IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Updates for the Advice of Charge and Network Authentication Type ANQP-elements | | | | |
| Date: 2016-07-13 | | | | |
| Author(s): | | | | |
| Name | Company | Address | Phone | email |
| Stephen McCann | BlackBerry Ltd | 200 Bath Road, Slough, Berkshire, SL1 3XE, UK | +44 1753 667099 | smccann@blackberry.com |

Abstract

This document proposes some updates to the “Advice of Charge” and “Network Authentication Type” ANQP messages based on feedback from the Wi-Fi Alliance Passport project.

This uses Draft P802.11REVmc\_D6.0.pdf as a baseline and proposes resolutions to CIDs 8048 and 8049.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 8049 | McCann, Stephen | 1099.53 | 9.4.5.21 | The Advice of Charge Duple field should be on a per realm basis, so that each authentication realm can advertise its own "roaming" charge. | Modify the Advice of Charge Duple field to be of the format: {realm, {exisiting advice of charge duples}}. Commentor will provide a submission. |
| 8048 | McCann, Stephen | 1088.45 | 9.4.5.6 | Currently there is no timestamp in the ANQP Network Authentication Type message. Therefore a device does not know if the advertisemed terms and conditions (Network Authentication Type Indicator = 0) are out of date or not, since a previsou visit. | Add a timestamp to the Network Authentication Type Tuple subfield.  However, if it is felt that this causes backward compatability issues with existing ANQP implementations, a new ANQP-element may need to be defined. Commentor will provide a submission. |

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

* + 1. Access Network Query Protocol (ANQP) elements(11u)

|  |  |  |
| --- | --- | --- |
| Table 9-271 ANQP-element definitions  (11u) | | |
| ANQP-element name | Info ID | ANQP- (Ed)element (clause) |
| Reserved | 0 – 255 | n/a |
| … | … | … |
| Network Authentication Type with Time | <ANA> | 9.4.5.23 (Network Authentication Type with Time ANQP-element) |
| Reserved | <ANA+1> – 56796 | n/a |
| Vendor Specific | 56797 | 8.4.5.8 (Vendor Specific ANQP-element) |
| Reserved | 56798 – 65535 | n/a |

***Modify the following subclause***

**9.4.5.21 Advice of Charge ANQP-element**

The Advice of Charge ANQP-element provides a list of one or more financial advice of charges related to access to a BSS. The format of the Advice of Charge ANQP-element is defined in Figure 9-622.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Info ID | Length | Advice of Charge Duples |
| Octets: | 2 | 2 | variable |

**Figure 9-622 – Advice of Charge ANQP-element format**

The Info ID and Length fields are defined in 9.4.5.1 (General).

The Advice of Charge Duples field contains one or more Advice of Charge Duple fields as shown in Figure 9-623

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Length | Advice of Charge Type | NAI  Realm  Encoding | NAI  Realm  Length | NAI  Realm | Language | Currency Code | Plan Information |
| Octets: | 1 | 1 | 1 | 1 | variable | 3 | 3 | variable |

**Figure 9-623 – Advice of Charge Duple field**

The Length field is a 1-octet field whose value is set to 9 plus the number of octets in the NAI Realm and Plan Information fields.

The Advice of Charge Type field is a 1-octet field with the values defined in Table 9-278 (Advice of Charge

Type field values)

**Table 9-278 Advice of Charge Type field values**

|  |  |
| --- | --- |
| **Advice of Charge Type Value** | **Description** |
| 0 | Time-based |
| 1 | Data-volume-based |
| 2 | Time-and-data-volume-based |
| 3 | Unlimited |
| 4-255 | Reserved |

The NAI Realm Encoding, NAI Realm Length and NAI Realm fields are defined in 9.4.5.10.

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”) representing 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 Advice of Charge 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.

***Insert the following new subclause***

**9.4.5.23 Network Authentication Type with Time ANQP-element**

The Network Authentication Type with Time ANQP-element provides similar information to that of the Network Authentication Type as dfefined in 9.4.5.6. In addition, a time value field is optionally provided to indicate to the requesting STA a timestamp of the received information. With this timestamp, the requesting STA can determine if previsouly received information is stale.

The format of the Network Authentication Type with Time ANQP-element is shown in Figure 9-625a (Network Authentication with Time ANQP-element format).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Info ID | Length | Network Authentication Timestamp Tuples |
| Octets: | 2 | 2 | variable |

**Figure 9-625a – Network Authentication Type with Time ANQP-element format**

The Info ID and Length fields are defined in 9.4.5.1 (General).

The Network Authentication Timestamp Tuples field contains zero or more variable length Network

Authentication Timestamp Tuple subfields.

Each Network Authentication Timestamp Tuple subfield has the structure shown in Figure 9-625b (Network

Authentication Timestamp Tuple subfield format).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Network Authentication Type Indicator | Redirect URL Length | Redirect URL  (optional) | Time Value  (optional) |
| Octets: | 1 | 1 | variable | 0 or 10 |

**Figure 9-625b – Network Authentication Timestamp Tuple subfield format**

The Network Authentication Type Indicator field is defined in 9.4.5.6.

The Redirect URL Length field and the Redirect URL field are defined in 9.4.5.6.

The Time Value field is defined in Table 9-170 using the Timing Capability equal to 2 encoding. This field is used by the responding STA to set a time of the ANQP response.

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

* + - 1. ANQP procedures(11u)

11.25.3.2.1 General(Ed)

…

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 11-15 ANQP usage (11u) | | | | | |
|  | |  | BSS | | IBSS |
| ANQP-element Name | ANQP-element (subclause)(Ed) | ANQP-element Type | AP | Non-AP STA | STA |
| Network Authentication Type with Time | 9.4.5.23 (Network Authentication Type with Time 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 | | | | | |

***Modify the following subclause***

**10.25.3.2.12 Advice of Charge procedure**

The Advice of Charge ANQP-element is used to provide financial cost advertisements in the form of Advice of Charge plan information. The plan information is provided on a per NAI Realm basis, so that each authentication realm can advertise its own "roaming" charge. This information might assist with a decision about proceeding with access.

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

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