IEEE P802.11  
Wireless LANs

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| D1.0 FA Modes and MIB | | | | |
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Abstract

This submission proposes resolution of comments received against the following sections of TGbi Draft 1.0 (see [1]):

* 10.71.1 (Introduction)
* 3.2 (Definitions specific to IEEE 802.11)
* Annex C.3 (MIB Detail)

We propose draft specification text for TGbi draft D1.3.

Resolved CIDs (7): 129, 130, 131, 156, 510, 957, 1045

Revisions:

* Rev 00: Initial version of the document
  + CID #129, #130, #131, #156, #510, #957 moved from 25/1100r03, some with updates.
  + Included CID #1045.

**Background**

Overview of noteworthy changes

* Updates to 3.2 (Definitions specific to IEEE 802.11)
  + Definition of FA Mode
* Updates to 10.71.1 (Introduction):
  + Introduction to FA Mode (Disabled, CPE-only, BPE)
  + Use of MIB in text
* Updates to Annex C.3 (MIB detail):
  + Definition of an MIB for enabling CPE FA mechanisms or BPE FA mechanisms (noting BPE FA includes CPE FA)

*Note: Another document will define capability MIBs, advertising, and negotiating FA Mode*

| **CID** | **Commenter** | **Clause** | **Page. Line** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- | --- |
| 510 | Mark RISON | 10.71.1 | 75.22 | "DS MAC address" is missing an article | Prepend "a " | **Revised**.  **Discussion**: This text is deleted by CID #156  **Changes:** None |
| 156 | Stephen McCann | 10.71.1 | 75.23 | What does "DS MAC address supported" mean? How can you support a MAC address? | Change "DS MAC address supported" to "the use of a destination MAC address is supported". | **Revised**.  **Discussion**: Firstly, it is unclear if this text is normative, so delete it from this sentence. Secondly, it is clearer to describe this dependency (including the requirement to use MLO) in terms of MIBs dot11DSMACAddressActivated, dot11MultiLinkActivated and dot11FrameAnonymizationMechanismActivated defined by CID #129.  **Changes:**  *Instructions to the editor:*  Please make the changes as shown under CID #156 in doc 11-25/1385 |
| 957 | Robert Stacey | 10.71.1 | 76.19 | When writing a requirement, it is better to use the singular. The plural is not implementable or testable (an implementor has design control over one implementation not all implementations). Also, if you define one way of doing something it applies in all instances. Finally, introduce the requirements with the statement in the note -- it help understanding. | Replace the two sentences at 76.19 and 76.21 as well as the NOTE with the following: "In order to provide confidentiality for the SA and DA, the following apply: - A CPE STA should transmit an MSDU in an A-MSDU. - A BPE STA shall transmit an MSDU in an A-MSDU." | **Revised**  **Changes:**  *Instructions to the editor:*  Please make the changes as shown under CID #957 in doc 11-25/1385 |
| 1045 | Philip Hawkes | 10.71.2.2 | 76.51 | Lines 51-57 applies to support of frame anonymization as a whole, not just "EDP groups". | Reword to place emphasis on support for frame anonymziation. | **Revised**  **Changes**: Instructions to Editor: Apply the changes in this document identified by “#1045” |
| 129 | Chaoming Luo | 10.71.6.1 | 89.35 | It's not clear how is CPE enabled or not enabled, and also not clear how is BPE enabled or not enabled. | Add Operation element or dot11 varibles to enable/disable CPE and BPE. | **Revised**  **Discussion:** Define a new MIB dot11FrameAnonymizationMechnismsActivated with three options: none(0), cpe(1), bpe (2).  **Changes:** Instructions to Editor: Apply the changes in this document identified by “#129” |
| 130 | Chaoming Luo | 10.71.6.1 | 90.39 | Change "a non-AP MLD" to "a CPE non-AP MLD" | As in comment | **Revised**  **Discussion**: Easier if 10.71**.**1 provides rules for prefixing AP non-AP MLD.  **Changes:** Instructions to Editor: Apply the changes in this document identified by “#130” |
| 131 | Chaoming Luo | 10.71.6.1 | 90.46 | Change "a AP MLD" to "a CPE AP MLD" | As in comment | **Revised**  **Discussion**: Easier if 10.71**.**1 provides rules for prefixing AP MLD.  **Changes**: Instructions to Editor: Apply the changes in this document identified by “#131” |

***The baseline for this text is Draft P802.11bi\_D1.2.***

***TGbi editor: Add the following definition in 3.2 (Definitions specific to IEEE 802.11). The baseline for this text is Draft P802.11bi\_D1.2.***

**frame anonymization mode:** [FA mode] Identifies what frame anonymization mechanisms are applied by the AP MLD and non-AP MLD while the non-AP MLD is associated to the AP MLD.

