IEEE P802.11
Wireless LANs

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| Normative text for Differentiated Initial Link Setup |
| Date: 2013-01-16 |
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|  |  |  |  |  |

Abstract

The submission provides normative text for differentiated initial link setup as identified in 6.1.1 of the SFD ([11-12-0151-12-00ai-proposed-specification-framework-for-tgai](https://mentor.ieee.org/802.11/dcn/12/11-12-0151-12-00ai-proposed-specification-framework-for-tgai.docx)) as:

### 6.1.1 Link setup

FILS devices shall support differentiated initial link setup (11-12/0909r10).

**3.1 Definitions**

*Instructions to Editor: Append the Clause 3.1 with the following text:*

**initial link setup category ( ILSC):** A label used by associating station (STA) to associate with an access point (AP) with certain priorities.

**6.3.3.3 MLME-SCAN.confirm**

**6.3.3.3.2 Semantics of the service primitive**

*Instructions to Editor: Insert new rows in the corresponding tables as the following:*

Each BSSDescription consists of the elements shown in the following table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Type**  | **Valid range** | **Description** | **IBSS adoption** |
| Differentiated initial link setup information | Differentiated initial link setup information includes ILSC bitmap field and ILS Time field | As defined in8.4.2.122 | Differentiated initial link setup information includes ILSC bitmap field and ILS Time field; This parameter is optional. | Do not adopt. |

Each BSSDescriptionFromFDSet consists of the following information items:

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type**  | **Valid range** | **Description** |
| Differentiated initial link setup information | Differentiated initial link setup information includes ILSC bitmap field and ILS Time field | As defined in8.4.2.ai1 | Differentiated initial link setup information includes ILSC bitmap field and ILS Time field; This parameter is optional. |

**8.3.3.2 Beacon frame format**

*Instructions to Editor: Insert the new row in the corresponding tables as the following:*

**Table 8-20 Beacon frame body**

|  |  |  |
| --- | --- | --- |
| ANA | Differentiated Initial Link Setup element  | The Differentiated Initial Link Setup element, as specified in 8.4.2.ai1, is optionally present when dot11FILSActiveated is true. |

**8.3.3.10 Probe Response frame format**

*Instrocutions to Editor: Insert the new row in the corresponding table as the following:*

**Table 8-27 Probe response frame body**

|  |  |  |
| --- | --- | --- |
| ANA | Differentiated Initial Link Setup element  | The Differentiated Initial Link Setup element, as specified in 8.4.2.ai1, is optionally present when dot11FILSActiveated is true. |

**8.5.8.34 FILS Discovery frame format**

*Instructions to Editor: Insert the new row in the corresponding table as the following:*

The FILS Discovery frame (FD) uses the Action Frame format. The format of its Action field is shown in

Table 8-221g.

**Table 8-221g — FILS Discovery frame action field format**

|  |  |  |
| --- | --- | --- |
| **Order** | **Information** | **Notes** |
| ANA | Differentiated Initial Link Setup element  | The Differentiated Initial Link Setup element, as specificed in 8.4.2.ai1, is optionally present when dot11FILSActiveated is true. |

**8.4.2.1 General**

*Instructions to Editor: Insert new rows in the corresponding tables as the following:*

**Table 8-54—Element IDs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Element**  | **Element ID** | **Length of indicated element (in octets)**  | **Extensible** |
| Differentiated Initial Link Setup Element ( see 8.4.2.ai1) | ANA | 4 | **Yes** |

**8.4.2.122** Differentiated Initial Link Setup element

The Differentiated Initial Link Setup element contains four fields that advertise which initial link setup category (ILSC) of STAs are allowed to associate with the AP in the following time duration. The Differentiated Initial Link Setup element is optionally present in Beacon, Probe Pesponse and FILS Discovery (FD) frames. The Differentiated Initial Link Setup element is defined in Fig. 8-ai\*\*01.

 **Figure 8-ai\*\*01 Differentiated Initial Link Setup element format**

|  |  |  |  |
| --- | --- | --- | --- |
| **Element ID** | **Length** | **Initial Link Setup Category Bitmap** | **ILS Time**  |

 **Octets: 1 1 1 1**

The Element ID field is equal to the Differentiated Initial Link Setup element value in Table 8-54.

The Length field is 1 octet long and set to value 2.

The Initial Link Setup Category Bitmap field is one octet in length and indicates one or more initial link setup categories (ILSC) of STAs that are allowed to associate with the AP during the following time as indicated in the ILS Time field. If the bit position n of the bitmap equal to 0, STAs of ILSC n are not allowed to attempt initial link setup with the AP before the time specified in the DILS Time fieldexpires. A bit value of 1 in the bitmap indicates that the STA with corresponding ILSCbit value is allowed to attempt fast initial link setup with the AP.

The ILS Time field is an unsigned integer that specifies the time, expressed in units of TUs beginning with the transmission of the frame with Differentiated Initial Link Setup element and ending after the ILS Time elapses, during which the STAs with their ILSC bit 0 are not allowed to attempt initial link setup with the AP; all categories of STAs can attempt initial link setup with the AP after the time expires.

The initial link setup categories are defined as in Table 8-ai02.

 **Table 8-ai02**

|  |  |
| --- | --- |
| **Initial Link Setup Category (ILSC)** |  **Description** |
| **0b0** | **Category 0** |
| **0b1** |  **Category 1** |
| **0b2** | **Category 2** |
| **0b3** |  **Category 3** |
| **0b4** | **Category 4** |
| **0b5** | **Category 5** |
| **0b6** | **Category 6** |
| **0b7** | **Category 7** |

**10.25.4** Differentiated Initial Link Setup

*Instructions to Editor: Append the Clause 10.25.4 with the following text:*

The differentiated link setup procedure provides a method for an AP to allow one or more categories of non-AP STAs to associate with the AP to alleviate congestion and traffic peaks that may occur when excess initial links are set up simultaneously.

**10.25.4.1 AP procedures for differentiated initial link setup**

*Instructions to Editor: Add the new Clause 10.25.4.1 with the following text:*

An AP with dot11FILSActivated equal to true may limit the number of STAs that are allowed to associate through setting the value of the Category Allowed bits in the Initial Link Setup Coordination field of the Differentiated Initial Link Setup element.

The logic how AP sets the values of the Differentiated Initial Link Setup element is implementation specific.

If an AP receives Authentication requests from STAs that are not allowed to create initial link, the AP shall silently discard these requests.

**10.25.4.2 Non-AP STA procedures for differentiated initial link setup**

*Instructions to Editor: Add the new Clause 10.25.4.2 with the following text:*

When a STA with dot11FILSActivated equal to true receives a Beacon, Probe Response or FD frame including Differentiated Initial Link Setup element, the STA shall check the initial link setup category bitmap of the Differentiated Initial Link Setup element.

Category assignment to non-AP STA is implemention specific.

If the bit position n of the bitmap equals to 1, STAs belonging to the ILSC n may attempt initial link setup with the AP; otherwise, STAs of ILSC n shall defer their fast initial link setup until the time specified in the ILS Time field of the Differentiated Initial Link Setup element expires.

**Motion-1:** To authorize the Editor to incorporate the text changes proposed in contribution 11-13-0033-00-00ai-normative-text-for-differentiated-initial-link-setup to the draft TGai Specification Document.

Yes: \_\_\_\_\_\_\_\_\_\_\_\_;  No: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_;  Abstain: \_\_\_\_\_\_\_\_\_\_\_\_\_

[Result of Motion]