IEEE P802.22
Wireless RANs

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| Management Message for Group Resource Allocation Update (GRA-UPD) |
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Abstract

This document proposes the management message to update the group resource allocation.

 **1. Background**

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The proposed group resource allocation (GRA) is proposed to meet two requirements in the Functional Requirements Document (22-12-0012r3). First, requirement #3 is regarding the device classes and complexity. Here, we have to support at least two classes of CPE with different complexity. The proposed group resource allocation is efficiently designed to support different classes of CPE. Second, requirement #5 is regarding the number of devices. Here, we have to support many number of devices, at least 2048 CPEs. In the network with several thounds of devices, we can significantly reduce the MAP overhead by using the proposed group resource allocation

**2. Suggested text**

1. 1. Management Messages

As can be seen in 281HTable 19, the MAC defines a collection of management messages to support and implement its basic functions. All these messages are carried in the payload of a MAC PDU, and share the same message structure as depicted in 282HFigure 15. Management messages begin with a Type field that uniquely identifies the message in question, while its payload varies according to the message type. As for transmission, management messages can only be transmitted in Initial Ranging, Basic, Primary, Multicast Management, or Broadcast type of FIDs (see 283HTable 279, 284HTable 280, and 285HTable 281). No other types of FIDs shall carry management messages.



Figure 15 — General management message structure

Each of the management messages shown in 286HTable 19 are described in the following subclauses.

1. a— Management messages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type** | **Message** | **Description** | **Reference** | **Class of connection** |
| 0 | DCD | Downstream Channel Descriptor | 287H7.7.1 | Broadcast |
| 1 | DS-MAP | Downstream Access Definition | 288H7.7.2 | Broadcast |
| 2 | UCD | Upstream Channel Descriptor | 289H7.7.3 | Broadcast |
| 3 | US-MAP | Upstream Access Definition | 290H7.7.4 | Broadcast |
| 4 | RNG-REQ | Ranging Request | 291H7.7.5 | Initial Ranging or Basic |
| 5 | RNG-CMD | Ranging Command | 292H7.7.6 | Initial Ranging or Basic |
| 6 | REG-REQ | Registration Request | 293H7.7.7.1 | Primary Management |
| 7 | REG-RSP | Registration Response | 294H7.7.7.2 | Primary Management |
| 8 | DSA-REQ | Dynamic Service Addition Request | 295H7.7.8.1 | Primary Management |
| 9 | DSA-RSP | Dynamic Service Addition Response | 296H7.7.8.2 | Primary Management |
| 10 | DSA-ACK | Dynamic Service Addition Acknowledge | 297H7.7.8.3 | Primary Management |
| 11 | DSC-REQ | Dynamic Service Change Request | 298H7.7.8.4 | Primary Management |
| 12 | DSC-RSP | Dynamic Service Change Response | 299H7.7.8.5 | Primary Management |
| 13 | DSC-ACK | Dynamic Service Change Acknowledge | 300H7.7.8.6 | Primary Management |
| 14 | DSD-REQ | Dynamic Service Deletion Request | 301H7.7.8.7 | Primary Management |
| 15 | DSD-RSP | Dynamic Service Deletion Response | 302H7.7.8.8 | Primary Management |
| 16 | DSX-RVD | Dynamic Service Request acknowledgement before authentication | 303H7.7.8.10 | Primary Management |
| 17 | MCA-REQ | Multicast Assignment Request | 304H7.7.9 | Primary Management |
| 18 | MCA-RSP | Multicast Assignment Response | 305H7.7.10 | Primary Management |
| 19 | CBC-REQ | CPE Basic Capability Request | 306H7.7.11.1 | Basic |
| 20 | CBC-RSP | CPE Basic Capability Response | 307H7.7.11.2 | Basic |
| 21 | DREG-CMD | De/Re-register Command | 308H7.7.12 | BasicPrimary Management |
| 22 | DREG-REQ | CPE De-registration Request | 309H7.7.13 | Primary Management |
| 23 | ARQ-Feedback | Standalone ARQ Feedback | 310H7.7.14 | Primary Management |
| 24 | ARQ-Discard | ARQ Discard | 311H7.7.15 | Primary Management |
| 25 | ARQ-Reset | ARQ Reset | 312H7.7.16 | Primary Management |
| 26 | CHS-REQ | Channel Switch Request | 313H7.7.17.1 | Primary Management or Broadcast |
| 27 | CHS-RSP | Channel Switch Response | 314H7.7.17.2 | Primary Management |
| 28 | CHQ-REQ | Channel Quiet Request | 315H7.7.17.3 | Primary Management, Multicast Management or Broadcast |
| 29 | CHQ-RSP | Channel Quiet Response | 316H7.7.17.4 | Primary Management, Multicast Management or Broadcast |
| 30 | IPC-UPD | Incumbent Prohibited Channels Update | 317H7.7.17.4 | Primary Management, Multicast Management or Broadcast |
| 31 | BLM-REQ | Bulk Measurement Request | 318H7.7.18.1 | Primary Management, Multicast Management or Broadcast |
| 32 | BLM-RSP | Bulk Measurement Response | 319H7.7.18.2 | Primary Management |
| 33 | BLM-REP | Bulk Measurement Report | 320H0 | Primary Management |
| 34 | BLM-ACK | Bulk Measurement Acknowledgement | 321H7.7.18.4 | Primary Management |
| 35 | TFTP-CPLT | Config File TFTP Complete | 322H0 | Primary Management |
| 36 | TFTP-RSP | Config File TFTP Complete Response | 323H0 | Primary Management |
| 37 | SCM-REQ  | Security Control Management Request | 324H0 | Primary Management |
| 38 | SCM-RSP  | Security Control Management Response | 325H0 | Primary Management |
| 39 | FRM\_UPD | The first active frame allocation update in self-coexistence mode | 326H7.7.22 | Basic |
| 40 | CBP -RLY | CBP Relay | 327H7.7.23 | Primary Management, Multicast Management  |
| 41 | GRA-CFG | Group Resource Allocation Configuration | 7.7.25 |  |
| 42 | GRA-UPD | Group Resource Allocation Update | 7.7.26 |  |

Subclauses 7.7.1 to 7.7.24 are same as IEEE 802.22-2011 standard.

Subclase 7.7.25 is the prposed management message for group resource allocation configuration (GRA-CFG)

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		2. Group Resource Allocation Update (GRA-UPD)

The format of Group Resource Allocation Update message is shown in Table 175. This message is used to update the group resource allocation configuration. ~~The BS uses this message to create a new group and indicate the devices that is belonging to a group.~~ The device can be added to or deleted from a group.

1. — GRA-UPD message format

|  |  |  |
| --- | --- | --- |
| **Syntax** | **Size** | **Notes** |
| GRA-UPD\_Message\_Format() { |  |  |
| Management Message Type = 42 | 8 bits |  |
| Deletion Flag | 1 | Flag to indicate whether the device is added to or deleted from a group.0: Added to a group1: Deleted from a group |
| SID | 9 | Station ID that is added to or deleted from a group. |
| GID | 12 | Group ID to which the device is added to or deleted from a group. |
| If(Deletion Flag = 0) { |  |  |
| Device Bitmap Index | 7 | Indicates the new index of the device in a group’s device bitmap. |
| } |  |  |
| } |  |  |