IEEE P802.11 Wireless LANs

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| Proposed Clarifications for FILS Capability Indications |
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Abstract

This submission proposes clarifications for FILS capability indications, as a proposed resolution to a comment submitted to IEEE 802.11 Working Group Technical Letter Ballot 198 for 802.11ai Draft 1.0 [Ref-2].

# Introduction

As a response to IEEE 802.11 Working Group Technical Letter Ballot 198 for 802.11ai Draft 1.0 [Ref-2], the following comment is submitted:

***Comment CID 2855****: line 58 on page 87, Section 10.44.1*

*There are multiple issues with sentence 10.44.1, e.g.,*

1. *It specifies how STA indicates its FILS support, but it does not specify how AP advertise its FILS support.*
2. *In addition to Extended Capability element, there are some other ways for STA to indicate its support for FILS, e.g., including FILS specific IEs in probe request, or setting Authentication algorithm to FILS authentication in Authentication request.*
3. *The current text needs some re-organization to make it read more logically.*

In addition to CID 2855, there is another Comment, CID 3169, which is also about FILS capability indications.

This contribution proposes text changes in Section 10.44.1 to resolve the above comments.

# Conventions

In this contribution, the proposed 802.11ai Specification Document text will be presented as changes to the current TGai draft specification, 11ai/D1.1 [Ref-3]. The following format conventions are used:

1. The new added text is marked as blue underline text;
2. The deleted text is marked as ~~red strikethrough text~~;
3. The unchanged baseline standard text stays in black text in the context of proposedTGai specification text;
4. The editorial instruction is marked as *italic text highlighted by Yellow*; and
5. Any other text, e.g., discussions, proposed motions, etc., is in black text, but not in the context of proposed TGai specification text.
6. The corresponding comments are included by square bracketed green text like [CID nnnn], where nnnn is the CID number as given in the TGai WGLB comment database, 11-13-1076-04-00ai-tgai-lb-198-comments-for-d1-0.

# Discussions of the Proposed Resolution

The proposed resolution includes:

1. add descriptions about how AP indicates its FILS support;
2. add further descriptions about how STA indicates its FILS support;
3. re-organize the current text, to make it read more logically.

# Proposed Changes to 802.11ai/D1.1 Specification Text

*Instructions to Editor: Make the following changes in Section 10.44.1.*

**10.44.1 General**

The subclause 10.44 describes the FILS procedures that are supported by the STAs with dot11FILSActivated equal to true. [2855]

~~A STA that supports FILS shall set the FILS Capability field within the STA’s Extended Capabilities element to 1.~~ [2855]

A FILS STA shall support at least one rate other than a DSSS/CCK rate. ~~This subclause describes the Fast Initial Link Setup (FILS) procedures that are used for STAs with dot11FILSActivated equal to true.~~ [2855]

FILS is only supported in infrastructure BSS. FILS is not supported in IBSS and MBSS.

A FILS STA shall be a QoS STA. [2684]

An AP FILS STA indicates its support for FILS by any of the following methods: [2855, 3169]

1. Transmitting FILS Discovery frames;
2. Including the following mandatory elements and optional elements, as required, in Beacon and/or Probe Response frames:
* RSNE with an AKM selector indicating FILS Authentication Type
* ANQP Configuration Sequence Number element
* Reduced Neighbor Report element
* FILS Indication element
* AP Configuration ChangeCount element
* Differentiated Initial LinkSetup element
* FILS Identity element
1. Setting the FILS Capability field to 1 in the Extended Capabilities element and including it in Beacon, Probe Response, and (Re)Association Response frames.

A FILS AP advertises its FILS authentication and FILS higher layer setup capabilities by including a FILS Indication Element, as specified in 8.4.2.185 and 10.44.5, in Beacon, Probe Response, and/or FILS Discovery frames.

A non-AP FILS STA indicates its support for FILS by any of the following methods:

1. Setting the FILS Capability field to 1 in the Extended Capabilities element and including it in Probe Request and(Re)Association Request frames;
2. Including the following optional elements, as required, in Probe Request frames:
* FILS Request Parameters element
* Probe Response Reception Time element
* AP Configuration Change Count element
1. Setting the Authentication algorithm number field to the value of Fast Initial Link Setup (FILS) authentication in the Authentication frame with the Authentication Transaction sequence number set to 1 (Authentication Request).

# References

1. IEEE Std 802.11mc/D1.5
2. IEEE Std 802.11ai/D1.0
3. IEEE Std 802.11ai/D1.1