802.11bi Draft Specification

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| Proposed spec texts for action frame to request capabilities and operation parameters |
| Date: 2023-05-15 |
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Abstract

This submission proposes spec text based on the following passed requirement.

*11bi shall define a mechanism for a CPE non-AP STA to request capabilities and operation parameters of the associated CPE AP or a CPE non-AP MLD to request capabilities and operation parameters of APs affiliated with the associated CPE AP MLD using an individually addressed protected request/response action frame.*

*11bi shall define a mechanism for an 11bi non-AP MLD to request capabilities and operation parameters of APs affiliated with the associated 11bi AP MLD using a protected request/response action frame.*

Revision History:

* Rev 0: Initial version of the document
* Rev 1: Adds unsolicited response from AP as requested by Jarkko.

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

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

**TGbi Editor: *Instruction: Insert new rows in Table 9-363 in 9.4.2.241 RSNXE as shown below***

9.4.2.241 RSNXE

|  |
| --- |
| * **Extended RSN Capabilities field**
 |
| **Bit** | **Information** | **Notes** |
| <ANA> | EDP Capabilities and Operation Parameters Request/Response Support | A EDP STA sets the EDP Capabilities and Operation Parameters Request/Response subfield to 1 if dot11EDPCapabilitiesAndOperationParametersRequestResponseActivated is true. Otherwise, this subfield is set to 0. See 12.13.x (EDP capabilities and operation parameters request and response procedure). |

**TGbi Editor: *Instruction: Modify 9.4.1.11 Action field as shown below***

**9.4.1.11 Action field**

***Insert the following new rows to*** [***Table 9-79 (Category values)***](#bookmark83) ***while maintaining the numerical order and updating the reserved range(#12432):***.

**Table 9-79—Category values**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Meaning** | **See subclause** | **Robust** | **Group addressed privacy** |
| <ANA> | EDP | [9.6.xx (EDP Action frame](#bookmark231) [details)](#bookmark231) | Yes | No |

**TGbi Editor: *Instruction: Insert 9.6.xx EDP Action frame details as shown below***

**9.6.xx EDP Action frame details**

**9.6.xx.1 EDP Action field**

An EDP Action field, in the octet immediately after the Category field, differentiates the EDP Action frame formats. The EDP Action field values associated with each frame format within the (#2217)EDP category are defined in Table 9-xxx (EDP Action field values).

**Table 9-xxx—EDP Action field values**

|  |  |
| --- | --- |
| **Value** | **Meaning** |
| 0 | Capabilities and Operation Parameters Request |
| 1 | Capabilities and Operation Parameters Response |
| 2–255 | Reserved |

**9.6.xx.2 Capabilities and Operation Parameters Request frame format**

The Capabilities and Opeation Parameters Request frame allows capabilities and operation parameters to be requested in a protected action frame.

The Action field of the Capabilities and Operation Parameters Request frame contains the information shown in Table 9-xxx [(Capabilities and Operation Parameters Request Action field format)](#bookmark279).

**Table 9-xxx—Capabilities and Operation Parameters Request Action field format for non-MLO**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 1 | Category |
| 2 | EDP Action |
| 3 | Dialog Token |

**Table 9-xxx—Capabilities and Operation Parameters Request Action field format for MLO**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 1 | Category |
| 2 | EDP Action |
| 3 | Dialog Token |
| 4 |  Basic Multi-Link element |

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

The EDP Action field is defined in 9.6.xx.1 (EDP Action field).

The Dialog Token field is a set to a nonzero value to identify the request/response transaction.

The Basic Multi-Link element is defined in 9.4.2.312 (Multi-Link element) and is optionally present (see 12.13.x (EDP capabilities and operation parameters request and response procedure)).

**9.6.xx.3 Capabilities and Operation Parameters Response frame format**

The Capabilities and Opeation Parameters Response frame allows capabilities and operation parameters to be responded in a protected action frame.

The Action field of the Capabilities and Operation Parameters Response frame contains the information shown in Table 9-xxx [(Capabilities and Operation Parameters Response Action field format)](#bookmark279).

**Table 9-xxx—Capabilities and Operation Parameters Response Action field format for non-MLO**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 1 | Category |
| 2 | EDP Action |
| 3 | Dialog Token |
| 4 | Beacon Interval  |
| 5 | Capability Information |
| 6  | Elements in order as defined in Table 9-67 (Probe Response frame body) excluding Multi-Link element and Multiple BSSID element |

**Table 9-xxx—Capabilities and Operation Parameters Response Action field format for MLO**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 1 | Category |
| 2 | EDP Action |
| 3 | Dialog Token |
| 4 | Multi-Link element |

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

The EDP Action field is defined in 9.6.xx.1 (EDP Action field).

