**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | **Proposed Comment Resolutions for Service ID related comments** | |
| Date Submitted | 11 Nov 2015 | |
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| Re: | Proposed comment resolutions related to Service ID. | |
| Abstract | This document provides a proposed comment resolutions for the comments which are related to TC of D2 of 802.15.10 | |
| Purpose | To propose | |
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* ***Insert a parameter of ServiceID in L2RLME-JOIN-MESH.request primitive.***
* ***Modify the Table 24 as follows.***

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid Range** | **Description** |
| ServiceID | Integer | 0x00 – 0xff | Identifies the service whose L2R mesh the device is going to join to. |
| MeshRootAddress | Address | Short address or EUI-64 | Indicates the address of the mesh root whose L2R mesh the device should join. If its value is set to 0xffff or 0xffffffffffffffff, the node may join any L2R mesh that have the service indicated by ServiceID. |

* ***Insert the following row in Table 42 to define a new attribute.***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Type** | **Range** | **Description** | **Default** |
| l2rMeshSelection | Boolean | TRUE, FALSE | If TRUE, the L2R sublayer manages the mesh selection/switch.  If FALSE, the L2R sublayer delivers the result of the received TC IE to the NHL. The NHL selects the mesh to join. The L2R informs the NHL whenever a TC IE with a better PQM. The NHL may request the L2R to switch mesh | TRUE |

* ***Modify Table of L2RLM-NOTIFY.indication parameters as follows.***

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid Range** | **Description** |
| Notification | Enumeration | ROOT\_CONFLICT, BETTER\_MESH\_DETECT | Notifies the next higher layer of an event at the L2R sublayer |

If an L2R router within an SL2R receives an L2R-D IE where the mesh root address does not match the mesh root address recorded in its MT, the Notification is set to ROOT\_CONFLICT.

If an L2R node receives a TC IE belonged to a mesh other than the current mesh with a better PQM, the Notification is set to BETTER\_MESH\_DETECT.

* ***Add new primitive definitions as follows***

**7.1.1.x L2RLME-MESH-DISCOVERY.request**

L2RLME-MESH-DISCOVERY.request (

ScanDuration,

SecurityLevel,

KeyIdMode,

KeySource,

KeyIndex,

)

The parameters of the primitive are defined in Table xx.

Table xx-L2RLME-MESH-DISCOVERY.request parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid Range** | **Description** |
| ScanDuration | Integer | As defined in Table 82 in IEEE P802.15.4-D00 | As defined in Table 82 in IEEE P802.15.4-D00. |
| SecurityLevel | Integer | As defined in Table 127 in IEEE P802.15.4-D00 | As defined in Table 127 in IEEE P802.15.4-D00. |
| KeyIdMode | Integer | As defined in Table 127 in IEEE P802.15.4-D00 | As defined in Table 127 in IEEE P802.15.4-D00. |
| KeySource | Set of 0, 4 or 8 octets | As defined in Table 127 in IEEE P802.15.4-D00 | As defined in Table 127 in IEEE P802.15.4-D00. |
| KeyIndex | Integer | As defined in Table 127 in IEEE P802.15.4-D00 | As defined in Table 127 in IEEE P802.15.4-D00. |

**7.1.1.x L2RLME-MESH-DISCOVERY.confirm**

L2RLME-MESH-DISCOVERY.confirm (

Status

)

The parameters of the primitive are defined in Table xx.

Table xx-L2RLME-MESH-DISCOVERY.confirm parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid Range** | **Description** |
| Status | ENUMERATION | SUCCESS, IN-VALID\_PARAME-TER, NO\_ MESH, MAC transmission error codes | The result of invoking an L2RLME-MESH-ISCOVEARY.request primitive. |

**7.1.1.x L2RLME-MESH-SELECT.request**

L2RLME-MESH-SELECT.request (

MeshRootAddress

)

The parameters of the primitive are defined in Table xx.

Table xx-L2RLME-MESH-SELECT.request parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid Range** | **Description** |
| MeshRootAddress | Address | Short address or EUI-64 | Indicates the address of the mesh root whose L2R mesh the device should join. |

**7.1.1.x L2RLME-MESH-SELECT.confirm**

L2RLME-MESH-SELECT.confirm (

Status

)

The parameters of the primitive are defined in Table xx.

Table xx-L2RLME-MESH-SELECT.confirm parameters

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid Range** | **Description** |
| Status | ENUMERATION | SUCCESS, IN-VALID\_PARAME-TER, MAC transmission error codes | The result of invoking an L2RLME-MESH-SELECT.request primitive. |

* ***Modify the first paragraph in section 5.1.2.2 as follows***

A device may join an L2R mesh if it is already associated with the appropriate PAN. A device may join several L2R meshes.

