IEEE P802.11
Wireless LANs

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| 802.11bi – Clause 9.6.42.5 |
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 Abstract

This submission addresses the comments with CID: 2128

**Comment Resolution**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Comment | Proposed change | Resolution |
| 2128 | 9.6.42.5 | 88 | 29 | Should EPP Epoch Request frame be renamed to EPP Group Request frame since it is used to request EPP group-related actions? I think the current name is a holdover from earlier architectures | Change frame name to EPP Group Request frame. | REVISEEditor please implement changes tagged as [2128] in this document. |

**9.6.42.1 EPP Action field**

*Editor please change the following fields in Table 9-658u*

**Table 9-658u—EPP Action field values**

|  |  |
| --- | --- |
| **Value** | **Meaning** |
| 0 | EPP Capabilities And Operation Parameters Request |
| 1 | EPP Capabilities And Operation Parameters Response |
| 2 | EPP Groups Parameter |
| 3 | EPP Group [2128] Request |
| 4 | EPP Group [2128] Response |
| 5 | EPP Group [2128] Assignment |
| 6 | OTA MAC Collision Notification |
| 7 | OTA MAC Collision Response |
| 8 | AID Assignment |
| 9 | AID Assignment Response |
| 10-255 | Reserved |

*Editor modify the following section as follows:*

**9.6.42.5 EPP Group** [2128] **Request frame format**

A CPE non-AP MLD may send an EPP Group [2128]Request frame to request a new EPP group creation, assignment to a particular EPP group, or leave from the current EPP group, as defined in 10.71.2.1 (General) and 10.71.2.2 (EPP group operations).

**Table 9-658aa - EPP Group**[2128] **Request frame Action field format**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 0 | Category |
| 1 | EPP Action |
| 2 | Dialog Token |
| 3 | EPP Group [2128]Request |
| 4 | EPP Group [2128] Settings |

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

The EPP Action field is defined in 9.6.42.1 (EPP Action field).

The Dialog Token field is defined in 9.4.1.12 (Dialog Token field) and is set to a nonzero value to identify the request/response transaction.

The EPP Group [2128] Request field is defined in 9.4.1.85 (EPP Group [2128] Request field).

The EPP Epoch Settings field is defined in 9.4.1.84 (EPP Epoch Settings field).

**9.6.42.6 EPP Group** [2128] **Response frame format**

The EPP Group [2128] Response frame contains the response to an EPP Group [2128] Request or EPP Group [2128] Assignment frame.

**Table 9-658ab - EPP Group** [2128] **Response frame Action field format**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 0 | Category |
| 1 | EPP Action |
| 2 | Dialog Token |
| 3 | Status Code  |
| 4 | EPP Epoch Settings (Optional) |

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

The EPP Action field is defined in 9.6.42.1 (EPP Action field).

The Dialog Token field is defined in 9.4.1.12 (Dialog Token field) and is set to a nonzero value to identify the request/response transaction.

The Status Code field is defined in 9.4.1.9 (Status Code field).

The EPP Epoch Settings field is optional and is defined in 9.4.1.84 (EPP Epoch Settings field).

**9.6.42.7 EPP Group** [2128]**Assignment frame format**

An EPP AP MLD may send an EPP Group [2128]Assignment frame to request a CPE non-AP MLD to transition to a different EPP group.

**Table 9-659ac - EPP Group** [2128]**Assignment frame Action field format**

|  |  |
| --- | --- |
| **Order** | **Meaning** |
| 0 | Category |
| 1 | EPP Action |
| 2 | Dialog Token |
| 3 | EPP Epoch Settings |

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

The EPP Action field is defined in 9.6.42.1 (EPP Action field).

The Dialog Token field is defined in 9.4.1.12 (Dialog Token field) and is set to a nonzero value to identify the request/response transaction.

The EPP Epoch Settings field is defined in 9.4.1.84 (EPP Epoch Settings field).

*Editor modify section 10.71.2.2 by changing all EPP Epoch Request/Response/Assign to EPP Group Request/Response/Assign*

**10.71.2.2 EPP group operations**

A CPE AP MLD advertises the support for EPP group operations in Beacon and Probe Response frames by setting the Group EPP Epoch Supported field of the Extended RSN Capabilities field of the RSNXE to 1.

A non-AP MLD advertises the support for EPP epoch group operations in (Re)Association Request frames by setting the Group EPP Epoch Supported field of the Extended RSN Capabilities field of the RSNXE to 1.

The non-AP MLD may include in an encrypted (Re)Association Request frame an EPP element indicating the parameters for the EPP group it requests to join. If no EPP element is included in the encrypted (Re)Association Request frame, the AP MLD assigns the CPE non-AP MLD to the default EPP group.