The Dialog Token field is a set to a nonzero value to identify the request/response transaction.

The Beacon Interval field is deifned in 9.4.1.3 (Beacon Interval field).

The Capability Information field is defined in 9.4.1.4 (Capability Information field).

The Multi-Link element is defined in 9.4.2.312 (Multi-Link element) and is optionally present (see 12.13.x (EDP capabilities and pperation parameters request and response procedure)).

**TGbi Editor: *Instruction: Insert 12.13.x Client Privacy Enhancement as shown below***

**12.13 Client Privacy Enhancement**

**12.13.x EDP capabilities and operation parameters request and response procedure**

This subclause defines rules to request and respond capabilities and operation parameters using EDP Capabilities and Operation Parameters Request frame and EDP Capabilities and Operation Parameters Response frame.

**12.13.x.1 non-MLO**

For non-MLO, a non-AP STA that sets the EDP Capabilities and Operation Parameters Request/Response Support subfield in the RSNXE to 1 may send an EDP Capabilities and Operation Parameters Request frame without Basic Multi-Link element to request capabilities and operation parameters from an associated AP that sets the EDP Capabilities and Operation Parameters Request/Response Support subfield in the RSNXE to 1.

An AP that sets the EDP Capabilities and Operation Parameters Request/Response Support subfield in the RSNXE to 1 and receives an EDP Capabilities and Operation Parameters Request frame without Basic Multi-Link element shall respond an EDP Capabilities and Operation Parameters Response frame without Basic Multi-Link element. An AP that sets the EDP Capabilities and Operation Parameters Request/Response Support subfield in the RSNXE to 1 may transmit an unsolicited EDP Capabilities and Operation Parameters Response frame without Basic Multi-Link element to an associated non-AP STA that sets the EDP Capabilities and Operation Parameters Request/Response Support subfield in the RSNXE to 1. The EDP Capabilities and Operation Parameters Response frame shall include all elements that will be included in a Probe Response frame except Multi-Link element and Multiple BSSID element and are in order as defined in a Probe Response frame.

**12.13.x.1 MLO**

For MLO, all STAs affiliated with an MLD sets the EDP Capabilities and Operation Parameters Request/Response Support subfield in the RSNXE to the same value.

A non-AP STA affiliated with a non-AP MLD that sets the EDP Capabilities and Operation Parameters Request/Response Support subfield in the RSNXE to 1 may send an EDP Capabilities and Operation Parameters Request frame with Basic Multi-Link element to request capabilities and operation parameters of APs affiliated with an associated AP MLD if APs affiliated with the associated AP MLD set the EDP Capabilities and Operation Parameters Request/Response Support subfield in the RSNXE to 1.

If APs affiliated with an AP MLD set the EDP Capabilities and Operation Parameters Request/Response Support subfield in the RSNXE to 1 and the AP MLD receives through a setup link from an associated non-AP MLD an EDP Capabilities and Operation Parameters Request frame with Basic Multi-Link element, then the AP MLD shall respond an EDP Capabilities and Operation Parameters Response frame through an affiliated AP over a setup link to the non-AP MLD. If APs affiliated with an AP MLD set the EDP Capabilities and Operation Parameters Request/Response Support subfield in the RSNXE to 1, the AP MLD may send an unsolicited EDP Capabilities and Operation Parameters Response frame to an associated non-AP MLD through a setup link, where non-AP STAs affiliated with the non-AP MLD set the EDP Capabilities and Operation Parameters Request/Response Support subfield in the RSNXE to 1. The EDP Capabilities and Operation Parameters Response frame shall include a Basic Multi-Link element, and the Basic Multi-Link element shall include a Per-STA profile subelement with a complete profile for each AP affiliated with the AP MLD. The complete profile for each AP affiliated with the AP MLD includes the following in order:

* The Beacon Interval field as deifned in 9.4.1.3 (Beacon Interval field).
* The Capability Information field as defined in 9.4.1.4 (Capability Information field).
* All elements that will be included in a Probe Response frame except Multi-Link element and Multiple BSSID element and are in order as defined in a Probe Response frame.