IEEE P802.11
Wireless LANs

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| --- |
| CR of NSTR status update |
| Date: 2023-05-05 |
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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. | RevisedAgree with the commenter.A new operation update type (with Operation Update Type subfield = 4) 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 11-23/0763r1 |
| 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 aboutthe ability change to perform STR operation. " -- not any old Management frame | Identify the specific Management frames that can be used | RevisedAgree with the commenter.A new operation update type (with Operation Update Type subfield = 4) 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 11-23/0763r1 |
| 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. | RevisedAgree with the commenter.A new operation update type (with Operation Update Type subfield = 4) 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 11-23/0763r1 |

***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**

Table 9-401k – Operation Update Type subfield encoding

|  |  |
| --- | --- |
| **Value** | **Name** |
| 0 | AP Removal |
| 1 | Operation Parameter Update |
| 2 | Add Link |
| 3 | Delete Link |
| 4 | NSTR Status Update |
| 5 – 15 | 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**

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 4 on any enabled link to inform its updated STR/NSTR link status to 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 4.

~~NOTE 2 – The non-AP MLD provides the NSTR status of each link pair that is setup between the AP MLD and the non-AP MLD in a Multi-Link Operation Update Request frame with Operation Update Type subfield set to 4.~~

An AP affiliated with an AP MLD that supports updating the NSTR status of associated non-AP MLDs shall set the dot11EHTNSTRStatusUpdatedImplemented equal to true and shall set the NSTR Status Update Support subfield to 1 in the Extended MLD Capabilities and Operation subfield of the Basic Multi-Link element that it transmits.

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 4 in the Reconfiguration Multi-Link element.

NOTE 2 – If a non-AP MLD reveives a Basic Multi-Link element with the NSTR Status Update Support subfield equal to 0 from its associated AP MLD, the non-AP MLD might perform reassociation procedure (see 11.3.6.4 (Non-AP STA, non-AP MLD, and non-PCP STA reassociation initiation procedures)) with updated NSTR status of link pairs.

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

The Multi-Link Operation Update Request frame with Operation Update Type subfield set to 4 in the Reconfiguration Multi-Link element shall include a Per-STA Profile subelement for each link identified by the Link ID that is setup between the non-AP MLD and the AP MLD. In the Reconfiguration Multi-Link element of a Multi-Link Operation Update Request frame with Operation Update Type subfield set to 4 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 Bitmap Size subfields shall be set to 0.
* The Link ID subfield shall be set to the identifier of the setup link for which the NSTR status is reported in the Per-STA Profile subelement.
* The NSTR Bitmap Size subfield shall be set to indicate the size of the NSTR Indication Bitmap subfield.
* The NSTR Indication Bitmap subfield shall be included and shall be set to indicate STR or NSTR for each pair of links formed between the link corresponding to the Link ID and other setup links for the non-AP MLD.

After receiving a Multi-Link Operation Update Request frame with Operation Update Type subfield equals to 4 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 Status Code subfield set to 0 (SUCCESS).

Immediately after receiving an acknowledgement for the Multi-Link Operation Update Response frame transmitted to a non-AP MLD, the AP MLD shall update the NSTR status of the setup link pairs for that 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)).

**Annex C**(normative)
**ASN.1 encoding of the MAC and PHY MIB
C.3 MIB Detail**

***TGbe editor: Please add following new MIB attribute in Annex C as shown below (#15130):***

Dot11EHTStationConfigEntry ::=

SEQUENCE{

dot11EHTPPEThresholdsRequired TruthValue,

dot11TIDtoLinkMappingActivated TruthValue,

dot11EHTEPCSPriorityAccessActivated TruthValue,

dot11MSDTimerDuration Unsigned32,

(#16903)dot11MSDTXOPMax Unsigned32,

dot11MultiLinkActivated TruthValue,

dot11MLDAssociationSAQueryMaximumTimeout Unsigned32,

dot11EHTMCSFeedbackOptionImplemented INTEGER,

dot11EHTEMLSROptionImplemented TruthValue,

dot11EHTEMLSROptionActivated TruthValue,

dot11EHTEMLMROptionImplemented TruthValue,

dot11EHTEMLMROptionActivated TruthValue,

dot11OperationParameterUpdateImplemented TruthValue,

dot11EHTLinkReconfigurationOperationActivated TruthValue,

dot11EHTNSTRStatusUpdateImplementated TruthValue

}

dot11EHTNSTRStatusUpdateImplemented OBJECT-TYPE
 SYNTAX TruthValue
 MAX-ACCESS read-write
 STATUS current
 DESCRIPTION
 "This is a capability variable.
 Its value is determined by device capabilities. This attribute, when true, indicates that the station implementation is capable of supporting NSTR status update operation)."

 DEFVAL { false }
::= { dot11EHTStationConfigEntry <Last assigned + 1> }

***End of change***