The first EPP epoch of an EPP epoch sequence is EPP epoch number 0.

Within the EPP Epoch Settings field sent in (Re)Association Request frames, EPP Group [2128]Request frames and EPP Group [2128]Response frames, the CPE non-AP MLD shall include the following fields:

An EPP Epoch Settings Control field, indicating the optional fields included in the EPP Epoch Settings field.

An Epoch Interval field, indicating the desired duration of the EPP epoch the CPE non-AP MLD wants to join.

An AID Storage Size field indicating the number of AIDs the CPE non-AP MLD is capable of storing.

In addition, the CPE non-AP MLD may include:

an EPP Group ID field, and

a Minimum Epoch Pacing field.

The rest of the fields in the EPP Epoch Settings field shall not be transmitted by a CPE non-AP MLD. The Minimum Epoch Pacing field indicates the Minimum Epoch Pacing Parameters field, indicating the minimum epoch interval length supported by the CPE non-AP MLD. If the value resulting of the multiplication of the Epoch Interval Length field by the Epoch Interval Unit field included in the Minimum Epoch Pacing field is greater than the value resulting of the multiplication of the Epoch Interval Length field by the Epoch Interval Unit field for the default EPP group (group 0) or of any other EPP group already created, then the CPE non-AP MLD is not assigned to any EPP group at (re)association.

NOTE 1—The CPE non-AP MLD might remain associated without FA and might request the creation of a new EPP group (through the EPP Group [2128]Request frame (see 9.6.42.5 (EPP Group [2128]Request frame format))).

Within the EPP element:

If the Epoch Start Time Variation Range field is present, the Epoch Start Time Variation Range field value shall not exceed 20% of the Epoch Interval Length subfield value.

If the Group Epoch Seed field is present, the Group Epoch Seed field value shall be the same for each transmission to any member of an EPP group for a given EPP Epoch sequence. An EPP AP shall select a new random Group Epoch Seed value for each EPP Epoch sequence.

The CPE AP MLD, upon reception of the EPP element in an encrypted (Re)Association Request frame, shall assign the CPE non-AP MLD to the EPP group with parameters that best match the parameters requestedby including an EPP element in the encrypted (Re) Association Response frame, creating a new EPP group or assigning the CPE non-AP MLD to an already existing EPP group. The assigned EPP epoch duration shall not be shorter than indicated in the Minimum Epoch Pacing Parameters field.

The parameters of the assigned EPP group are provided to the CPE non-AP MLD through an EPP element in the (Re)Association Response frame. If no EPP element is included in the (Re)Association Response frame, the CPE non-AP MLD is not assigned to any EPP group.

A CPE AP MLD transmitting EPP Epoch Settings field in (Re)Association Response frame, EPP Group [2128]Response frames, EPP Group [2128]Assignment frames or EPP Groups Parameter frames shall include the following fields:

EPP Epoch Settings Control field indicating the optional fields included in the EPP Epoch Settings field.

EPP Group ID field.

Epoch Interval field.

Transition Period field.

First Epoch TSF Start Time, and associated Group Epoch Seed field.

Epoch Number Offset field.

Epoch Start Time Variation Range field.

Epochs Remaining field.

A CPE AP MLD transmitting EPP Epoch Settings fields in (Re)Association Response frame, EPP Group [2128]Response frames, EPP Group [2128]Assignment frames or EPP Groups Parameters frames may also include the Number Of Participating Affiliated STAs in the EPP Epoch Settings field within the EPP element.

The CPE AP MLD shall not include an AID Storage Size or the Minimum Epoch Pacing fields on transmitted EPP Epoch Settings fields.

An associated CPE non-AP MLD may request creation of a new EPP group by sending an EPP Group [2128]Request frame (see 9.6.42.5 (EPP Group [2128]Request frame format)) with EPP Group Request field indicating “Create” and indicating the parameters for the EPP group to be created in the EPP Epoch Settings field.

The CPE AP MLD may create the new EPP group with the received parameters. Alternatively, the CPE AP MLD may allocate the CPE non-AP MLD to an already existing EPP group with *similar* parameters. This may be signaled to the CPE non-AP MLD in an EPP Group [2128]Response frame setting the Status Code field to indicate SUCCESS\_SIMILAR\_EPOCH, and providing the EPP Epoch Settings field with the parameters of the EPP group. In this context, an EPP group with “similar parameters” refers to an existing EPP group whose epoch duration is equal or smaller than the one requested by the CPE non-AP MLD (i.e., most privacy-preserving). This choice is made while ensuring adherence to any pacing limits indicated in the Minimum Epoch Pacing Parameters field that the CPE non-AP MLD has specified in (Re)Association Request frame.

