IEEE P802.11  
Wireless LANs

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| CR of NSTR status update | | | | |
| Date: 2023-05-05 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Yunbo Li | Huawei |  |  | liyunbo@huawei.com |
| Ming Gan |  |  |  |  |
| Yuchen Guo |  |  |  |  |
| Guogang Huang |  |  |  |  |
| Zhenguo Du |  |  |  |  |
| Rob Sun |  |  |  |  |
| Stephen McCann |  |  |  |  |
| Edward Au |  |  |  |  |

1. **Introduction**

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGbe Draft. The introduction and the explanation of the proposed changes are not part of the adopted material.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 15130 | Tomoko Adachi | 35.3.16.2.1 | 0.00 | "The ability of a non-AP MLD to perform STR operation on a pair of setup links may change after multi-link setup. The non-AP MLD may use a Management frame on any enabled link to inform the AP MLD about the ability change to perform STR operation." The Management frame here should be clarified that it is a Multi-Link Operation Update Request frame. And the description should also cover the case when changing to perform NSTR operation. | As in comment. | Revised  Agree with the commenter.  A new operation update type (with Operation Update Type subfield = 1) is introduced in Multi-Link Operation Update Request/ Response frame to updated the NSTR Status of a non-AP MLD.  TGbe editor to make the changes with the CID tag 15130 in doc 11-23/0763r0 |
| 16866 | Mark RISON | 35.3.16.2.1 | 552.28 | "The non-AP MLD may use a Management frame on any enabled link to inform the AP MLD about the ability change to perform STR operation. " -- not any old Management frame | Identify the specific Management frames that can be used | Revised  Agree with the commenter.  A new operation update type (with Operation Update Type subfield = 1) is introduced in Multi-Link Operation Update Request/ Response frame to updated the NSTR Status of a non-AP MLD.  TGbe editor to make the changes with the CID tag 15130 in doc 11-23/0763r0 |
| 17838 | Yunbo Li | 35.3.16.2.1 | 552.28 | The details about the management frame for NSTR status update is not specified in the spec. | complete the frame format of this management frame, as well as the NSTR status update procedure. | Revised  Agree with the commenter.  A new operation update type (with Operation Update Type subfield = 1) is introduced in Multi-Link Operation Update Request/ Response frame to updated the NSTR Status of a non-AP MLD.  TGbe editor to make the changes with the CID tag 15130 in doc 11-23/0763r0 |

***Editing instructions formatted like this are intended to be copied into the TGbe Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

1. **Proposed spec text**

***TGbe editor: Modify the Figure 9-1002l and Table 9-401j in 9.4.2.312.2.3 (Common Info field of the Basic Multi-Link element) as follows: (#15130)***

|  |  |  |  |
| --- | --- | --- | --- |
|  | B0 | B1 | B2B15 |
|  | Operation Parameter Update Support | NSTR Status Update Support | Reserved |
| Bits | 1 | 1 | 14 |

**Figure 9-1002l— Extended MLD Capabilities and Operations subfield format**

**Table 9-401j—Subfields of the Extended MLD Capabilities and Operations subfield**

|  |  |  |  |
| --- | --- | --- | --- |
| **Subfield** | **Definition** | **Encoding** | |
| Operation Parameter Update Support | Indicates support of operation parameter update negotiation. | Set to 1 if dot11OperationParameterUpdateImplemented is true.  Set to 0 otherwise.  See 35.3.16.2.2 (Non-AP MLD operation parameter update). |
| NSTR Status Update Support | An AP MLD indicates support for updating the NSTR status of the associated non-AP MLDs. | Set to 1 if an AP MLD supports updating the NSTR status update of associated non-AP MLDs. Set to 0 otherwise.  Reserved for a non-AP MLD.  See 35.3.16.2 (Multi-link device capability and operation signaling) |

***TGbe editor: Modify the Figure 9-1002x, Table 9-401k, and Figure 9-1002y, and insert two new paragraphs in 9.4.2.312.4 (Reconfiguration Multi-Link element) as follows: (#15130)***

**9.4.2.312.4 Reconfiguration Multi-Link element**

B0 B3 B4 B5 B6 B7 B10 B11 B12 B13 B15

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Link ID | Complete Profile | STA MAC Address Present | AP Removal Timer Present | Operation Update Type | Operation Parameters Present | NSTR Indication Bitmap Present | Reserved |

