IEEE P802.11
Wireless LANs

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| Proposed Spec TextUsage and Rules of ML element in the context of Multi-link Setup |
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Abstract

This submission proposes spec text for usage and rules of ML element in the context of multi-link setup to be incorporated into 801.11be D0.1

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Added a missed motion and Updated based on comments by some members
* Rev 2: Fixed some errors and Added a text regarding authentication (Motion 115, #SP89)

The proposed texts are based on the following motions

802.11be supports the following:

* An AP that is part of an AP MLD that supports SAE authentication shall include the MLD address in beacon and probe response frames it transmits.
* EHT MLD shall indicate its MLD MAC address during authentication request/response exchange.

[Motion 115, #SP89, [10] and [106]]

An EHT MLD shall indicate its MLD MAC address during ML setup.

[Motion 112, #SP32, [13] and [111]]

802.11be defines mechanism(s) for multi-link operation that enables the following:

* Indication of capabilities and operating parameters for multiple links of an AP MLD.
* Negotiation of capabilities and operating parameters for multiple links during a single setup signaling exchange.

[Motion 32, [5] and [112]]

802.11be supports a mechanism for multi-link operation:

* An AP affiliated with an AP MLD can indicate the capabilities and operational parameters for one or more STAs of the multi-link device.
* A non-AP STA affiliated with a non-AP MLD can indicate the capabilities for one or more non-AP STAs of the non-AP MLD.
* Specific information of capabilities and operational parameters of multi-link device is TBD.

[Motion 21, [5] and [113]]

A new element will be defined as a container to advertise and exchange capability information for multi-link setup.

[Motion 68, [21] and [114]]

802.11be supports that an STA of an MLD can provide MLD-level information that is common to all STAs affiliated with the MLD and per-link information that is specific to the STA on each link in management frames during multi-link setup.

* The specific information is TBD.

[Motion 115, #SP65, [10] and [104]]

802.11be supports that each STA of an MLD may independently select and manage its operational parameters unless specified otherwise in the 802.11be standard.

[Motion 112, #SP33, [13] and [115]]

802.11be supports that a non-AP MLD may initiate multi-link setup with an AP MLD to setup more than one link with subset of APs affiliated with the AP MLD. This is for R1.

[Motion 122, #SP133, [8] and [129]]

***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).***

***TGbe Editor: Editing instructions preceded by “TGbe Editor” are instructions to the TGbe editor to modify existing material in the TGbe draft. As a result of adopting the changes, the TGbe editor will execute the instructions rather than copy them to the TGbe Draft.***

***TGbe editor: Add new a subclause 33.x.y.z (Usage and Rules of ML element in the context of multi-link setup) under clause 33 as follows:***

33. Extreme High Throughput (EHT) MAC specification

33.x. Multi-link operation

33.x.y. Multi-link setup

33.x.y.z. Usage and Rules of ML element in the context of multi-link setup

When a multi-link element as defined 9.4.2.x (multi-link element) is included in an (re)association request frame by transmitted by a non-AP STA affiliated with a non-AP MLD or an (re)association response frame transmitted by an AP affiliated with an AP MLD, the multi-link element shall include MLD-level/common information that is common to all STAs affiliated with the MLD and one or more STA profile subelement(s) that is specific to the STA on each link.

* MLD-level/common information shall include a MAC address of the MLD of the STA which transmits it and MLD MAC address Present Subfield shall be set to 1.
* The multi-link element included in the (re)association request frame includes TBD set of STA profile subelements where they each include TBD information of the corresponding non-AP STA affiliated with the non-AP MLD except for the non-AP STA transmitting the (re)association request frame.
* The multi-link element included in the (re)association response frame includes TBD set of STA profile subelements where they each include TBD information of the corresponding AP affiliated with the AP MLD except for the AP ransmitting the (re)association response frame.
* Each STA profile subelement included in the multi-link element shall not include antoher multi-link element.

An authenication request frame or an authenticaion response frame transmitted by an STA of an MLD shall include its MLD MAC address in TBD element.

Each STA of an MLD may independently select and manage its operational parameters unless specified otherwise in the 802.11be standard.