***TGbi editor: The following changes are to 10.71.1 (Introduction).***

***TGbi editor: Apply the following changes starting at page 75 line 23.****Addresses CIDs: #156*

Frame anonymization (FA) is an EDP CPE feature available when MLO is supported. (#156)

***TGbi editor: Insert the following text at page 76 line 17.****Addresses CIDs: #128, #129, #130, 131, #1045*

An AP MLD that has CPE FA mechnisms enabled shall have dot11DSMACAddressActivated set to true and shall have, dot11MultiLinkActivated set to true. (#156)

An AP MLD advertises in Beacon and Probe Response frames that:

* CPE FA mechanisms are not enabled by setting the CPE Frame Anonymization Supported field of the Extended RSN Capabilities field of the RSNXE element to 0, (#129, #1045)
* CPE FA mechanisms are enabled by setting the CPE Frame Anonymization Supported field of the Extended RSN Capabilities field of the RSNXE element to 1, (#129, #1045)
* BPE FA mechanisms are not enabled by setting the BPE Frame Anonymization Supported field of the Extended RSN Capabilities field of the RSNXE element to 0. (#129, #1045)
* If BPE FA mechanisms are enabled by setting the BPE Frame Anonymization Supported field of the Extended RSN Capabilities field of the RSNXE element to 1. (#129, #1045)

An AP MLD which does not have FA mechanisms enabled may advertize that CPE FA mechanisms are not enabled and BPE FA mechanisms are not enabled. (#129, #1045)

If an AP MLD has CPE FA mechanisms enabled and does not have BPE FA mechanisms enabled, then:

* The AP MLD is said to be in CPE-only frame anonymization (FA) mode. The AP MLD behaviour could be summarized as follows:
* This mode does not prohibit non-AP STAs or non-AP MLDs associating with the AP MLD.
* FA is not applied to individually addressed frames transmitted to or received from an associated non-AP STA or an associated non-AP MLD which does not haveF A enabled.
* CPE FA mechanisms are applied to individually addressed frames transmitted to or received from an associated non-AP MLD in CPE-only FA mode or BPE FA mode, as negotiated by the (Re)Association Request frame from the non-AP MLD.
* The AP MLD shall advertise that CPE FA mechanisms are enabled and BPE FA mechanisms are not enabled.
* If the AP MLD receives a (Re)Association Request frame from a non-AP MLD with CPE Frame Anonymization Supported field of the Extended RSN Capabilities field of the RSNXE element equal to 1, then, following transmission of a corresponding successful (Re)Association Response frame, the AP MLD shall apply CPE FA mechanisms to individually addressed frames transmitted to or received from the non-AP MLD.
* If the AP MLD receives a (Re)Association Request frame from a non-AP MLD that does not have CPE Frame Anonymization Supported field of the Extended RSN Capabilities field of the RSNXE element equal to 1, then, the AP MLD shall apply no FA mechanisms to individually addressed frames transmitted to or received from the non-AP MLD.

NOTE 1— In this case, the AP MLD ignores the BPE Frame Anonymization Supported field of the Extended RSN Capabilities field of the RSNXE element.

If an AP MLD has BPE FA mechanisms enabled (which implies that CPE FA mechanisms are enabled), then:

* The AP MLD is said to be in strict BPE FA mode. The AP MLD behaviour could be summarized as follows:
* This mode prohibits both non-AP STAs and non-AP MLDs with BPE FA disabled from associating with the AP MLD.
* Non-AP MLD with BPE FA enabled can associate with the AP MLD.
* The AP MLD shall advertise that CPE FA mechanisms are enabled and BPE FA mechanisms are not enabled.
* If the AP MLD receives a (Re)Association Request frame from a non-AP MLD, then
* If the non-AP MLD indicates that it is in BPE FA Mode, then, following transmission of a corresponding successful (Re)Association Response frame, the AP MLD shall apply BPE FA mechanisms (which includes CPE FA Mechanisms) to individually addressed frames transmitted to or received from the non-AP MLD.
* Otherwise, the AP MLD shall reject the request.

