IEEE P802.11
Wireless LANs

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| Proposed resolution to CID 5072 |
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Abstract

This uses Draft P802.11REVmc\_D4.0.pdf as a baseline.

This submission proposes a resolution to CIDs 5072:

| **CID** | **Page** | **Clause** | **Resn Status** | **Comment** | **Proposed Change** | **Resolution** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 5072 | 1065 | 8.4.5.3 |  | The means used to describe a structure with varying counts of fields is awkward. | For each of the sequence of similar fields, replace by a single field. Describe that field as containing 1 or more, or zero or more of the subfields that comprise it.For example, the ANQP Capability sequence can be replaced by an "ANQP Capabilities" field. The description of this field is: "The ANQP Capabilities field contains one or more 2-octet ANQP Capability subfields." |  | MAC |

**Proposed Resolution.**

Revised: Incorporate the text changes in 11-15-1017r1. These changes implement the resolution direction suggested by the commentor.

***Change the text in the following clauses:***

**8.4.5.2 Query List ANQP-element**

The Query List ANQP-element provides a list of identifiers of ANQP-elements for which the requesting STA is querying. Each ANQP-element may be returned in response to an Query List ANQP-element using the procedures in 10.25.3.2.2 (Query List procedure)).

The format of the Query List ANQP-element is provided in Figure 8-580 (Query List ANQP-element format).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Info ID | Length | ANQP Query IDs | ~~…~~ | ~~ANQP Query ID #N~~~~(optional)~~ |
| Octets: | 2 | 2 | variable | ~~…~~ | ~~0 or 2~~ |

**Figure 8-580 – Query List ANQP-element format**

The Info ID and Length fields are defined in 8.4.5.1 (General).

The ANQP Query IDs field contains one or more 2-octet ANQP Query ID subfields.

Each ANQP Query ID subfield value is an Info ID drawn from Table 8-257 (ANQP-element definitions).

Including an Info ID in the Query List ANQP-element declares that the STA performing the ANQP query request is

requesting the ANQP-element corresponding to that Info ID be returned in the ANQP query response. The

Info IDs included in the Query List ANQP-element are ordered by monotonically increasing Info ID value.

The ANQP query response is defined in 10.25.3.2.1 (General).

**8.4.5.3 Capability List ANQP-element**

The Capability List ANQP-element provides a list of information/capabilities that has been configured on a

STA. The Capability List ANQP-element is returned in response to a Query List ANQP-element containing

the Info ID of the Capabililty List ANQP-element.

The format of the Capability List ANQP-element is provided in Figure 8-581 (Capability List ANQP-element

format).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Info ID | Length | ANQP Capabilities | ~~…~~ | ~~ANQP Capability #N~~~~(optional)~~ | VendorSpecificANQP-elements | ~~…~~ | ~~Vendor~~~~Specific~~~~ANQP-element #N~~~~(optional)~~ |
| Octets: | 2 | 2 | variable | ~~…~~ | ~~0 or 2~~ | variable | ~~…~~ | ~~variable~~ |

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**Figure 8-581 – Capability List ANQP-element format**

The Info ID and Length fields are defined in 8.4.5.1 (General).

The ANQP Capabilities field contains one or more 2-octet ANQP Capability subfields.

Each ANQP Capability subfield value is an Info ID drawn from Table 8-257 (ANQP-element definitions). If

included in the Capability List ANQP-element, it declares that a Query List ANQP-element including that

Info ID will return the requested ANQP-element. The Info ID for Capability List ANQP-element is always

included in the Capability List ANQP-element returned in a GAS Query Response. The list does not include

any duplicate Info IDs, except possibly the Info ID for each Vendor Specific ANQP-element. The Info IDs

returned in the Capability List ANQP-element are ordered by nondecreasing Info ID value.

The Vendor Specific ANQP-elements field contains one or more variable length Vendor Specific ANQP-elements.

The Vendor Specific ANQP-element is defined in 8.4.5.8 (Vendor Specific ANQP-element). The Vendor

Specific ANQP-element is structured such that the first 2 octets of the Vendor Specific ANQP-element is the

Info ID whose value corresponds to the Vendor Specific ANQP-element (see Table 8-257 (ANQP-element

definitions)). When a Vendor Specific ANQP-element is present in the Capability List ANQP-element, the

Vendor Specific ANQP-element element contains the capabilities of that vendor-specific query protocol.

