a few reasons why aggregated frames NAV timer may show as 0:

- The device may not be calculating the NAV timer correctly.
- The device may be using a newer version of the 802.11 standard that does not require the NAV timer to be included in the preamble of aggregated frames.
- The device may be using a proprietary protocol that does not require the NAV timer to be included in the preamble of aggregated frames.