Once the CPE non-AP MLD is associated and has been assigned an EPP group, it may request to join a different EPP group. Information on the available EPP groups may be distributed periodically by the CPE AP MLD transmitting EPP Groups Parameter frames. To join a different EPP group, the CPE non-AP MLD shall send an EPP Group [2128]Request frame (see 9.6.42.5 (EPP Group [2128]Request frame format)), indicating “Join” in the EPP Group [2128]Request field and providing the EPP Epoch Settings field indicating the parameters of the EPP group it requests to join.

Upon reception of the request, the CPE AP MLD may assign the CPE non-AP MLD to another EPP group and remove it from the previous EPP group. The result of the operation is indicated to the CPE non-AP MLD through an EPP Group [2128]Response frame. This frame indicates in the Status Code field “SUCCESS”, and an optional EPP Epoch Settings field to indicate the parameters of the newly joined EPP group.

The CPE AP MLD may request the associated CPE non-AP MLD to transition to a different EPP group, by sending an EPP Group [2128]Assignment frame to the associated CPE non-AP MLD including the EPP Epoch Settings field with the parameters of the suggested EPP group. The CPE non-AP MLD shall report the status of the operation by responding with an EPP Group [2128]Response frame. This operation allows the CPE AP MLD to reorganize the EPP groups in use. Following this reorganization, the resulting EPP groups should maintain the same level of restrictiveness or be even more restrictive, i.e., shorter epoch durations, while also respecting any pacing limits indicated in the Minimum Epoch Pacing Parameters field that the CPE non-AP MLD has specified in the (Re)Association Request frame.

Once the CPE non-AP MLD receives an EPP Group [2128]Response frame or transmits an EPP Group [2128]Response frame in response to an EPP Group [2128]Assignment frame signaling successful (Status code field set to SUCCESS, SUCCESS\_SIMILAR\_EPOCH, SUCCESS\_ALREADY\_EXISTING\_EPOCH or SUCCESS\_AID\_LIST\_PARTIALLY\_STORED) reception of new EPP group parameters, the CPE non-AP MLD shall compute the new MHA parameters for the current EPP epoch, as per 10.71.3 (Establishing CPE MAC header anonymization parameter sets), and apply them in the next epoch starting time as indicated by the First Epoch TSF Start Time field of the EPP Epoch Settings field (considering the operations in 10.71.2.4 (EPP Epoch Start Time Computation).

*Editor change the following rows in the Table in Annex B.4.4.2 MAC frames*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| FT97.4 | EPP Group [2128]Request frame | 9.6.42.5 (EPP Group [2128]Request frame format) | EPPM9.1: M | Yes ο No ο N/A ο |
| FT97.5 | EPP Group [2128]Response frame | 9.6.42.6 (EPP Group [2128]Response frame format) | EPPM9.1: M | Yes ο No ο N/A ο |
| FT97.6 | EPP Group [2128]Assignment frame | 9.6.42.7 (EPP Group [2128]Assignment frame format) | EPPM9.1: M | Yes ο No ο N/A ο |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| FR98.4 | EPP Group [2128]Request frame | 9.6.42.5 (EPP Group [2128]Request frame format) | EPPM9.1: M | Yes ο No ο N/A ο |
| FR98.5 | EPP Group [2128]Response frame | 9.6.42.6 (EPP Group [2128]Response frame format) | EPPM9.1: M | Yes ο No ο N/A ο |
| FR98.6 | EPP Group [2128]Assignment frame | 9.6.42.7 (EPP Group [2128]Assignment frame format) | EPPM9.1: M | Yes ο No ο N/A ο |

*Editor modify section 9.4.1.85 as follows:*

**9.4.1.85 EPP Group** [2128]**Request field**

The EPP Group [2128]Request field carries information on the action to be performed by the AP upon receiving an EPP Group [2128]Request frame.

The format of the EPP Group [2128]Request field is shown in Figure 9-207s (EPP Group [2128]Request field format).

|  |  |
| --- | --- |
|  | EPP Group [2128]Request |
| Bits: | 8 |

Figure 9-207s – EPP **Group** [2128]**Request field format**

The EPP Group [2128]Request field values are shown in Table 9-129t (Values for the EPP Group Request field).

**Table 9-129t - Values for the EPP Group** [2128]**Request field**

|  |  |
| --- | --- |
| **Value** | **Meaning** |
| 0 | Reserved |
| 1 | Create/Join |
| 2-255 | Reserved |