IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Corrections to QoS Map Set Clauses 8.4.2.94 and 10.25.9 | | | | |
| Date: 2014-03-19 | | | | |
| Author(s): | | | | |
| Name | Company | Address | Phone | email |
| Stephen McCann | Blackberry | 200 Bath Road, Slough, SL1 3XE, UK | +44 1753 667099 | [smccann@blackberry.com](mailto:smccann@blackberry.com) |
| Mark RISON | Samsung | SJH, CB4 0DS, UK |  | [m.rison@samsung.com](mailto:m.rison@samsung.com) |

Abstract

During the creation of test events for the Wi-Fi Alliance Hotspot 2.0 program, several editorial errors were discovered in the QoS Map Set element definition in clauses 8.4.2.94 and 10.25.9. This submission contains a proposal to resolve these errors and clarify the text.

***Change all occurrences of MLME-QoSMap to MLME-QOSMAP***

***The proposed modifications are in reference to the text*** ***in IEEE P802.11REVmc/D2.3 and are indicated by the change marks as follows:***

**8.4.2.94 QoS Map Set element**

The QoS Map Set element is transmitted from an AP to a non-AP STA in a (Re)Association Response frame or a QoS Map Configure frame and provides the mapping of higher layer quality-of-service constructs, specifically the DSCP field used by the Internet Protocol, to UPs of Data frames in this standard. The QoS Map Set element is shown in Figure 8-403.

The Element ID and Length fields are defined in 8.4.2.1.

DSCP Exception fields are optionally included in the QoS Map Set. If included, the QoS Map Set has a

maximum of 21 DSCP Exception fields. The format of the DSCP Exception field is shown in Figure 8-404.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |
| Element ID | Length | DSCP Exception #1 (optional) | … | DSCP Exception #n (optional) | UP 0  DSCP Range | UP 1  DSCP Range | UP 2  DSCP Range | … | UP 7  DSCP Range |
| Octets: | 1 | 0 or 2 |  | 0 or 2 | 2 | 2 | 2 |  | 2 |

**Figure 8-403—QoS Map Set element format**

|  |  |
| --- | --- |
|  |  |
| DSCP value | UP value |
| Octets : 1 | 1 |

**Figure 8-404—DSCP Exception field format**

The DSCP value in a DSCP Exception field is in the range 0 to 63, or 255. No two DSCP Exception fields with a DSCP value other than 255 have the same DSCP value. If the DSCP value is equal to 255, then that DSCP Exception field is not used when matching. The UP value is in the range 0 to 7.

DSCP Range fields, indexed by each of the 8 UPs, are included in the QoS Map Set. The format of the DSCP Range field is shown in Figure 8-405.

|  |  |
| --- | --- |
|  |  |
| Low value | High value |
| Octets : 1 | 1 |

**Figure 8-405—DSCP Range field format**

The Low and High values in a DSCP Range field are in the range 0 to 63, or both 255. No two DSCP Range fields with Low and High values other than 255 have overlapping ranges. The High value is greater than or equal to the Low value. If the High value and Low value are both equal to 255, then that DSCP Range field is not used when matching.

**10.25.9 Interworking procedures: support for QoS mapping from external networks**

Maintaining proper end-to-end QoS is an important factor when providing interworking service. This is

because the external networks might employ different network-layer (Layer 3) QoS practices. For example,

the use of a particular differentiated services code point (DSCP) for a given service might be different

between different networks. To provide proper QoS over-the-air in the IEEE Std 802.11 infrastructure, the mapping from DSCP to UP for the corresponding network needs to be identified and made known to the STAs. If an inconsistent mapping is used then:

— Admission control at the AP might incorrectly reject a service request, because the non-AP STA used

the incorrect UP.

— Non-AP STAs might use the incorrect value for UP in TSPEC and TCLAS elements.

— The user might be given a different QoS over the IEEE Std 802.11 network than expected, e.g.,

a lower QoS might be provided than the STA expected.

Therefore, STAs in an infrastructure BSS with dot11QosMapActivated equal to true shall set the QoS Map field in the Extended Capabilities element to 1; other STAs shall set the QoS Map field in the Extended Capabilities element to 0.

STAs that have the QoS Map field in their Extended Capabilities element equal to 1 shall behave as follows:

The STA’s SME causes the QoS Map Set (received during association at the non-AP STA or otherwise set at the AP) to be available to higher layer protocols or applications so they will be able to set the correct priority in MA-UNITDATA.request primitives.

An AP receiving an Association Request frame or Reassociation Request frame where the QoS Map field in the Extended Capabilities element is equal to 1 shall include the QoS Map Set element in the corresponding Association Response frame or Reassociation Response frame as defined in 8.3.3.6 or 8.3.3.8 respectively. Within the same BSS, these response frames include the same QoS Map Set element.

If the STA is an AP and begins transmission of an IP datagram, and the transmission matches the TCLAS element(s) of an admitted TS, it shall use the UP value from the TCLAS element(s) for transmission of the Data frame(s) containing the IP datagram.

Otherwise, when the STA begins transmission of an IP datagram, it shall attempt to match the 6-bit DSCP field value in the IP header to a corresponding DSCP value contained in this element:

— The STA shall first attempt to match the DSCP field value in the IP header to the DSCP value in a DSCP Exception field.

— If a match is found, it shall use the UP value from that DSCP Exception field for transmission of the Data frame(s) containing the IP datagram.

— If no match is found, then the STA shall attempt to match the DSCP field value in the IP header to a DSCP Range field with a Low value less than or equal to the DSCP field value and a High value greater than or equal to the DSCP field value.

* If a match is found, it shall use the UP value equal to the index of that DSCP Range field.

— If no match is found, it shall use the UP value 0.

When the QoS mapping information changes at the AP, the SME shall issue an MLME-QOSMAP.request primitive to the MLME. In response, the MLME shall cause a QoS Map Configure frame to be sent by the MAC entity to each associated STA. The SME shall also cause the new QoS Map Set to be available to higher layer protocols or applications so they will be able to set the correct priority in MA-UNITDATA.request primitives.

When the MAC entity at the non-AP STA receives a QoS Map Configure frame from the AP, the MLME

shall issue an MLME-QOSMAP.indication primitive to the SME. In response, the SME shall cause the new QoS Map Set to be available to higher layer protocols or applications so they will be able to set the correct priority in MA-UNITDATA.request primitives.

**References:**

1. IEEE P802.11REVmc/D2.3, Draft standard for information technology – telecommunications and information exchange between systems – local and metropolitan area networks – specific requirements – Part 11: Wireless LAN medium access control (MAC) and physical layer (PHY) specifications