

P802.1CQ PDU Format

Antonio de la Oliva (Interdigital)

[\(aoliva@it.uc3m.es\)](mailto:aoliva@it.uc3m.es)

Roger Marks (EthAirNet Associates)

[\(roger@ethair.net\)](mailto:roger@ethair.net)

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Background

- MAAP is currently specified in IEEE Std 1722
- Intention to move MAAP to P802.1CQ and enhance it
- See “MAAP Integration into P802.1CQ”
 - cq-marks-oliva-MAAP
 - 2020-10-26

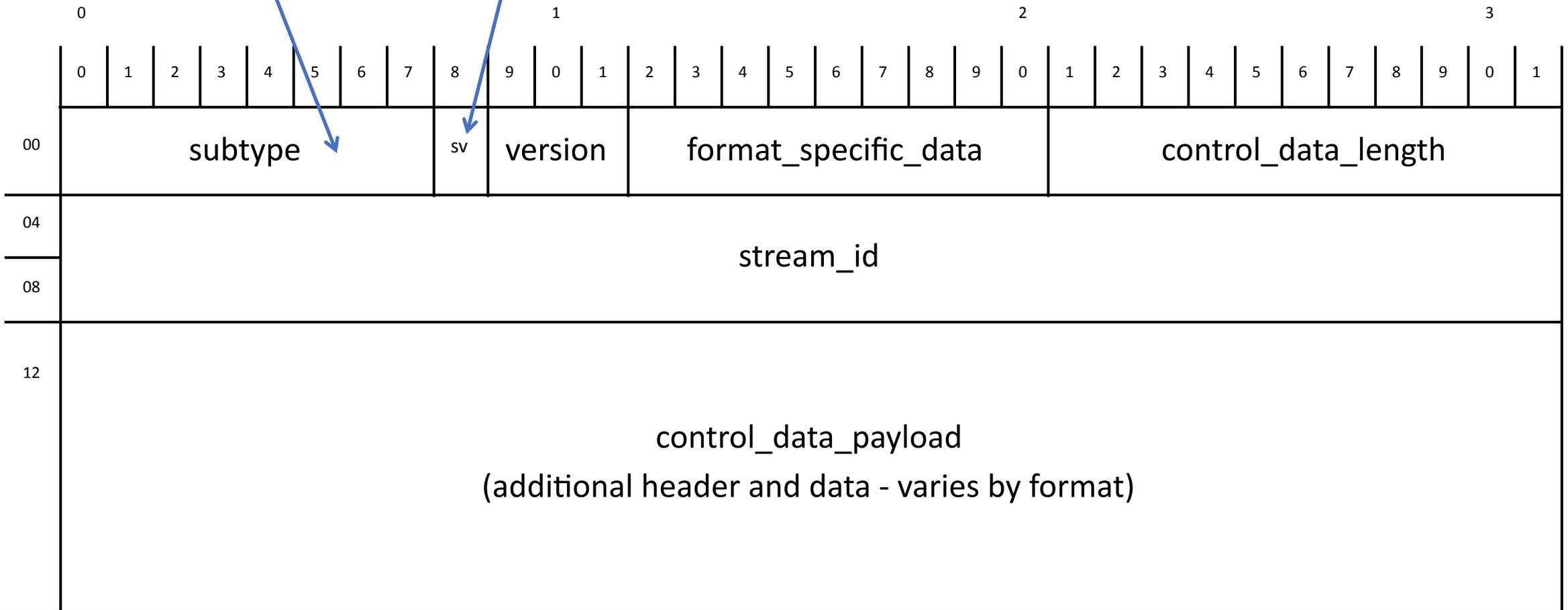
MAAP Compatibility

- Per 1722-2016: *The maap_version field identifies the version of MAAP being used. The current version of MAAP is one (1).*
- Forward Compatibility, per 1722-2016:
 - All MAAP AVTPDUs received that contain a higher version number and a *message type that is defined in the implemented version of MAAP* shall be interpreted using the implemented version of MAAP, *ignoring all unknown fields*. This requires that future versions of MAAP maintain compatibility with the message types implemented in all previous versions of MAAP.
 - All MAAP AVTPDUs received that contain a higher version number and a *message type that is not defined in the implemented version of MAAP* shall be ignored.
- Backward Compatibility, per 1722-2016:
 - MAAP AVTPDUs that carry a protocol version lower than the protocol version implemented by the receiver shall be interpreted according to the protocol definition corresponding to the protocol version received in the MAAP AVTPDU.

