IEEE P802.11  
Wireless LANs

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| TGaq – ANQP update for Venue URL and Access Cost | | | | |
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Abstract

This document proposes to update ANQP with new elements for Venue URL and Access Cost information.

This uses Draft P802.11REVmc\_D3.2.pdf as a baseline together with proposed changes from the technical editor Adrian Stephens.

***Add the following reference to Annex A***

[B56] ISO 4217 currency codes, <http://www.currency-iso.org/en/home/tables/table-a1.html>

***Modify the table in the following clause as shown:***

* Access Network Query Protocol (ANQP) elements(11u)

|  |  |  |
| --- | --- | --- |
| Table 8-259 ANQP-element definitions  (11u) | | |
| ANQP-element name | Info ID | ANQP- (Ed)element (clause) |
| Reserved | 0 – 255 | n/a |
| Query List | 256 | 8.4.4.1 (Query List ANQP-element (11u)) |
| Capability List | 257 | 8.4.4.2 (Capabililty List ANQP-element (11u)) |
| Venue Name | 258 | 8.4.4.3 (Venue Name ANQP-element (11u)) |
| Emergency Call Number | 259 | 8.4.4.4 (Emergency Call Number ANQP-element (11u)) |
| Network Authentication Type | 260 | 8.4.4.5 (Network Authentication Type ANQP-element (11u)) |
| Roaming Consortium | 261 | 8.4.4.6 (Roaming Consortium ANQP-element (11u)) |
| IP Address Type Availability | 262 | 8.4.4.8 (IP Address Type Availability ANQP-element (11u)) |
| NAI Realm | 263 | 8.4.4.9 (NAI Realm ANQP-element(11u)) |
| 3GPP Cellular Network | 264 | 8.4.4.10 (3GPP Cellular Network ANQP-element(11u)) |
| AP Geospatial Location | 265 | 8.4.4.11 (AP Geospatial Location ANQP-element(11u)) |
| AP Civic Location | 266 | 8.4.4.12 (AP Civic Location ANQP-element(11u)) |
| AP Location Public Identifier URL | 267 | 8.4.4.13 (AP Location Public Identifier URL ANQP-element(11u)) |
| Domain Name | 268 | 8.4.4.14 (Domain Name ANQP-element(11u)) |
| Emergency Alert Identifier URL | 269 | 8.4.4.15 (Emergency Alert URL ANQP-element(11u)) |
| TDLS Capability(#13018) | 270 | 8.4.4.17 (TDLS Capability ANQP-element  (#13018)) |
| Emergency NAI | 271 | 8.4.4.16 (Emergency NAI ANQP-element(11u)) |
| Neighbor Report | 272 | 8.4.4.18 (Neighbor Report ANQP-element) |
| Venue URL | 273 | 8.4.4.20 (Venue URL ANQP-element) |
| Access Cost | 274 | 8.4.4.21 (Access Cost ANQP-element) |
| Reserved | 275 – 56796 | n/a |
| Vendor Specific | 56797 | 8.4.4.7 (Vendor Specific ANQP-element (11u)) |
| Reserved | 56798 – 65535 | n/a |

**8.4.4.4 Venue Name ANQP-element**

***Insert the following paragraph after the last paragraph***

A URL associated with the Venue can be specified by the Venue URL ANQP-element defined in 8.4.4.20

***Insert the following new subclauses***

**8.4.4.20 Venue URL ANQP-element**

The Venue URL ANQP-element specifies URLs which can be used for for webpage advertising services or providng information, particular to a venue, to a STA. The format of the Venue URL ANQP-element is defined in Figure 8-404aq

|  |  |  |  |
| --- | --- | --- | --- |
|  | Info ID | Length | Venue URL Duples |
| Octets: | 2 | 2 | variable |

**Figure 8-404aq – Venue URL ANQP-element format**

The Info ID and Length fields are defined in 8.4.4.1 (General).

The format of the Venue URL Duple field is shown in Figure 8-404aq1

|  |  |  |  |
| --- | --- | --- | --- |
|  | Length | Venue Number | Venue URL |
| Octets: | 1 | 1 | variable |

**Figure 8-404aq1 – Venue URL Duple field**

The Length is a 1-octet field whose value is set to 1 plus the number of octets in the Venue URL field.

The Venue Number is a 1-octet field whose value corresponds to the implicit returned order value of the corresponding Venue Name Duple returned in an Venue Name ANQP-element, as defined in 8.4.4.4. If no Venue Name Duples were returned in the Venue Name ANQP-element then this value is 0.

The Venue URL field is a variable-length field that indicates the URL at which information relevant to the corresponding Venue Name Duple, indicated by the Venue Number, might be retrieved. This is further described in 10.25.3.2.11. If no Venue URL is provided this field is left empty. The Venue URL field is formatted in accordance with IETF RFC 3986.

**8.4.4.21 Access Cost ANQP-element**

The Access Cost ANQP-element provides financial access cost information to a STA. The format of the Access Cost ANQP-element is defined in Figure 8-405aq

|  |  |  |  |
| --- | --- | --- | --- |
|  | Info ID | Length | Access Cost Duples |
| Octets: | 2 | 2 | variable |

**Figure 8-405aq – Access Cost ANQP-element format**

The Info ID and Length fields are defined in 8.4.4.1 (General).