A non- AP MLD advertises in (Re)Association Request frames that:

* CPE FA mechanisms are not enabled by setting the CPE Frame Anonymization Supported field of the Extended RSN Capabilities field of the RSNXE element to 0, (#129, #1045)
* CPE FA mechanisms are enabled by setting the CPE Frame Anonymization Supported field of the Extended RSN Capabilities field of the RSNXE element to 1, (#129, #1045)
* BPE FA mechanisms are not enabled by setting the BPE Frame Anonymization Supported field of the Extended RSN Capabilities field of the RSNXE element to 0. (#129, #1045)
* If BPE FA mechanisms are enabled by setting the BPE Frame Anonymization Supported field of the Extended RSN Capabilities field of the RSNXE element to 1. (#129, #1045)

A non-AP MLD which does not have FA mechanisms enabled may advertize in (Re)Association Request frames that CPE FA mechanisms are not enabled and BPE FA mechanisms are not enabled. (#1045)

If a non-AP MLD has CPE FA mechanisms enabled and does not have BPE FA mechanisms enabled, then:

* The non-AP MLD is said to be in CPE-only FA mode. The non-AP MLD behaviour could be summarized as follows:
* This mode prevents the non-AP MLD associating successfully with AP MLD in strict BPE FA mode.
* This mode does not prevent the non-AP MLD associating successfully with
* AP MLD in CPE-only FA mode.
* AP or AP MLD that do not have FA enabled.
* If the non-AP MLD initiates an association to a CPE-only AP MLD, then:
* The non-AP MLD shall advertize that it has CPE FA mechanisms enabled and does not have BPE FA mechanisms enabled.
* The (Re)Association Request frame shall advertize the support of EDP epoch Group as described in 10.71.2.2 (EDP group operations)
* The (Re)Association Request frame may include an EDP element as described in 10.71.2.2 (EDP group operations)
* If the non-AP MLD initiates an association to an AP or AP MLD for which FA is not enabled, then the non-AP MLD may advertize that it has CPE FA mechanisms enabled and does not have BPE FA mechanisms enabled.

If a non-AP MLD has CPE FA mechanisms enabled and BPE FA mechanisms enabled, then:

* The non-AP MLD is said to be in BPE FA mode. The non-AP MLD behaviour could be summarized as follows:
* This mode does not prevent the non-AP MLD associating with any AP or AP MLD.
* If a non-AP MLD initiates a connection to an CPE-only AP MLD or strict CPE AP MLD, then:
* The non-AP MLD shall advertize that it has CPE FA mechanisms enabled and BPE FA mechanisms enabled.
* The (Re)Association Request frame shall advertize the support of EDP epoch Group as described in 10.71.2.2 (EDP group operations)
* The (Re)Association Request frame may include an EDP element as described in 10.71.2.2 (EDP group operations)
* If a non-AP MLD initiates a connection to an AP or AP MLD for which FA is not enabled, then:
* The non-AP MLD may advertize that it has CPE FA mechanisms enabled and BPE FA mechanisms enabled.
* The (Re)Association Request frame may advertize the support of EDP epoch Group as described in 10.71.2.2 (EDP group operations)
* The (Re)Association Request frame shall not include an EDP element as described in 10.71.2.2 (EDP group operations)

For all operations described in clause 10.71, an MLD has CPE FA mechanisms enabled, unless otherwise noted. (#129)

NOTE 1— In the remainder of clause 10.71 the following rules explain how the prefixes for the terms MLD, AP MLD or non-AP MLD are related to the FA mechanisms enabled.

* If no prefix is present, then CPE FA mechanisms are enabled and BPE FA mechanisms may or may not be supported.
* If a “BPE” prefix is present, then both CPE FA mechanisms and BPE FA mechanisms are enabled. (#130, #131)

***TGbi editor: Apply the following changes starting at page 76 line 19.****Addresses CIDs: #129, #957*

An MLD applying CPE FA mechanisms should transmit an MSDU in an A-MSDU. (#129, #957)

An MLD applying BPE FA mechanisms shall transmit an MSDU in an A-MSDU. (#129, #957)

**References:**