IEEE P802.11
Wireless LANs

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| Comment resolutions related to Common ANQP Group Version Number |
| Date: 2014-7-10 |
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Abstract

This contribution proposes resolutions to the CIDs : 4986, 4159, 4240, 4307, 4452,4543, 4280, 4307, 4452, 4543, 4546, 4582, 4636, 4673, 4124, 4985, 5199, 5013, 5056, 5079, 5081, 5082, 5083, 5096, 5097, 5124, 4955

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# Conventions

 ‘Track changes’ is used to show changes to revision D2.0.

# Proposed Changes to 802.11ai/D2.1 Specification Text

**CID 4159, P60, L7**

*Instruct the editor to make the following changes:*

Each ANQP-element can be returned in response to Query AP List ANQP-element using the procedures in 10.25.3.2.11 (Query AP List procedure).

**CID 4240, P41, L26**

*Instruct the editor to make the following changes:*

The Scope is a 1-octet field that indicates the valid scope of the information represented by the CAG version number.

A field value of 0 indicates that the CAG is only valid in the current BSS (identified by the BSSID value), a field value of 1 indicates that the CAG is only valid in the Homogeneous ESS (identified by the HSSID value), and a field value of 2 indicates that the CAG is valid for the ESS (union of BSSs with the same SSID). Field values of 3-255 are reserved.

Table 8-xxx- CAG Scope Validity

|  |  |
| --- | --- |
| **Scope**  | **CAG Scope Validity** |
| 0 | BSS |
| 1 | Homogenous ESS |
| 2 | ESS |
| 3-255 | Reserved |

**CID 4452, P41, L27**

*Instruct the editor to make the following changes:*

A field value of 0 indicates that the CAG is only valid in the current BSS (identified by the BSSID value), a field value of 1 indicates that the CAG is only valid in the Homogeneous ESS (identified by the

HSSID value), and a field value of 2 indicates that the CAG is valid for the ESS (union of BSSs with the same SSID).

**CID 4543, P41, L20**

*Instruct the editor to make the following changes:*

The CAG version is incremented by one every time the InfoIDs of the ANQP-elements within the CAG change or any value of the ANQP-element attributes within the CAG change. An example of such a change is the Neighbor Report.

CAG version number is always positive; therefore a value of zero in this field will be neglected by the receiving STA.

**CID 4546, CID 5079, P41, L30**

*Instruct the editor to make the following changes:*

A field value of 0 indicates that the CAG is only valid in the current BSS (identified by the BSSID value), a field value of 1 indicates that the CAG is only valid in the Homogeneous ESS (identified by the HSSID value), and a field value of 2 indicates that the CAG is valid for the ESS (union of BSSs with the same SSID).

**CID 4582, P61, L42**

*Instruct the editor to make the following changes:*

Such an approach allows the responding AP to provide, in a single response, ANQP information for several APs simultaneously, thus reducing the complexity of the network selection procedure and reducing the delay of FILS.

**CID 5199, P90, L27**

*Instruct the editor to make the following changes:*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| AP List Response  | 8.4.4.21 (APList ResponseANPQ-element) | S | T,R | T,R | \_ |

**CID 4124, CID 4673, CID 4955, CID 4985, CID 5056, CID 5082, CID 5096, P40, L63**

*Instruct the editor to make the following changes:*

*Add new paragraph 8.4.2.173.1 with CAG definition, move some text from the existing paragraph (P41, L18) to the new one as indicated below*.

8.4.2.173.1

"The Common ANQP Group (CAG) is a group of ANQP-element values, which are deemed to be values which do not change on a rapid basis. The CAG version number is a number that keep track of the changes in the CAG ANQP elements’ values or CAG’s composition. The CAG version number is incremented by one any time a CAG ANQP value changes, or an ANQP element, identified by its InfoID, is added or removed from CAG until the maximum value of 255 is reached. The valid values of CAG version number are positive integers, therefore when the maximum value (255) of CAG version number is reached, the CAG version number is changed to one (1)."

**P41, L18**

*Instruct the editor to make the following changes:*

The Element ID and Length fields are defined in 8.4.2.1 (General). The CAG version number is a 1-octet field whose value is an unsigned positive integer that indicates the version of the CAG. The Scope is a 1-octet field that indicates the valid scope of the information represented by the CAG version.

**CID 5083, P89, L59**

*Instruct the editor to make the following changes:*

A FILS STA should cache, for later use, the CAG version number available from an AP, and also caches the ANQP attributes and information corresponding to that CAG version. The STA caches the CAG version number and the values of BSSID, HESSID, or SSID associated with the responding AP.

**10.25.3.2.1 General**

***Insert the new paragraph at the beginning of this clause as follows:***

A FILS STA should store, for later use, the CAG version number available from an AP, and also store the ANQP attributes and information corresponding to that CAG version number. The STA caches the CAG version number and the values of BSSID, HESSID, or SSID associated with the responding AP. A STA uses this CAG version number to determine if the CAG changed from the last STA's visit to that AP. In order to reduce the network selection delay, if CAG version number is provided from the AP, a FILS STA should check the local cached CAG version number, to decide whether it should initiate an ANQP query for new information. If the received CAG version number equals the cached value of an CAG version associated with the corresponding value of BSSID, HESSID, or SSID for the AP, the STA shall not initiate an ANQP query request for any of the ANQP-elements of the CAG and shall use the stored ANQP attributes and information within that STA instead.

**10.25.3.2.12 CAG procedure**

The CAG is an ANQP-element used by a requesting STA to perform an ANQP Query to retrieve the Info

IDs contained within the CAG and the current CAG version number associated with these Info IDs. For this purpose a STA shall use the ANQP Query procedure defined in 10.25.3.2.1 (General). The requesting STA shall include in the ANQP Query the Info ID of the CAG ANQP-element as shown in Table 10-16 (ANQP usage). When an AP receives an ANQP Query List that contains the Info ID of CAG, the AP shall include in the response frame the CAG version and the Info IDs of the ANQP-elements that are comprised in the CAG in the increasing order of the Info ID values. The response frame should also include the (other) ANQP elements that a STA requested in the ANQP query list in the increasing order of the element ID values.

The CAG version number is a positive number that increases by 1 when there is any change in the CAG, including a change of the Info ID of the elements of the CAG or a change in the values of the ANQP elements included in the CAG. If a STA receives a value of zero for the CAG version number, the value will be discarded and no action should be taken.

**CID 4307, Table 10-16, P90, L32**

*Instruct the editor to make the following changes:*

**Table 10-16—ANQP usage**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Common Group** | **8.4.4.23** | **Q,S** | **T,R** | **T,R** | **-** |

**8.4.4.23 Common Group ANQP-element**

The CommonGroup ANQP-element provides the Info IDs for the ANQP-elements contained within a CAG and the current value of the CAG version number, indicating the version number of information within the CAG. The selection of the specific number of InfoIDs and the specific values of InfoIDs in CAG is left to the implementation and is beyond the scope of this document.



**Figure 8-545e—CommonGroup ANQP-element**

The Info ID is a 2-octet field whose value is equal to the value in Table 8-223 (ANQP-element definitions).

The Length field is a 2-octet unsigned positive number whose value is set to the length in octets of remaining fields.

The CAG version number is a 1-octet field and it indicates the current version of the CAG. The CAG version number changes when the CAG changes (either the Info IDs of the ANQP-elements contained in the CAG or any value of the attributes and information within those ANQPelements). The Info ID field is a 2-octets field whose value represents an ANQP-element Info ID specified in Table 8- 223 (ANQP-element definitions).