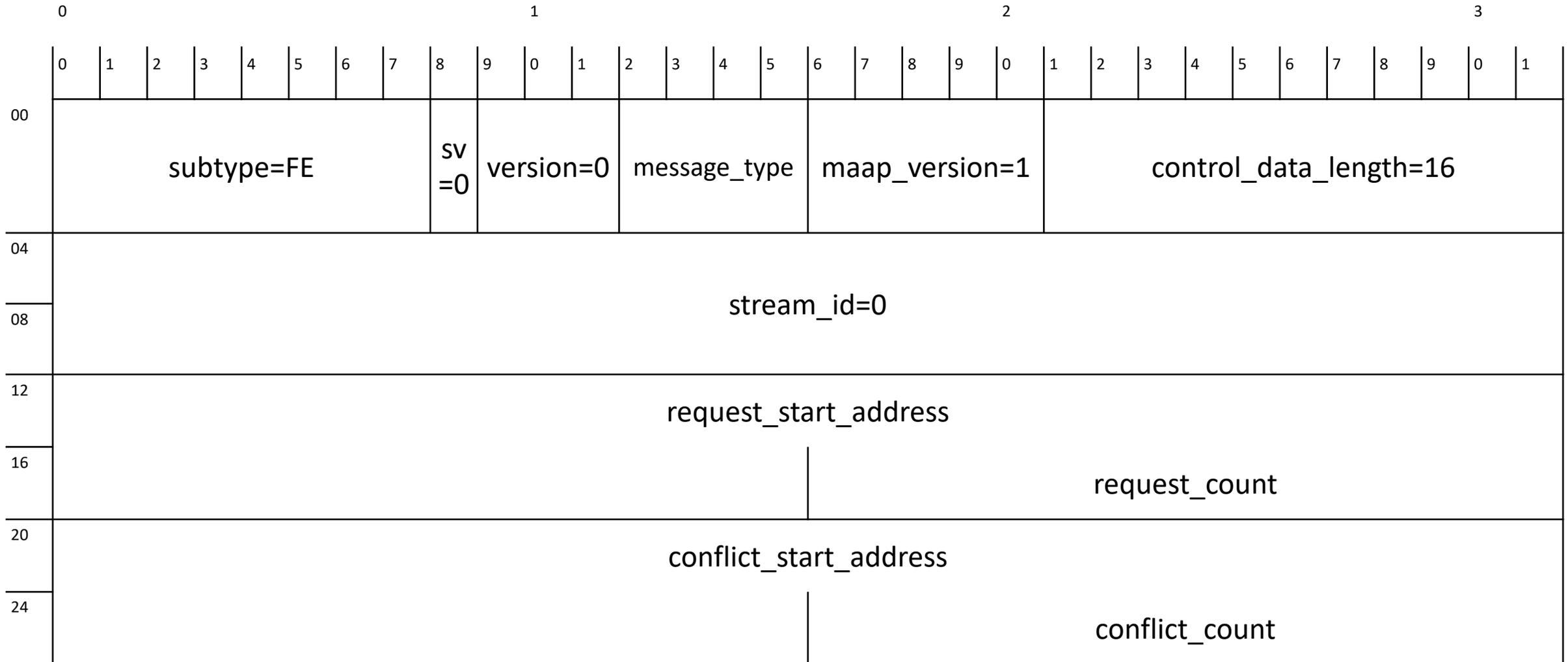
IEEE 1722 AVTPDU common control header

=FE for MAAP

0 The stream_id field is not used or is defined by the format



Legacy MAAP PDU format



Legacy MAAP PDU messages

message_type	Name	maap_version
0	reserved	
1	PROBE	1
2	DEFEND	1
3	ANNOUNCE	1
4-16	reserved	

Pre-existing MAAP message types, enhanced

message_type	Name	maap_version
0	reserved	
1	PROBE	1
		2
2	DEFEND	1
		2
3	ANNOUNCE	1
		2

MAAPv1 devices

- can send MAAPv1 (maap_version 1) messages
- can read MAAPv1 messages
- can read MAAPv2 message_type 1, 2, and 3
 - *All MAAP AVTPDUs received that contain a higher version number and a message type that is defined in the implemented version of MAAP shall be interpreted using the implemented version of MAAP, ignoring all unknown fields.*

MAAPv2 PDU, legacy message types (1,2,3)

	0				1				2				3																			
	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
00	subtype=FE								sv=0	version=0				message_type = 1,2,3				maap_version=2				control_data_length=16										
04	control_word																token															
08	status				sender_ID												lifetime															
12	request_start_address																															
16																	request_count															
20	conflict_start_address																															
24																	conflict_count															

New MAAPv2 message types

message_type	name	maap_version
0	reserved	
1	PROBE	1
		2
2	DEFEND	1
		2
3	ANNOUNCE	1
		2
4	DISCOVER	2
5	ADVERTISE	2
6	OFFER	2
7	REQUEST	2
8	ACK	2
9	RELEASE	2
10-16	reserved	

MAAPv1 devices

- can send MAAPv1 (maap_version 1) messages
- can read MAAPv1 messages
- can read MAAPv2 message_type 1, 2, and 3
 - *All MAAP AVTPDUs received that contain a higher version number and a message type that is defined in the implemented version of MAAP shall be interpreted using the implemented version of MAAP, ignoring all unknown fields.*
- ignore new MAAPv2 message_types
 - *All MAAP AVTPDUs received that contain a higher version number and a message type that is not defined in the implemented version of MAAP shall be ignored.*
 - **So MAAPv2 can use a new PDU format (but aligned with AVTPDU control header format).**

MAAPv2 devices

- can send all MAAPv2 messages
- can read all MAAPv1 and MAAPv2 messages

MAAPv2 PDU, new message types using AVTPDU common control header

	0									1									2									3								
	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1				
00	subtype=FE									sv=0	version=0					message_type = 4, 5, 6, ...				maap_version=2					control_data_length											
04	control_word																		token																	
08	status				sender_ID/Network ID														lifetime																	
12	MAC Address Set supporting multiple formats																																			

Note: MAC Address Set field not drawn to scale

Conclusion

- For existing MAAPv1 message types, specify enhanced MAAPv2 versions
 - Can be read and understood by legacy MAAPv1 devices
 - New fields are ignored
- For new message types, retains the AVTPDU header format and subtype and add new fields
 - ignored by legacy MAAPv1 clients.
 - enable the new functionality expected from IEEE 802.1CQ
 - e.g. server-assigned addresses and new address formats
- New PDU format presented to IEEE 1722 (20 October 2020) with encouraging positive feedback

Proposed Comment Resolutions

- The approach followed is related (tries to solve at least partially) comments:
 - CID 38: Revise, “update draft per cq-oliva-PDU”
 - single PDU type (extension from MAAP)
 - all messages carry information on addresses and state
 - Update editor’s other proposed comment resolutions accordingly