Bits: 4 1 1 1 4 1 1 3

**Figure 9-1002x—STA Control field format for the Reconfiguration Multi-Link element**

Table 9-401k – Operation Update Type subfield encoding

|  |  |
| --- | --- |
| **Value** | **Name** |
| 0 | Operation Parameter Update |
| 1 | NSTR Status Update |
| 2 – 15 | Reserved |

The NSTR Indication Bitmap Present subfield is set to 1 to indicate the presence of the NSTR Indication Bitmap subfield in the STA Info field; otherwise it is set to 0.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| STA Info Length | STA MAC Address | AP Removal Timer | Operation Parameters | NSTR Indication Bitmap |

Octets: 1 0 or 6 0 or 2 0 or 3 0 or 2

**Figure 9-1002y—STA Info field format for the Reconfiguration Multi-Link element**

Each bit Bj () in the NSTR Indication Bitmap subfield included in the Per-STA Profile subelement with Link ID subfield equals to (where 0 ≤ <15) is set to 1 if the link pair corresponding to Link IDs equal to <, *j>* is an NSTR link pair; otherwise bit B*j* is set to 0. Bit Bi in the NSTR Indication Bitmap subfield included in the Per-STA Profile subelement with Link ID subfield value equals to is reserved.

***TGbe editor: Modify the paragraphes in 35.3.16.2 (Multi-link device capability and operation signaling) as follows:(#15130)***

**35.3.16.2 Multi-link device capability and operation signaling**

**35.3.16.2.1 General**

The ability of a non-AP MLD to perform STR operation on a pair of setup links may change after multi-link setup if an AP affiliated with the associated AP MLD switches the BSS operating channel. If the non-AP MLD’s ability to perform STR operations changes after the channel switch, the non-AP MLD may transmit a Multi-Link Operation Update Request frame with the Operation Update Type subfield set to 1 on any enabled link to inform the associated AP MLD, from which it has received a Basic Multi-Link element with the NSTR Status Update Support subfield equal to 1, using the NSTR Indication Bitmap subfields of the included Reconfiguration Multi-Link element. Otherwise, the non-AP MLD shall not transmit a Multi-Link Operation Update Request frame with Operation Update Type subfield set to 1.

NOTE – The non-AP MLD provides the NSTR status of each link pair that is setup between the AP MLD and the non-AP MLD.

An AP affiliated with an AP MLD may set the Extended MLD Capabilities and Operations Present subfield in the Presence Bitmap subfield of the Multi-Link Control field to 1 if the AP MLD supports updating the NSTR status of associated non-AP MLDs.

If any STA affiliated with a non-AP MLD has received a Basic Multi-Link element from its associated AP MLD with the NSTR Status Update Support subfield equal to 0, then the affiliated STAs of the non-AP MLD shall not transmit a Multi-Link Operation Update Request frame with Operation Update Type subfield set to 1 in the Reconfiguration Multi-Link element.

APs affiliated with an NSTR mobile AP MLD shall set the NSTR Status Update Support subfield in transmitted Basic Multi-Link element to 0.

In the Reconfiguration Multi-Link element of a Multi-Link Operation Update Request frame with Operation Update Type subfield set to 1 sent by a non-AP MLD:

* all subfields in the Presence Bitmap subfield of the Multi-Link Control field in the Reconfiguration Multi-Link element shall be set to 0,
* all subfields of the STA Control field in the Reconfiguration Multi-Link element except the Link ID and the NSTR Indication Bitmap Present subfields shall be set to 0
* the Link ID subfield shall be set to the identifier of the link whose NSTR status is reported in the Per-STA Profile subelement
* the NSTR Indication Bitmap subfield shall be present and indicates the NSTR status of each pair of links that is setup between the AP MLD and the non-AP MLD .

After receiving a Multi-Link Operation Update Request frame with Operation Update Type subfield equals to 1 from the non-AP STA affiliated with an associated non-AP MLD, the AP shall send a Multi-Link Operation Update Response frame to the non-AP STA with the subfields set as follows:

* Token field set to the same values as the Token field in the received Multi-Link Operation Update Request frame from the non-AP STA;
* Status Code subfield set to 0 (SUCCESS).

Immediately after receiving an acknowledgement to the transmitted Multi-Link Operation Update Response frame to the non-AP MLD, the AP MLD shall update the NSTR status of link pairs of its associated non-AP MLD and the AP MLD and non-AP MLD shall exchange frames using the updated constraints (see 35.3.16.3 (Simultaneous transmit and receive (STR) operation) and 35.3.16.4 (Nonsimultaneous transmit and receive (NSTR) operation)).

***End of change***