IEEE P802.11
Wireless LANs

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| Fragmenting Large IEs |
| Date: 2013-05-14 |
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Abstract

This submission describes a scheme for fragmentation and reassembly of large data that cannot fit in a single IE.

***Instruct the editor to modify section 8.3.3.1 as indicated:***

**8.3.3.1 Format of Management Frames**

The frame body consists of the fields followed by the elements defined for each management frame subtype. All fields and elements are mandatory unless stated otherwise and appear in the specified, relative order, with the exception of the Fragment IE (8.4.2.188). The Fragment IE has no specified order but, instead, is placed immediately after, and at the same order as, the element that is being fragmented. STAs that encounter an element ID they do not recognize in the frame body of a received Management frame ignore that element and continue to parse the remainder of the management frame body (if any) for additional elements with recognizable element IDs. See 9.25.7 (Vendor specific element parsing). Unused element ID codes are reserved.

***Instruct editor to modify section 8.4.2.1 as indicated:***

**8.4.2 Information elements**

**8.4.2.1 General**

The frame body components specified for many management subtypes result in elements ordered by

ascending Element ID, with the exception of the MIC Management element (8.4.2.54 (Management MIC

element)) and the Fragment IE (8.4.2.188 (Fragment IE)). If present, the MIC Management element appears at the end of the robust management frame body. See 9.24.6 (Element parsing) on the parsing of elements. If present, the Fragment IE appears after another Information element that it is fragmenting.

***Instruct the editor to modify section 8.4.2.183 as indicated:***

**8.4.2.183 FILS Public Key element**

The FILS Public Key element is used to communicate the device’s (certified) public key for use wth the FILS authentication exchange. The format of the FILS Public Key element is shown in Figure 8-401dd.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Element ID | Length | Key type | FILS public key |
| Octets: | 1 | 1 | 1 | variable |
|  | **Figure 8-401dd-- FILS Public Key element format(#1248)** |

Where the Key Type subfield is as follows:

 0: Reserved

 1: An X.509v3 certificate encoded according to RFC 5280.

 2. A raw public key encoded according to RFC 5480.

 3: A raw public key encoded according to RFC 3279.

The device’s key type plus public key may not fit into a single element and therefore the data following the length field of a FILS Public Key element may require fragmentation using Fragment IEs (see 8.4.2.188).

***Instruct the editor to add section 8.4.2.188, and subsections, to the draft, replace <ANA-1> with an appropriate figure identifier, and replace <ANA-2> with an appropriate table identifier:***

**8.4.2.188 Fragment IE**

Information in Elements is limited to a maximum of 255 octets due to their native format (see Figure 8-104). If data to be represented in an IE is too large, it may be fragmented. The format of the Fragment IE is indicated in Figure 8-<ANA-1>.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Element ID | Length | Fragmented data |
| Octets: | 1 | 1 | variable |
| **Figure <ANA-1>-- Fragment IE(#1248)** |

The length of the all but the final Fragment IE shall be 255. The length of the final Fragment IE depends on the amount of fragmented data left over. The length of a Fragment IE shall always be non-zero.

**8.4.2.188.1 Fragmentation of Data**

Data that is too large for a single IE may be fragmented into a series of IEs consisting of the original IE into which the data would not fit, immediately followed by a number of Fragment IEs.

The data to be fragmented is divided into *M* + *N* chunks, where

* *M* is the result of the integer division of the length of the data by 255
* *N* is equal to 1 if the length of the data modulo 255 is greater than 0, and equal to 0 otherwise

The original IE into which the data would not fit is filled with the first chunk of data and is termed the leading IE. This IE is immediately followed by *M-1* Fragment IEs, each containing the next chunk of data and with a length of 255. If *N* = 1 these IEs are immediately followed by the last chunk of data in a Fragment IE which has a length equal to the length of the data modulo 255.

Table <ANA-2> shows the IEs that have associated data fields that may be fragmented.

|  |  |
| --- | --- |
| Element | Element ID |
| FILS Public Key Element | <ANA-1> |

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

ILS Public Key Element

**8.4.2.188.2 Reassembly of Data**

IEs which have data fields that may be fragmented, and that have been fragmented, are followed by a series of Fragment IEs. To reconstruct the original data the chunk of data from the leading IE is concatenated, in order, with the chunks of data from the series of Fragment IEs that follow it. The reassembly procedure finishes when any IE other than a Fragment IE is encountered or the end of the MMPDU is reached.

Fragment IEs that do not either follow another Fragment IE or an IE which is listed in table <ANA-2> shall be ignored.

**References:**