IEEE P802.11
Wireless LANs

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| Resolutions for SBP Comments in CC40 - Part 2 – SBP termination |
| Date: 2022-11-22 |
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Abstract

This submission proposes resolutions to comments submitted in CC40. The CIDs are referring to D0.1. The text used as reference is D0.5.

CIDs covered in this document include:

48 83 278 280 531 640

Revision history:

R0: Original version

R1: Revised after the ad-hoc review on Nov. 23.

R2: Revised after the TGbf call on Dec. 5th and ad-hoc call on Dec. 7th.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page** | **Comment** | **Proposed change** |
| 48 | 9.6.7.55 | 61.22 | A STA may request more than one sensing by proxy from AP, so the SBP Termination frame can indicate one or all SBP procedures to be terminated. | As in comment. |
| 83 | 9.6.7.55 | 61.9 | Field name should not be TBD | Field shall have a descriptive name or Reserved. |
| 278 | 11.21.19.4 | 73.42 | how does the SBP initiator know that a SBP report frame sent by SBP responder is the last report frame, please clarify. | as in comment |
| 280 | 11.21.19.4 | 73.46 | need to clarify whether the SBP responder (AP) should terminate the sensing measurement setup after the AP sent the SBP termination frame or received the SBP termination frame from the sensing initiator at any time. | as in comment |
| 531 | 9.6.7.55 | 61.25 | Define the subfields that should be included in this frame. and if we don't need to add any subfield in this frame, delete both the text of line 25 and the TBD field included in figure 9-1139h. | As in comment |
| 640 | 11.21.19.2 | 73.15 | Add the following clarification: The SBP initiator shall discard any SBP Response frame corresponding to the terminated SBP procedure. The SBP initiator shall not reuse the Dialog Token value before the maximum retransmission timeout. | As commented. |

**Proposed resolution**: CID 48, 83, 278, 280, 531: Revised. CID 640: Rejected.

**Discussion**:

1. CID 48:
	1. Agree with the commenter that we should allow the SBP Termination frame to terminate all established SBP procedures between an SBP initiator and an SBP responder, similar to what we did for the Sensing Measurement Setup Termination frame. Moreover, we also have similar functions defined in the DMG SBP Termination frame.
2. CID 83 and CID 531:
	1. In this contribution we will complete the design of the format for SBP Termination frame.
	2. Generally, we keep the design of the SBP Termination frame consistent with the DMG SBP Termination frame in 9.6.21.15.
3. CID 278:
	1. Discussed this point at the ad-hoc, and most members agree that since we do not have an end time signaling in the SBP Request/Response frame to indicate how long the triggered WLAN sensing procedure should last, there is no concept of “the last SBP report”. The SBP procedure will continue unless terminated by either the SBP initiator or the SBP responder.
	2. However, similar to the Measurement Setup Expiry Exponent subfield added to the Sensing Meausrement Parameters element, we should also add a “SBP Procedure Expiry Exponent” subfield in the SBP Parameters element to indicate the timeout value after which the SBP procedure is terminated if there are no frame exchange sequence.
4. CID 280:
	1. Generally, agree with the commenter that once an SBP procedure is terminated, the AP should terminate the corresponding sensing measurement setups established with the sensing responders triggered by the previous SBP request.
5. CID 640:
	1. If the SBP initiator has not received any SBP Response frame, then the corresponding SBP procedure is not established yet, so there is no concept of “terminated SBP procedure”. An SBP procedure can only be terminated after it is successfully established.
	2. The rule for Dialog Token field is universal for all frames, so there is no need to emphasize it again for the SBP Request frame.

***TGbf editor, make the following changes in the spec.***

**9.6.7.55 SBP Termination frame format**

The SBP Termination frame allows either an SBP initiator or an SBP responder to terminate SBP procedure(s). The format of the SBP Termination frame Action field is defined in Figure 9-1140i (SBP Termination frame Action field format).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Category | Public Action | Measurement Setup ID | SBP Termination Control | SBP Parameters Element |
| Octets | 1 | 1 | 1 | 1 | 0 or variable |

**Figure 9-1140i— SBP Termination frame Action field format**

The Category field is defined in 9.4.1.11 (Action field).

The Public Action field is defined in 9.6.7.1 (Public Action frames).

The Measurement Setup ID field is set to the Measurement Setup ID value corresponding to the sensing
measurement setup that was initiated by the SBP procedure, which is intended to be terminated. The
Measurement Setup ID field is defined in Figure 9-1140b (Measurement Setup ID field format).

The format of the SBP Termination Control subfield is shown in Figure 9-xxxx (SBP Termination Control subfield format).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Terminate All SBP Procedures | SBP Error Status | Reserved |
| Bits | 1 | 1 | 6 |

The Terminate All SBP Procedures subfield is set to 1 to indicate that the STA requests to terminate all established SBP procedures between the SBP initiator and the SBP responder. Otherwise, it is set to 0.