The format of the Access Cost Duple field is shown in Figure 8-405aq1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Length | Access Cost Type | Language | Currency Code | Plan Information |
| Octets: | 1 | 1 | 3 | 3 | variable |

**Figure 8-405aq1 – Access Cost Duple field**

The Length field is a 1-octet field whose value is set to 7 plus the number of octets in the Plan Information field.

The Access Cost Type is a 1-octet field with the following values:

**Table 8-405 Access Cost Type field values**

|  |  |
| --- | --- |
| **Access Cost Type Value** | **Description** |
| 0 | Time-based |
| 1 | Data-volume-based |
| 2 | Time-and-data-volume-based |
| 3 | Unlimited |
| 4 | Unspecified |
| 5-255 | Reserved |

The Language Code is a 3-octet ISO-14962-1997 [B45] encoded string field that defines the

language used in the Cost Information field. The Language Code field is a two or three character

language code selected from ISO-639 [B44]. A two character language code has 0 (“null” in ISO-

14962-1997) appended to make it 3 octets in length.

The Currency Code is a 3-octet string (e.g. “USD”) represening an ISO 4217 currency numeric code [B56]

The Plan Information is a variable length UTF-8 formatted field that carries an XML description of an access cost plan. The UTF-8 format is defined in IETF RFC 3629. The schema and semantics of this description are outside the scope of this standard.

As ANQP-elements are transmitted in the clear, prior to STA association, protected dual of public action frame should be used after association to verify this information.

***Modify the text and table in the following clause:***

* + - 1. ANQP procedures(11u)
         1. General(Ed)

…

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 10-16 ANQP usage (11u) | | | | | |
|  | |  | BSS | | IBSS |
| ANQP-element Name | ANQP-element (subclause)(Ed) | ANQP-element Type | AP | Non-AP STA | STA |
| Query List | 8.4.4.1 (Query List ANQP-element (11u)) | Q | T, R | T, R | T, R |
| Capabililty List | 8.4.4.2 (Capabililty List ANQP-element(11u)) | S | T, R | T, R | T, R |
| Venue Name | 8.4.4.3 (Venue Name ANQP-element (11u)) | S | T | R | — |
| Emergency Call Number | 8.4.4.4 (Emergency Call Number ANQP-element (11u)) | S | T | R | — |
| Network Authentication Type | 8.4.4.5 (Network Authentication Type ANQP-element(11u)) | S | T | R | — |
| Roaming Consortium | 8.4.4.6 (Roaming Consortium ANQP- element(11u)) | S | T | R | — |
| Vendor Specific | 8.4.4.7 (Vendor Specific ANQP-element(11u)) | Q, S | T, R | T, R | T, R |
| IP Address Type Availability | 8.4.4.8 (IP Address Type Availability ANQP-element (11u)) | S | T, R | T, R | T, R |
| NAI Realm | 8.4.4.9 (NAI Realm ANQP-element(11u)) | S | T | R | T, R |
| 3GPP Cellular Network | 8.4.4.10 (3GPP Cellular Network ANQP-element(11u)) | S | T | R | — |
| AP Geospatial Location | 8.4.4.11 (AP Geospatial Location ANQP-element(11u)) | S | T | R | T, R |
| AP Civic Location | 8.4.4.12 (AP Civic Location ANQP-element(11u)) | S | T | R | T, R |
| (#13006)AP Location Public Identifier URL | 8.4.4.13 (AP Location Public Identifier URL ANQP-element(11u)) | S | T | R | T, R |
| Domain Name | 8.4.4.14 (Domain Name ANQP-element(11u)) | S | T | R | — |
| Emergency Alert Identifier URL | 8.4.4.15 (Emergency Alert URL ANQP-element(11u)) | S | T | R | T, R |
| TDLS Capability (#13018) | 8.4.4.18 (TDLS Capability ANQP-element) | Q, S | T,R | T,R | T, R |
| Emergency NAI | 8.4.4.16 (Emergency NAI ANQP-element(11u)) | S | T | R | — |
| Neighbor Report | 8.4.4.19 (Neighbor Report ANQP-element) | S | T | R | - |
| Venue URL | 8.4.4.20 (Venue URL ANQP-element) | S | T | R | - |
| Access Cost | 8.4.4.21 (Access Cost ANQP-element) | S | T | R | - |
| **Symbols**  Q element is an ANQP query  S element is an ANQP response  T ANQP-element may be transmitted by MAC entity  R ANQP-element may be received by MAC entity  — ANQP-element is neither transmitted nor received by MAC entity | | | | | |

***Insert the following new subclauses***

**10.25.3.2.11 Venue URL procedure**

The Venue URL ANQP-element is used to transmit webpage advertising services or information particular to the venue between STAs.

This ANQP-element is to be used in conjuction with the Venue Name ANQP-element, to provide extra information about the venue. Typical operation would be to use the Venue Name ANQP-element to determine the list of available venues advertised by a STA, and then the Venue URL ANQP-element is used, if required, to determine a list of venue URLs, each entry corresponding to the Venue Name entry in the list returned by the Venue Name ANQP-element.

**10.25.3.2.12 Access Cost procedure**

The Access Cost ANQP-element is used to transmit financial cost advertisments between STAs in the form of access cost plan information. This information may be of benefit to a receiving STA, or user of a receiving STA, in assisting with a financial decision about proceeding with access.

The use and operation of the Plan information schema are outside the scope of this standard.

As ANQP-elements are transmitted in the clear, prior to STA association, protected dual of public action frame should be used after association to verify this information.