IEEE P802.11
Wireless LANs

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| MLO discovery: Information Request |
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Abstract

This document provides draft spec text regarding information request for MLD Probing and addresses TBD signalling for requesting complete or partial information on multiple APs of an AP MLD in TGbe draft D0.1.

Revisions:

* Rev 0: Initial version of the document.

**The texts are based on the following motion**

802.11be agrees to define the following mechanism:

• A STA of a non-AP MLD can request a peer AP of AP MLD a part of complete information of other APs of the same AP MLD.

• The signaling for requesting the part of complete information is TBD.

• NOTE – As an example, the part of complete information may be information that is not included on the beacon frame sent from the peer AP.

[Motion 131, #SP190, [19] and [134]]

1. **Introduction**

A non-AP STA can request the complete or partial information on multiple APs that are affiliated with an AP MLD through MLD Probe request.

Basically, baseline spec had already defined the Request element or Extended Request Element for requesting partial information (i.e. targeted Elements) to an AP using Probe request frame. Based on the existing Request element or Extended Request Element, I propose a new MLD Request element considering MLD Probing in this contribution.

The MLD probe request allows a non-AP STA to request an AP to include information of complete or parital information of the requested APs through the MLD Request element.

Using the MLD Request element proposed in this contribution, a non-AP STA can benefit as follows:

* For MLD Probing, a non-AP STA can request information of all APs or the reqeusted APs that affiliated with an AP MLD.
* For MLD Probing, a non-AP STA can request the complete information or the requested partial information on multiple APs that affiliated with an AP MLD.
* For MLD Probing, a non-AP STA can reduce overhead for general fields such as Element ID, Length, Element ID Extension and so on.
1. **Proposed spec text**

***TGbe editor: Insert the new subclause 9.4.2.xxx MLD Request element as follows:***

**9.4.2.xxx MLD Request element**

This element is placed in a Probe Request frame to request that the responding STA includes the requested information on multiple APs that are affiliated with an AP MLD in the Probe Response frame. The format of the element is as shown in Figure 9-xxx (MLD Request element format).



Figure 9-xxx. MLD Request element format

The Element ID, Element ID Extension, and Length fields are defined in 9.4.2.1 (General).

The Number of Link IDs field is set to the number of Link ID that is requested by the requesting STA. If the field is set to 0, this means all Links are required.

The Link IDs field is the list of Link IDs to indicate the requested APs to obtain information on multiples APs that are affiliated with an AP MLD. If the Number of Link IDs field set to 0, this field is not present.

The Requested Element IDs/Requested Element ID extensions field is a list of elements that are requested to be included in the Probe Respone. The Requested Element IDs are listed in order of increasing element ID. If a value of the Requested element IDs/Request Element ID extensions subfield is set to 255, the remaining parts of this field shall contain a list of 1-octet Element ID extension values that indicates extended elements to be requested. The value of element ID and Element ID extensions are defined in Table 9-94 Element IDs. If the Requested Element IDs/Request Element ID extension field is not present in a MLD Request element transmitted in a Probe Request frame, the responding AP shall respond with a Probe response frame that includes the complete information on requested APs that is indicated in the Link IDs field.

***TGbe editor: Modify the following subclause 35.3.4.2 MLD probing in 802.11be D0.1:***

**35.3.4.2 MLD probing**

An MLD probe request is a Probe Request frame:

—with the Address 1 field set to the broadcast address, the Address 3 field set to the BSSID of an AP, or with the Address 1 field set to the BSSID of an AP, or other addressing TBD

—and that includes a MLD Request element that identifies that the Probe Request frame is an MLD probe request and that identifies which APs of the AP MLD and which elements are requested.

An MLD probe request allows a non-AP STA to request an AP to include the complete or partial set of capabilities, parameters and operation elements of other APs affiliated to the same AP MLD as the AP..

The complete information of a requested AP sent by a reporting AP is defined as all elements that would be provided if the requested AP was transmitting the Probe Response frame, except the following elements, if present: the Reduced Neighbor Report element, the Multiple BSSID element, the Multi-Link element, other exceptions TBD.

If an AP that is part of an AP MLD receives an MLD probe request from a non-AP STA, it shall respond with an MLD probe response, which is a Probe Response frame with the Address 1 field set to TBD that includes an Multi-Link element with a STA profile with complete or partial information for each of the APs that are affiliated to the same AP MLD as the AP and that are requested by the MLD probe request.

***TGbe editor: Insert the new subclause 35.3.4.2.x Request information for MLD probing as follows (#SP 190):***

**35.3.4.2.x Request information for MLD probing**

A non-AP STA can request the complete or partial information on multiple APs that are affiliated with an AP MLD through MLD Probe request. The MLD Probe request frame contains a MLD Request element that is defined in 9.4.2.x MLD Request element to indicate which APs of the AP MLD or which Elements the non-AP STA requested.

The MLD probe request allows a non-AP STA to request an AP to include information of all Links or a part of Link(s) based on the MLD Request element including the followed fields:

* If the Number of Link IDs field is set to zero, the responding AP responds with an MLD Probe response including the information of all APs that are affiliated with the AP MLD.
* If the Number of Link IDs field is set to non-zero, the responding AP responds with an MLD Probe response including only the information of the requested APs indicated in the Link IDs field.

The MLD probe request allows a non-AP STA to request an AP to include complete or partial information on multiple APs that are affiliated the AP MLD based on the MLD Request element including the followed fields:

* If the Requested Element IDs/Requested Element ID extensions field is absent, the responding AP responds with an MLD Probe response including the complete information of the requested APs.
* If the Requested Element IDs/Requested Element ID extensions field is present, the responding AP responds with an MLD Probe response including only the requested information from the list of Element IDs.