IEEE P802.11
Wireless LANs

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| Revision of Enhanced Broadcast Services ANQP-element  |
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|  |  |  |  |  |

Abstract

This submission aligns the different elements present in the Enhanced Broadcast Services ANQP-element to the fields used in other frames with the same meaning.

**9.4.5.bc1 Enhanced Broadcast Services ANQP-element (CID 163)**

The Enhanced Broadcast Services ANQP-element provides a list of one or more enhanced broadcast services that are available from the STA transmitting this element. The format of the Enhanced Broadcast Services ANQP-element is defined in Figure 9-bc12. (CID 6, 41, 178)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Info ID | Length | BroadcastControl | Enhanced Broadcast Services Tuples |
| Octets | 2 | 2 | 1 | variable |

**Figure 9-bc12 Enhanced Broadcast Services ANQP-element format**

The Info ID and Length fields are defined in ~~Error! Reference source not found..~~ 9.4.5.1

The Broadcast Control field is defined in Figure 9-bc13: (CID 7, 8, 9, 160, 164, 165, 167, 159)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0 | B1 | B2 | B3 B7 |
|  | Transmit Capability | Receive Capability | Service Advertisement | Reserved |
| Bits | 1 | 1 | 1 | 5 |

**Figure 9-bc13 Enhanced Broadcast field format**

The Transmit Capability subfield is set to 1 by a STA to indicate that it supports the transmission of eBCS. This subfield is set to 0 to indicate that there is no support for the transmission of eBCS.

The Receive Capability subfield is set to 1 by a STA to indicate that it supports the reception of eBCS. This subfield is set to 0 to indicate that there is no support for the reception of eBCS. When the Enhanced Broadcast Services ANQP-element is transmitted by a non-AP STA, this bit set to 1 indicates that the information in the Enhanced Broadcast Services Tuples refers to eBCS being received by the non-AP STA.

The Service Advertisement subfield is set to 1 by a STA to indicate that the Enhanced Broadcast Services Tuples subfield contains information about the eBCS(s) transmitted by the STA. This subfield is set to 0 to indicate that there are no Enhanced Broadcast Services Tuples subfields at the time of transmission from the STA.

The Enhanced Broadcast Services Tuples field contains one or more Enhanced Broadcast Services Tuple fields as shown in Figure 9-bc14. (CID 10, 11, 12, 42, 43, 44, 161, 169, 170, 171)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Control | Content ID | Request Method | Broadcaster MAC Address (Optional) | Next Schedule(Optional) | Time to Termination(Optional) |
| Octets | 1 | 1 | 1 | 0 or 6 | 0 or 8 | 0 or 2 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Content Destination AddressType (Optional) | Content Destination Address(Optional) | Title Length (Optional | Title (Optional) |
| Octets | 0 or 1 | Variable | 0 or 1 | variable |

**Figure 9-bc14 - Enhanced Broadcast Services Tuple field format**

(CID 168, 172) The Control field defines which of the optional fields are present in the Enhanced Broadcast Services Tuple field and is defined in Figure 9-bc15a:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 | B1 | B2 | B3 | B4 | B5 | B6 B7 |
|  | Broadcaster MAC Address Present | Next Schedule Present | Time to Termination Present | Content Destination Address Present | Title Present | Association Required | Reserved |
| Bits | 1 | 1 | 1 | 1 | 1 | 1 | 2 |

**Figure 9-bc15a Control field format**

The Broadcaster MAC Address Present subfield is set to 1 by a STA to indicate that the Enhanced Broadcast Services Tuple field contains a Broadcaster MAC Address field. This subfield is set to 0 to indicate that there is no Broadcaster MAC Address field.

The Next Schedule Present subfield is set to 1 by a STA to indicate that the Enhanced Broadcast Services Tuple field contains a Next Schedule field. This subfield is set to 0 to indicate that there is no Next Schedule field.

The Time to Termination Present subfield is set to 1 by a STA to indicate that the Enhanced Broadcast Services Tuple field contains a Time to Termination field. This subfield is set to 0 to indicate that there is no Time to Termination field.

The Content Destination Address Present subfield is set to 1 by a STA to indicate that the Enhanced Broadcast Services Tuple field contains Content Destination Address Type and a Content Destination Address fields. This subfield is set to 0 to indicate that there are no Content Destination Address Type and a Content Destination Address fields.