If l2rMeshSelection is TRUE, when a device wishes to join a mesh, the next higher layer invokes the L2RLME-JOIN-MESH.request primitive to request the L2R sublayer to join a mesh with the ServiceID and the MeshRootAddress indicated in the primitive. Upon reception of this primitive, the L2R sublayer initiates an enhanced active scan to discover the existing meshes. During the enhanced active scan, the joining device broadcasts an EBR with a TC IE without content, i.e. all the fields after the Type field in the TC IE are omitted. The TC IE is defined in 6.2.2. When an FFD able to act as a coordinator receives the TC IE, it replies with an EB containing a TC IE. When the device receives a TC IE, it creates a NT entry for the TC IE. If ~~the device receives a TC IE with~~ the received TC IE has the required ServiceID and Mesh Root Address fields and the value found in the Depth field therein is less than the value in the L2R Max Depth field, the L2R sublayer prepares the MT. The Depth parameter is set to the value in the TC IE incremented by one. Other entries of the MT are set according to the information retrieved from the TC IE. The device then transmits its own TC IE. The L2R sublayer sends an L2RLME-JOIN-MESH.confirm primitive with a SUCCESS Status to the next higher layer. This procedure is illustrated in Figure8. If no mesh satisfies the requirements, the L2R sublayer may reattempt to trigger an enhanced active scan to find the desired L2R mesh up to l2rMaxScanRetry times. If the desired L2R mesh is not found after l2rMaxScanRetry enhanced active scans, the Status parameter of the L2RLME-JOIN-MESH.confirm primitive is set to NO\_DESIGNATED\_MESH. If the parameters of this primitive are invalid, INVALID\_PARAMETER is returned as the status. If any error occurs in MAC data transmission, an error code of MAC transmission is returned as the status. If l2rMeshSelection is TRUE and MeshRootAddress indicated in the primitive is 0xffff or 0xffffffff, the L2R sublayer manages the mesh switching even after the device join the mesh successfully. In this case, when the L2R sublayer finds a better mesh that have the same service, it leave the current mesh and then rejoin to the found better mesh. ~~The L2RLME-JOIN-MESH.request and L2RLME-JOIN-MESH.confirm primitives are described in 7.1.1.8 and 7.1.1.9 respectively.~~

If l2rMeshSelection is FALSE, when a device wishes to join a mesh, the next higher layer invokes the L2RLME- MESH-DISCOVERY.request primitive to request the L2R sublayer to scan meshes around the joining device. Upon reception of this primitive, the L2R sublayer initiates an enhanced active scan to discover the existing meshes. During the enhanced active scan, the joining device broadcasts an EBR with a TC IE without content. When an L2R router receives the TC IE, it replies with an EB containing a TC IE. When the device receives a TC IE, it creates a NT entry for the TC IE. After ScanDuration, the L2R sublayer informs the scan result to the next higher layer by issuing the L2RLME-JOIN-MESH.confirm primitive. The next higher layer selects the mesh to join and inform it to the L2R sublayer by issuing the L2RLM-MESH-SELECT.request primitive. Then the L2R sublayer look for the neighbor with the best PQM in the mesh designated by MeshRootAddress parameter and prepares the MT. The Depth parameter is set to the value in the neighbor incremented by one. Other entries of the MT are set according to the information retrieved from the NT entry of the neighbor. The device then transmits its own TC IE. The L2R sublayer sends an L2RLME-MESH-SELECT.confirm primitive with a SUCCESS Status to the next higher layer.

After the device joins to the mesh successfully, the L2R sublayer informs the received TC IE information to the next higher layer whenever a TC IE belonged to a mesh other than the current mesh with a better PQM is received by L2RLME-NOTIFY.indication primitive. If the next higher layer finds the better mesh, it may request the L2R to switch mesh by issuing L2RLME-LEAVE-MESH.request and then issuing an L2RLME-MESH-SELECT.request primitive.

The L2RLME-JOIN-MESH.request, L2RLME-JOIN-MESH.confirm primitives, L2RLME-MESH-DESCOVERY.request, L2RLME-MESH-DESCOVERY.confirm, L2RLME-MESH-SELECT.request and L2RLME-MESH-SELECT.confirm are described in 7.1.1.8, 7.1.1.9, 7.1.1.x and 7.1.1.x respectively.