IEEE P802.11
Wireless LANs

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| 802.11bh D0.2 CRs related to 12.2.11 |
| Date: 2022-08-12 |
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Abstract

This submission proposes resulutions to the following CIDs.

CID 2, CID 3, CID 4, CID6, CID 10, CID 11, CID 25, CID 26, CID 31, CID 33, CID 49, CID 50,
CID 51, CID 52, CID 53, CID 54, CID 55, CID 63, CID 65

Revisions:

* Rev 0 – Initial version of the document

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGbh D0.2 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbh D0.2 Draft. (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

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

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| **CID** | **Commenter** | **Comment** | **Proposed Change** | **Resolution** |
| 2 | Jay Yang | please clarify what's the meaning of "opt-in" | Resolve by removing opt-in and replacing with text in 12.2.11 describing actions taken by the non-ap STA indicating activation of the Device ID | Text changes provided for the editorNote: Replacement of OPT-IN Text should be handled elsewhere. |
| 3 | Jay Yang | """When using FILS authentication, the non-AP STA sends the identifier"", need to clarify the identifier here, | Resolve by utilizing eitherFILS – Device ID Element in an Association Response Frame or FT/OtherDevice ID KDE in message 3 of the 4-Way handhakei | Text changes provided to the editorNote: definition of the ID Blob should be handled elsewhere. |
| 4 | Jay Yang | "AP sends a new identifier", before AP send a new one, AP shall verify the old one, need to add verification sucessful and failure case. | Resolve by edits to the baseline text describing the process utilized by the AP when it has received a Device ID from a non-AP STA | Text changes provided to the editor |
| 6 | Jay Yang | the device ID verification proceudre is missing, need to add this part | Agreed | Text changes provided to the editor |
| 10 | Jay Yang | """if it has one and opts-in to using it"" | This is really outside the scope. We cannot control the STA’s activity only provide for the case | I added text to the editor below which states that if the ID received by the AP is not recognized the AP shall 1) Use this old ID, or 2) provide a new one. |
| 11 | Jay Yang | the device ID doesn't need to be updated in each assocation as it's exchanged in protected frame, it's very safe. | Agreed | Added text to the below stating that if the AP reconizes the ID, it need not send a new one. |
| 25 | Okan Mutgan | """When the non-AP STA sends the opaque identifier, it shall send the most recently received value from an | Agreed | Made changes in text for 12.2.11 to utilize the term identifier. Also cross referenced the structures defined in other sections. This needs to be carried forward for other places where the term ID Blob, opaque identifier, and other terms are used. |
| 26 | Okan Mutgan | Generally speaking, device ID verification (fail ,success) should be considered in the protocol. | Agreed | ID Verification added in the Text Below |
| 31 | Chaoming Luo | It's not clear how the transition (ie., has no ID -> has one ID) happens, because at the very beginning the non-AP STA does have one identifier and the ID staff described in this paragragh does not occur. | Agreed | Transitions handled in the text below |
| 33 | Amelia Andersdotter | At the risk of me word-smithing, maybe the discussions are better reflected by the following wording: "An AP may provide an identifier to a non-AP STA and the non-AP STA may optionally return that identifier to any AP in the same ESS..." | Agreed | Added mechanisms to determine how an AP shall determine if the non-AP STA indicates support for identifier. Text below adds synchronization.  |
| 49 | Robert Stacey | "Opt-in to providing" is cumbersome. "In the same ESS" -- there is no precedent for "same". | Agreed | Modified Text to utilize the term Activated. This will need to be defined in other normative text (MIB Definitions and other normative text) in order to explain how the mechanism is activated. |
| 50 | Robert Stacey | "If inclusion of the identifier in an Association Request frame is restricted to FILS authentication then we need a shall statement to that effect. | Agreed | Modified text to clarify FILS, vs FT, vs. other passage of the identifier and what the mechanisms are to pass the identifier. |
| 51 | Robert Stacey | "If inclusion of the identifier is restricted to the EAPOL Key messages for FT, then we need a shall statement to that effect. | Agreed | Modified text to clarify FILS, vs FT, vs. other passage of the identifier and what the mechanisms are to pass the identifier. |
| 52 | Robert Stacey | """For other cases"" might not be clear enough; better to enumerate.The "/4" (in "message 2/4", etc.) is confusing since it is not part of the actual message name. Use the actual frame name. | Agreed | Modified text and cleaned up language surrounding EAPOL-Key |