**8.4.5.4 Venue Name ANQP-element**

The Venue Name ANQP-element provides zero or more venue names associated with the BSS. The format

of the Venue Name ANQP-element is shown in Figure 8-582 (Venue Name ANQP-element format). The

Venue Name ANQP-element may be used to provide additional metadata on the BSS. For example, the

information may be used to assist a user in selecting the appropriate BSS with which to associate. Zero or

more Venue Name fields may be included in the same or different languages.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Info ID | Length | Venue Info | Venue Name Tuples  | ~~…~~ | ~~Venue Name Duple #N~~~~(optional)~~ |
| Octets: | 2 | 2 | 2 | variable | ~~…~~ | ~~variable~~ |

**Figure 8-582 – Venue Name ANQP-element format**

The Info ID and Length fields are defined in 8.4.5.1 (General).

The Venue Info field is a 2-octet field and is defined in 8.4.1.34 (Venue Info field).

The Venue Name Tuples field contains zero or more variable length Venue Name Tuple subfields.

The format of the Venue Name Tuple subfield is shown in Figure 8-583 (Venue Name Tuple subfield).

***Change all occurances of “Venue Name Duple field” to “Venue Name Tuple subfield”***

**<other un-changed text in this clause is not shown>**

**8.4.5.5 Emergency Call Number ANQP-element**

The Emergency Call Number ANQP-element provides a list of emergency phone numbers to an emergency responder, such as directed by a public safety answering point (PSAP), that is used in the geographic location of the STA.

The format of the Emergency Call Number ANQP-element is provided in Figure 8-584 (Emergency Call Number ANQP-element format).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Info ID | Length | Emergency Call Number Duples | ~~…~~ | ~~Emergency Call Number Unit #N~~~~(optional)~~ |
| Octets: | 2 | 2 | variable | ~~…~~ | ~~variable~~ |

**Figure 8-584 – Emergency Call Number ANQP-element format**

The Info ID and Length fields are defined in 8.4.5.1 (General).

The Emergency Call Number Duples field contains zero or more variable length Emergency Call Number Duple subfields.

Each Emergency Call Number Duple subfield has the structure shown in Figure 8-585 (Emergency Call Number

Duple subfield format).

***Change all occurances of “Emergency Call Number Unit field” to “Emergency Call Number Duple subfield”***

**<other un-changed text in this clause is not shown>**

**8.4.5.6 Network Authentication Type ANQP-element**

The Network Authentication Type ANQP-element provides a list of authentication types when ASRA is set to 1. The format of the Network Authentication Type ANQP-element is shown in Figure 8-586 (Network Authentication Type ANQP-element format).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Info ID | Length | NetworkAuthenticationType Tuples | ~~…~~ | ~~Network~~~~Authentication~~~~Type Unit #N~~~~(optional)~~ |
| Octets: | 2 | 2 | variable | ~~…~~ | ~~variable~~ |

**Figure 8-586 – Network Authentication Type ANQP-element format**

The Info ID and Length fields are defined in 8.4.5.1 (General).

The Network Authentication Type Tuples field contains zero or more variable length Network Authentication Type Tuple subfields.

Each Network Authentication Type Tuple subfield has the structure shown in Figure 8-587 (Network Authentication

Type Tuple subfield format).

***Change all occurances of “Network Authentication Type Unit field” to “Network Authentication Type Tuple subfield”***

**<other un-changed text in this clause is not shown>**

**8.4.5.7 Roaming Consortium ANQP-element**

The Roaming Consortium ANQP-element provides a list of information about the Roaming Consortium and/or SSPs whose networks are accessible via this AP. This list may be returned in response to a GAS Query using procedures in 10.25.3.2.3 (Roaming Consortium procedure). The format of the Roaming Consortium ANQP-element is provided in Figure 8-588 (Roaming Consortium ANQP-element format).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Info ID | Length | OI Duples | ~~…~~ | ~~OI Duple #N~~~~(optional)~~ |
| Octets: | 2 | 2 | variable | ~~…~~ | ~~variable~~ |

**Figure 8-588 – Roaming Consortium ANQP-element format**

The OI Duples field contains zero or more variable length OI Duple subfields.

The format of the OI Duple subfield is provided in Figure 8-589 (OI Duple subfield format).

***Change all occurances of “OI Duple field” to “OI Duple subfield”***

**<other un-changed text in this clause is not shown>**

**8.4.5.10 NAI Realm ANQP-element**

The NAI Realm ANQP-element provides a list of network access identifier (NAI) realms corresponding to

SSPs or other entities whose networks or services are accessible via this AP; optionally included for each

NAI realm is a list of one or more EAP Method subfields, which that NAI realm uses for authentication. The

format of the NAI Realm ANQP-element is provided in Figure 8-593 (NAI Realm ANQP-element format).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Info ID | Length | NAI Realm Count | NAI RealmTuples | ~~…~~ | ~~NAI Realm~~~~Data #N~~~~(optional)~~ |
| Octets: | 2 | 2 | 2 | variable | ~~…~~ | ~~variable~~ |

**Figure 8-593 – NAI Realm ANQP-element format**

The Info ID and Length fields are defined in 8.4.5.1 (General).