The Title Present subfield is set to 1 by a STA to indicate that the Enhanced Broadcast Services Tuple field contains a Title Length field and a Title field. This subfield is set to 0 to indicate that there are no Title Length and Title fields.

The Content ID subfield indicates the identifier of the content. (CID 349)

The Request Method subfield indicates the request method to solicit the transmission of an eBCS identified by the content ID contained in the Content ID subfield. The encoding of the Request Method subfield is defined in Table 9-bcX (Request Method subfield encoding). (CID 159, 196)

**Table 9-bcX—Request Method subfield encoding**

|  |  |  |
| --- | --- | --- |
| **Negotiation** **Method** **subfield** **value** | **Meaning** | **Notes** |
| 0 | No negotiation (CID 22, 24, 332, 200, 50) |  |
| 1 | Request using eBCS Request frames | eBCS request by STAs that are associated with the broadcaster |
| 2 | Request using eBCS Request ANQP-elements | eBCS request by STAs that are not associated with the broadcaster |
| 3 | Request using IP request | Out of band IP request |

The Broadcaster MAC Address field indicates the MAC Address of the AP broadcasting this channel, in the case of a multi AP setup.

The Time Of Termination subfield indicates the number of TBTTs until the content identified by the content ID contained in the Content ID subfield is terminated. A value of 0 indicates that the content identified by the content ID in the Content ID subfield will be terminated at the following TBTT. A value of 65535 indicates that the content identified by the content ID in the Content ID subfield has no specific termination time.

The Next Schedule subfield indicates the number of TBTTs until the content identified by the content ID contained in the Content ID subfield is transmitted again. A value of 0 indicates that the content identified by the content ID in the Content ID subfield will start to transmit at the next TBTT. A value of 65535 indicates that the content identified by the content ID in the Content ID subfield has no specific transmission starting time.

The Content Destination Address Type subfield is defined in Table 9-bc6 (Content Destination Address Type subfield). The value of 2, to indicate UDP/hostname, shall only be used for eBCS UL frames. The other values are used for both eBCS DL and UL frames.

**Table 9-bcX Content Destination Address Type subfield**

|  |  |
| --- | --- |
| **Value** | **Higher** **Layer** **Protocol** |
| 0 | UDP/IPv4 |
| 1 | UDP/IPv6 |
| 2 | UDP/hostname (UL only) |
| 3 | MAC Address |
| 4-7 | Reserved |

The Content Destination Address subfield is the destination address and port of the content; encoded as follows.

If the Content Destination Address Type subfield is UDP/IPv4, the format of the Content Destination Address subfield is shown in Figure 9-bcX (Content Destination Address subfield format for UDP/IPv4).

|  |  |  |
| --- | --- | --- |
|  | Destination IPv4 Address | Destination Port |
| Octets | 4 | 2 |

**Figure 9-bcX Content Destination Address subfield format for UDP/IPv4**

If the Content Destination Address Type subfield is UDP/IPv6, the format of the Content Destination Address subfield is shown in Figure 9-bcX (Content Destination Address subfield format for UDP/IPv6).

|  |  |  |
| --- | --- | --- |
|  | Destination IPv6 Address  | Destination Port |
| Octets | 16 | 2 |

**Figure 9-bcX Content Destination Address subfield format for UDP/IPv6**

If the Content Destination Address Type subfield is UDP/hostname, the format of the Content Destination Address subfield is shown in Figure 9-bcX (Content Destination Address subfield format for UDP/hostname). The Hostname Length subfield indicates the length of the Hostname subfield. The Hostname subfield is the hostname as a UTF-8 string.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Hostname Length | Hostname | Destination UDP Port |
| Octets | 1 | variable | 2 |

**Figure 9-bcX Content Destination Address subfield format for UDP/hostname (CID 53)**

If the Content Destination Address Type subfield is MAC Address, the format of the Content Destination Address subfield is shown in the Figure 9-bcX (Content Destination Address subfield format for MAC Address). The MAC Address field is the destination MAC Address of the content.

|  |  |
| --- | --- |
|  | MAC Address |
| Octets | 6 |

**Figure 9-bc29 Content Destination Address subfield format for MAC Address**

The Title Length field indicates the length of the following Title field in octets.

The Title field is a human readable title of the content as a UTF-8 string.