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| 53 | Robert Stacey | "opaque identifier" is not defined and it is not clear how it differs from an "identifier'. Similarly, what distinguishes a "new identifier" from an "identifier" | Agreed | Removed text and replaced all with identifier. Note: identifier will need to be more clearly defined elsewhere. |
| 54 | Robert Stacey | "Without modification" is unnecessary; if it is modified then it is not the identifier. The identifier is the value. | Agreed | Removed Without modification in the new text. |
| 55 | Robert Stacey | "for this capability" is vague | Agreed | Clarified text and signaling.  |
| 63 | Mark Hamilton | Clarify "and the non-AP STA may opt-in" | Agreed | New text verifies the meaning of support and activates |
| 65 | Jarkko Kneckt | The STA Identifier should be taken into use only if the STA opts-in to use the identifier. Currently AP may just push a STA ID for the STA even if the STA does not want to have it. | Agreed | Clarified in the new text |

# Proposed text(Proposed text modifications are based on Draft 11bh 0.2)

TGbh editor: Replace the subclause 12.2.11 Device ID indication with the following:

**12.2.11 Device ID indication**

An AP may provide an identifier to a non-AP STA and the non-AP STA may provide that identifier to any AP in the same ESS to allow the network to recognize the same non-AP STA when it returns to the ESS even if it changes its MAC address. Exchanges of this identifier information are protected from third parties to limit the tracking of the non-AP STA.

A STA indicates implementation of Device ID by setting the Device ID Support subfield to 1 in the Extended RSN Capabilities field (see 9.4.2.241 (RSN Extension Element)). A STA shall not send a Device ID to any STA that does not indicate support for Device ID.

A non-AP STA shall indicate the use of Device ID to the AP-STA as follows:

1. For FILS methods, the non-AP STA shall include a Device ID informational element in the association request frame (9.3.3.5 Association Request frame format).
2. For devices utilizing FT, the non-AP STA shall include a Device ID KDE in the EAPOL-Key frame 4 way handshake message 2 (see 12.7.2 (EAPOL-Key frames).
3. For devices utilizing other methods, the non-AP STA shall include a Device ID KDE in the EAPOL-Key frame 4 way handshake message 2.

When a non-AP STA associates to a BSS or ESS for the first time it indicates that it supports Device ID for the BSS or ESS as follows:

1. When using FILS authentication, the non-AP STA shall send an Association Request frame containing the Device ID informational element with an empty identifier.
2. When using FT, the non-AP STA shall send a blank identifier in the Device ID KDE of the EAPOL-Key frame 4 way handshake message 2.
3. For other cases, the non-AP STA shall send a blank identifier in the Device ID KDE of the EAPOL-Key frame 4 way handshake message 2.

When the AP STA receives a blank identifier from the station in either the Device ID informational element (FILS) or the Device ID KDE (FT or other cases) it shall assign an identifier to the station as follows:

1. When using FILS authentication, the AP-STA shall send an Association Response frame containing the Device ID informational element with the assigned identifier.
2. When using FT, the AP-STA shall send the assigned identifier in the Device ID KDE of the EAPOL-Key frame 4 way handshake message 3.
3. For other cases, the AP-STA shall send the assigned identifier in the Device ID KDE of the EAPOL-Key frame 4 way handshake message 3.

For subsequent associations to the same BSS or ESS,:

1. When using FILS authentication, the non-AP STA shall send the assigned identifier in the Association Request frame in the Device ID informational element.
2. When using FT, the non-AP STA shall send the assigned identifier during the initial mobility domain association in the Device ID KDE of the EAPOL-Key frame 4 way handshake message 2.
3. For other cases, the non-AP STA shall send the assigned identifier in the Device ID KDE of the EAPOL-Key frame 4 way handshake message 2.

When the non-AP STA sends the identifier, it shall send the most recently received value from an AP in the ESS

The identifier or a new identifier need not be exchanged during the FT protocol reassociations within the same ESS. For other cases, the non-AP STA sends the identifier, during the initial 4-way handshake in the Device ID KDE of the EAPOL-Key frame 4 way handshake message 2.

When the AP receives a Device ID from a non-AP STA If the identifier is not recognized, the AP may assign a new identifier to the non-AP STA or utilize the received identifier for subsequent associations to the BSS or ESS utilizing the methods previously described.

**References:**

* IEEE 802.11-22/1082r3
* IEEE 802.11-22-1078r0
* IEEE 802.11-22-1069r1
* IEEE 802.11-22-1079r2