The SBP Error Status subfield is set to 1 to indicate that the SBP procedure is terminated due to SBP error conditions. The SBP Parameters element is present if the SBP Error Status subfield is set to 1, otherwise it is not present. The SBP Error Status subfield is set to 0 when Terminate All SBP Procedures subfield is set to 1.

The SBP Parameters element is defined in 9.4.2.321 (SBP Parameters element).

**9.4.2.321 SBP Parameters element**

The SBP Parameters element indicates operational parameters associated with a requested SBP procedure.
The format of the SBP Parameters element is defined in Figure 9-1002bc (SBP Parameters element format).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Element ID | Length | Element ID Extension | SBP Parameters Control | Sensing Responder Addresses | Sensing Responder IDs |
| Octets | 1 | 1 | 1 | 3 | 0 or n x 6  | 0 or variable |

**Figure 9-1002bc --- SBP Parameters element format**

The Element ID, Length, and Element ID Extension fields are defined in 9.4.2.1 (General).
The format of the SBP Parameters Control field is defined in Figure 9-1002bd (SBP Parameters Control
field format).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | SBP Request | SBP Procedure Expiry Exponent | Sensing Responder | Number of Sensing Responders | Mandatory Number of Responders | Preferred Responder List | Number of Preferred Responders | Mandatory Preferred Responder | Reserved |
| Bits | 1 | 4 | 1 | 4 | 1 | 1 | 4 | 1 | 7 |

**Figure 9-1002bd --- SBP Parameters Control field format**

The SBP Request subfield is set to 1 to indicate that the SBP Parameters element is carried within a SBP
Request frame, and it is set to 0 to indicate that the SBP Parameters element is carried within a SBP
Response frame or a SBP Termination frame.

The SBP Procedure Expiry Exponent subfield contains an unsigned integer. It is encoded according to the conventions in 9.2.2 (Conventions). The SBP Procedure Expiry Exponent value is equal to 2(SBP Procedure Expiry Exponent + 8) ms. It is a time after which the SBP procedure is terminated, if there are no frame exchange sequences. (see 11.55.2.4 Termination).

If the SBP Request subfield is set to 1:

* The Sensing Responder subfield is set to 1 to indicate that the SBP initiator requests to participate as a sensing responder in the WLAN sensing procedure used by the SBP responder to satisfy the SBP request. The Sensing Responder subfield is set to 0 to indicate that the SBP initiator requests to not participate in the WLAN sensing procedure used by the SBP responder to satisfy the SBP request.
* The value of the Number of Sensing Responders subfield indicates the requested number of sensing responders to participate in the WLAN sensing procedure used by the SBP responder to satisfy the SBP request. If the Sensing Responder subfield is set to 1, the value indicated in the Number of Sensing Responders subfield includes the SBP initiator.
* The Mandatory Number of Responders subfield indicates whether the requested number of sensing responders indicated in the Number of Sensing Responders subfield is interpreted as mandatory by the SBP responder. A value of 0 indicates that the requested number of sensing responders is a maximum number, and the SBP initiator accepts measurements taken with a smaller number of sensing responders. A value of 1 indicates that the requested number of sensing responders is a mandatory requirement.
* The Preferred Responder List subfield is set to 1 to indicate that the SBP initiator provides a set of preferred sensing responders for which the SBP responder is requested to include in the WLAN sensing procedure used to satisfy the SBP request. Otherwise, the Preferred Responder List subfield is set to 0. If the Preferred Responder List subfield is set to 0, the Sensing Responder Addresses field is not present.
* The value of the Number of Preferred Responders subfield, i.e., n, indicates the number of preferred sensing responders with MAC addresses included in the Sensing Responder Addresses field within the SBP Parameters element if the Preferred Responder List subfield is set to 1. In this case, if the Sensing Responder subfield is set to 1, the value indicated in the Number of Preferred Responders subfield includes the SBP initiator. It is reserved if the Preferred Responder List subfield is set to 0.
	+ If the Sensing Responder subfield and the Preferred Responder List subfields are both set to 1, the MAC address of the SBP initiator is included in the Sensing Responder Addresses field within the SBP Parameters element.
* The Mandatory Preferred Responder subfield indicates whether the set of preferred sensing responders is interpreted as mandatory by the SBP responder if the Preferred Responder List subfield is set to 1. A value of 1 indicates that the SBP responder is requested to only include STAs listed in the Sensing Responder Addresses field within the SBP Request frame in the WLAN sensing procedure used to satisfy the SBP request. A value of 0 indicates that the SBP responder may include STAs that are not listed in the Sensing Responder Addresses field within the SBP Request frame in the WLAN sensing procedure used to satisfy the SBP request. It is reserved if the Preferred Responder List subfield is 0.
	+ If the Mandatory Preferred Responder subfields is set to 1, the Number of Sensing Responders and Mandatory Number of Responders subfields are reserved.
* The Sensing Responder Addresses field is present only if the Preferred Responder List subfield is set to 1. The Sensing Responder Addresses field contains one or more MAC addresses that indicate the set of preferred sensing responders to include in the WLAN sensing procedure used by the SBP responder to satisfy the request.
* The Sensing Responder IDs field is not present.

