**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | **<ULI PDE-MODULE Primitive Operation>** | |
| Date Submitted | [12 September 2018] | |
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| Re: | TG12 Architecture: PDE, MMI, MPM, and PTM operation | |
| Abstract | [Detailed description of PDE MODULE Primitive Operation] | |
| Purpose | [Provide a basis for drafting the 802.15.12 standard] | |
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### PDE-MODULE

#### PDE-MODULE Overview

The PDE-MODULE primitives specify actions such as a command(s) to be done to a specified protocol module(s). For example, a command to the KMP module to generate keys would use a PDE-MODULE primitive

#### PDE-MODULE-LIST.request

This primitive requests a list of the modules’ IDs present in the ULI. The primitive is directed to the MPM that keeps the list of protocol modules present in the ULI.

The parameters of this primitive are as follows:

(  
Handle,   
)

Table PDE-MODULE-LIST.request parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| Handle | Integer | 0x00–0xff | An identifier that can be used to refer to a particular primitive transaction; used to match the PDE-MODULE-LIST.request primitive with corresponding PDE-MODULE-LIST.confirm primitive. |

#### PDE-MODULE-LIST.confirm

This primitive returns a list of the modules present in the ULI.

The parameters of this primitive are as follows:

(  
ModuleIdList,

Handle,   
Status  
)

Table PDE-MODULE-LIST.confirm parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| ModuleIdList | Set of modules’ IDs | — | The list of modules’ IDs present in the ULI. |
| Handle | Integer | 0x00–0xff | An identifier that can be used to refer to a particular primitive transaction; used to match a confirm with the corresponding request. |
| Status | Enumeration | SUCCESS, DENIED, UNAVAILABLE | The status of the request for the list of modules’ IDs. |

#### PDE-MODULE-GETSTATUS.request

This primitive requests the status of the protocol module indicated by ModuleId.

The parameters of this primitive are as follows:

(  
ModuleId,

Operation,

Handle   
)

Table PDE-MODULE-GETSTATUS.request parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| ModuleId | Integer | 0x0000-0xffff | The ID of the targeted module. |
| Operation |  |  |  |
| Handle | Integer | 0x00–0xff | An identifier that can be used to refer to a particular primitive transaction; used to match the PDE-MODULE-GETSTATUS.request primitive with corresponding PDE-MODULE-GETSTATUS.confirm primitive. |

#### PDE-MODULE-GETSTATUS.confirm

This primitive returns with the status of the protocol module indicated by ModuleId

The semantics of this primitive are as follows:

(

Handle,   
StatusValue,

Status  
)

Table PDE-MODULE-GETSTATUS.confirm parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| Handle | Integer | 0x00–0xff | An identifier that can be used to refer to a particular primitive transaction; used to match a confirm primitive with the corresponding request. |
| StatusValue | Enumeration | ENABLED, DISABLED,  UNKNOWN | The status of the target module. |
| Status | Enumeration | SUCCESS, DENIED, UNAVAILABLE | The status of the request to the status of the module. |

#### PDE-MODULE-SETSTATUS.request

This primitive sets the status of the protocol module indicated by ModuleId

The semantics of this primitive are as follows:

(  
ModuleId,  
StatusValue,

Handle,  
)

Table PDE-MODULE-SETSTATUS.request parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| ModuleId | Integer | 0x0000-0xffff | The ID of the targeted module. |
| StatusValue | Enumeration | ENABLE, RESET DISABLE, | The status value to be set to the targeted module. |
| Handle | Integer | 0x00–0xff | An identifier that can be used to refer to a particular primitive transaction; used to match the PDE-MODULE-SETSTATUS.request primitive with corresponding PDE-MODULE-SETSTATUS.confirm primitive. |

#### PDE-MODULE-SETSTATUS.confirm

This primitive reports the results of the request to set the status of the protocol module indicated by ModuleId

The semantics of this primitive are as follows:

(

Handle,

Status  
)

Table PDE-MODULE-SETSTATUS.confirm parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| Handle | Integer | 0x00–0xff | An identifier that can be used to refer to a particular primitive transaction; used to match a confirm primitive with the corresponding request. |
| Status | Enumeration | SUCCESS, DENIED, TIMEOUT | The result of the request to set the status of the target module. |

#### PDE-MODULE.indication

The PDE-MODULE.indication primitive indicates the presence of data from a designated protocol module that is to be sent to a higher layer. The semantics of this primitive are as follows:

(

DstSapId,

ModuleId,

PdeOpData,

Handle?,

Status

)

Table PDE-MODULE.indication parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| DstSapId | Integer | 0x00-0x0f | The ID of the destination SAP. |
| ModuleId | Integer | 0x0000-0xffff | The ID of the targeted module . |
| PdeOpData | Set of octets | — | Operation information (e.g., a command) specific to the module. |
| Handle? |  |  |  |
| Status |  |  |  |

#### PDE-MODULE.response

The PDE-MODULE.response primitive allows the next higher layer of a device to respond to the PDE-MODULE.indication primitive. The semantics of this primitive are as follows:

(

DstSapId,

ModuleId,

PdeOpData,

Handle?,

Status

)

Table PDE-MODULE.response parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| DstSapId | Integer | 0x00-0x0f | The ID of destination SAP. |
| ModuleId | Integer | 0x0000-0xffff | The ID of the targeted module. |
| PdeOpData | Set of octets | — | The response data of the operation. |
| Handle? |  |  |  |
| Status | Enumeration | SUCCESS, DENIED,  INVALID\_PARAMETER, TIMEOUT | The status of the indication to the module. |