The NAI Realm Count field is a 2-octet field that specifies the number of NAI Realms included in the NAI

Realm ANQP-element.

The NAI Realm Tuples field contains zero or more variable length NAI Realm Tuple subfields.

The format of the NAI Realm Tuple subfield is shown in Figure 8-594 (NAI Realm Tuple subfield format).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | NAIRealm Data Field Length | NAIRealm Encoding | NAIRealm Length | NAIRealm | EAPMethodCount | EAPMethodTuples | ~~…~~ | ~~EAP~~~~Method~~~~#N~~~~(optional)~~ |
| Octets: | 2 | 1 | 1 | variable | 1 | variable | ~~…~~ | ~~variable~~ |

**Figure 8-594 – NAI Realm Tuple subfield format**

The NAI Realm Data Field Length is a 2-octet subfield whose value is equal to 3 plus the length of the NAI

Realm subfield plus the sum of the lengths of the EAP Method subfields.

The NAI Realm Encoding is a 1-octet subfield whose format is shown in Figure 8-595 (NAI Realm

Encoding subfield format).



The NAI Realm Encoding Type is a 1-bit subfield. It is set to 0 to indicate that the NAI Realm in the NAI

Realm subfield is formatted in accordance with IETF RFC 4282. It is set to 1 to indicate it is a UTF-8

formatted character string that is not formatted in accordance with IETF RFC 4282.

NOTE—This encoding is to facilitate roaming consortium or other entities that use nonstandard NAI Realm formats.

NAI Realm Length subfield is a 1-octet subfield whose value is the length in octets of the NAI Realm

subfield.

The NAI Realm subfield is one or more NAI Realms formatted as defined in the NAI Realm Encoding Type

bit of the NAI Realm Encoding subfield. If there is more than one NAI Realm in this subfield, the NAI

Realms are delimited by a semi-colon character (i.e., “;”, which is encoded in UTF-8 format as 0x3B). All of

the realms included in the NAI Realm subfield support all of the EAP methods identified by the EAP

Method subfields, if present. The maximum length of this subfield is 255 octets.

The EAP Method Count specifies the number of EAP methods subfields for the NAI realm. If the count is 0,

there is no EAP method information provided for the NAI realm.

The EAP Method Tuples field contains zero or more variable length EAP Method Tuple subfields.

The format of the optional EAP Method Tuple subfield is shown in Figure 8-596 (EAP Method Tuple subfield format).

Each EAP Method Tuple subfield contains a set of Authentication Parameters associated with the EAP Method.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Length | EAP Method | AuthenticationParameterCount | AuthenticationParameters | ~~…~~ | ~~Authentication~~~~Parameter #N~~~~(optional)~~ |
| Octets: | 1 | 1 | 1 | variable | ~~…~~ | ~~variable~~ |

**Figure 8-596 – EAP Method Tuple subfield format**

The Length subfield is a 1-octet subfield whose value is equal to 2 plus the length of the Authentication

Parameter subfields.

The EAP Method subfield is a 1-octet subfield that is set to the EAP Type value as given in IANA EAP

Method Type Numbers.

The Authentication Parameter Count indicates how many additional Authentication Parameter subfields are

specified for the supported EAP Method. If the Authentication Parameters Count subfield is 0, there are no

Authentication Parameters subfields present, meaning no additional Authentication Parameters are specified

for the EAP Method.

The Authentication Parameters field contains zero or more variable length Authentication Parameter subfields.

The format of the Authentication Parameter subfield is shown in Figure 8-597 (Authentication Parameter

subfield format).

**<other un-changed text in this clause is not shown>**

**8.4.5.15 Domain Name ANQP-element**

The Domain Name ANQP-element provides a list of one or more domain names of the entity operating the

IEEE 802.11 access network. Domain Names in this ANQP-element are taken from dot11DomainNameTable.

The format of the Domain Name ANQP-element is provided in Figure 8-602 (Domain Name ANQP-element format).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Info ID | Length | DomainName Duples | ~~…~~ | ~~Domain~~~~Name~~~~field #N~~~~(optional)~~ |
| Octets: | 2 | 2 | variable | ~~…~~ | ~~variable~~ |

**Figure 8-602 – Domain Name ANQP-element format**

The Domain Name Duples field contains zero or more variable length Domain Name Duple subfields.

The format of the Domain Name Duple subfield is shown in Figure 8-603 (Domain Name Duple subfield format).



**Figure 8-603 – Domain Name Duple subfield format**

The Length subfield is a 1-octet subfield whose value is set to the length in octets of the Domain Name

subfield.

The Domain Name subfield is of variable length and contains a domain name compliant with the “Preferred

Name Syntax” as defined in IETF RFC 1035. The maximum length of this field is 255 octets.