If the SBP Request subfield is set to 0:

* The Sensing Responder subfield is reserved.
* The value of the Number of Sensing Responders subfield indicates the actual number of sensing responders used in the WLAN sensing procedure used by the SBP responder to satisfy the SBP request if the Status Code field within the SBP Response frame is equal to SUCCESS. The value of the Number of Sensing Responders subfield indicates a suggested number of sensing responders if the Status Code field within the SBP Response frame is equal to REJECTED\_WITH\_SUGGESTED\_CHANGES or when the SBP Parameters element is included in the SBP Termination frame.
* The Mandatory Number of Responders subfield is set to the same value indicated in the Mandatory Number of Responders subfield in the SBP Parameters element of the SBP Request frame which initiated the SBP procedure.
* The Preferred Responder List subfield is set to 1 to indicate that the Sensing Responder Addresses field and the Sensing Responder IDs field is present. If the Preferred Responder List subfield is set to 0, neither the Sensing Responder Addresses field nor the Sensing Responder IDs field is present.
* The value of the Number of Preferred Responders subfield indicates the number of MAC addresses within the Sensing Responder Addresses field and the number of AID/USIDs within the Sensing Responder IDs field if the Preferred Responder List subfield is set to 1. It is reserved if the Preferred Responder List subfield is set to 0.
	+ If the Sensing Responder subfield and the Preferred Responder List subfields are both set to 1, the MAC address of the SBP initiator is included in the Sensing Responder Addresses field within the SBP Parameters element and correspondingly the AID/USID of the SBP Initiator within the Sensing Responder ID field.
* The Mandatory Preferred Responder subfield is set to the same value indicated in the Mandatory Preferred Responder subfield in the SBP Parameters element of the SBP Request frame which initiated the SBP procedure.
* The Sensing Responder Addresses field is present only if the Preferred Responder List subfield is set to 1. The field contains one or more MAC addresses that indicate the set of preferred sensing responders used to satisfy the request. ~~The length of the Sensing Responder Addresses field is octets, where is equal to the value in the Number of Preferred Responders subfield.~~
* The Sensing Responder IDs field is present only if the Preferred Responder List subfield is set to 1 and when it is included in a SBP Response frame with a Status code equal to SUCCESS. The Sensing Responder IDs field contains the list of the AID/USID of the sensing responders that participate in the WLAN sensing procedure used by the SBP responder to satisfy the request. The format of the Sensing Responder IDs field is shown in Figure 9-1002be (Sensing Responder IDs field format). The AID/USIDs values are listed in the same order as the corresponding MAC addresses in the Sensing Responder Addresses field. The number of AID/USID subfields present in the field, n, is equal to the value in the Number of Preferred Responders subfield. The Padding subfield contains 0 or 4 bits to make the total number of bits in the field equal to an integer number of octets. If present, the value of the 4 bits is set to 0.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | AID/USID 1 | AID/USID 1 | … | AID/USID n | Padding |
| Bits: | 12 | 12 | … | 12 | 0 or 4 |

**Figure 9-1002be --- Sensing Responder IDs field format**

**11.55.2.2 Setup**

***Add the following paragraph to the end of this section***

~~The SBP initiator shall discard any SBP Response frame corresponding to the terminated SBP procedure.~~

**11.55.2.4 Termination**

An SBP procedure may be terminated either by the associated SBP initiator or the SBP responder by transmitting an SBP Termination frame at any time. An SBP procedure may be terminated by the unassociated SBP initiator by transmitting an SBP Termination frame at any time. However, if the SBP responder intends to terminate an SBP procedure with the unassociated SBP initiator, it should transmit an SBP Termination frame during the availability window.

Note: The SBP initiator is available during the availability window.

If the SBP responder transmits an SBP termination frame or receives an SBP termination frame from the SBP initiator, or after the expiry of the SBP procedure expiry timer, the SBP responder should terminate corresponding sensing measurement setup(s) with all the sensing responders identified by the Measurement setup ID(s) associated with the WLAN sensing procedure(s) triggered by the terminated SBP procedure(s).

If the SBP responder intends to terminate an SBP procedure due to unsuccessful or terminated sensing measurement setups with the sensing responders, and if either the Mandatory Number of Responders or the Mandatory Preferred Responder subfield in the SBP Request frame that invoked this SBP procedure is set to 1, the SBP responder may set the SBP Error Status subfield to 1 and include the SBP Parameters element in the SBP Termination frame.

## SP

Do you support the proposed resolutions to the following CIDs and incorporate the text changes into the latest TGbf draft: 48 83 278 280 531 640?

Y/N/A