* + 1. Interfaces
       1. Sensor Association Service 
          1. SD Association Service: Functions
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Table 1 - Sensor Association Request Message Object

sdAssociateRequest (001)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | ID | Type | Length | Description |
| SensorName | .01 | String | 64 bytes | The name of the sensing device registered with SCOS operator. |
| SCOSOperator | .02 | String | 64 bytes | The name of the SCOS operator. |
| SensorType | .03 | Integer | 8 bits | The type of the sensing device.  (1=SDFull, 2=SDProxy) |
| SensorID | .04 | String | 64 bytes | The unique ID assigned to the sensing device during initial SD configuration. |
| SensorCertFile | .05 | String | 256 bytes | The path of the SD certificate file (optional). |
| SensorKeyFile | .06 | String | 256 bytes | The name of the SD certificate file (optional. |
| SensorCAFile | .07 | String | 256 bytes | The name of the trusted certificate authority (optional). |

Table 2 - Sensor Associate Response Message Object

sdAssociateResponse (002)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item** | **ID** | **Type** | **Length** | **Description** |
| SensorName | .01 | String | 64 bytes | The name of the sensing device registered with SCOS operator. |
| SensorID | .02 | String | 64 bytes | The unique ID assigned to the sensing device. |
| associateResponseHash | .03 | String | 128 bytes | The response code for association, unique per association (hash of ManagerID, SensorID, DateTime of request, random number). |
| associateResponseCode  - OK  - Refused\_unknownSD  - Refused\_invalidcert  - Refused\_unknown | .04  .04.01  .04.02  .04.03  .04.04 | String | 32 bytes | Association request response  - association granted  - SM does not recognize SDID  - SM does not accept certificate  - unknown error |
| heartbeatInterval | .05 | Integer | 24 bits | Heartbeat interval in seconds. |
| sdAssociationObject | .06 | Dictionary | n/a | Object containing records of association as defined in Section 7, Table 15 – SD Association Object Definition |

Table 3 - Sensor Disassociate Request Message Object

sdDisassociateRequest (003)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | ID | Type | Length | Description |
| SensorID | .01 | string | 64 bytes | The ID assigned to SD by the SCOS operator. |
| SensorName | .02 | string | 64 bytes | The name of the sensing device registered with SCOS operator. |
| associateResponseHash | .03 | string | 128 bytes | The unique response code for association that was sent in initial associate request/response. |
| disassociateRequestHash | .04 | string | 128 bytes | The unique disassociate request code for disassociation (hash of ManagerID, SensorID, DateTime of request, random number).. |
| SCOSOperator | .05 | string | 64 bytes | The name of the SCOS operator. |

Table 4 - SD Disassociate Response Message Object

sdDisassociateResponse (004)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | ID | Type | Length | Description |
| SensorName | .01 | String | 64 bytes | The name of the SD registered with SCOS operator. |
| SCOSOperator | .02 | String | 64 bytes | The name of the SCOS operator. |
| DisassocSensorID | .03 | String | 64 bytes | The SD ID that has been dissociated |
| disassociateRequestHash | .04 | string | 128 bytes | The unique response code for disassociation that was sent in initial disassociate request/response. |
| DisassocStatus  - OK  - NotAssociated  - Other | .05  .05.1  .05.2  .05.3 | String | 64 bytes | The response code for dissociation request.  - disassociation successful  - disassociation requested, no association exists  - other reason |

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Table 5 - Sensor Capability Response Message Object

sdCapabilityRespose (005)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | ID | Type | Length | Description |
| SensorID | .01 | String | 64 bytes | The name of the SD registered with SCOS operator. |
| SensorCapabilityObject | .02 | Dictionary | n/a | Object describing SD capability (Class B SD metadata) as described in Annex B. |

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Table 6 – Sensor and Manager Scan Task Insert Request Message Object

sxScanTaskInsert (006)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | ID | Type | Length | Description |
| SCOSClientID | .01 | String | 64 bytes | The unique ID assigned to the SCOS Client requesting task insertion. (Optional from Manager to Sensor.) |
| SensorID | .02 | String or Array of Strings | 64 bytes | The unique ID assigned to the sensing device, or an Array of SensorIDs where multiple Sensors are allocated a Task. The SensorID field is only populated after the Manager has accepted the task insert request from the SCOS Client and allocated against the appropriate Sensor. |
| TaskID | .03 | String | 64 bytes | Unique ID for the Spectrum Scan. |
| sensingTaskObject | .04 | Dictionary | n/a | Object defining all necessary scan task Items defined in Table 17 - Sensing Task Object Definition |

Table 7 – Sensor and Manager Scan Task Insert Response Message Object

sxScanTaskResponse (007)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | ID | Type | Length | Description |
| SensorID | .01 | String | 64 bytes | The unique ID assigned to the sensing device. |
| TaskID | .02 | String | 64 bytes | Unique ID for the Spectrum Scan. |
| taskInsertStatus  - Accepted  - RejectedInvalidParams - RejectedInvalidTime  - RejectedNoAvailability  - RejectedNoCapability | .03  .03.1  .03.2  .03.3  .03.4  .03.5 | String | 64 bytes | Status code for Task Insert Request  - Accepted  - invalid scan definition metrics  - invalid time requested  - Exceeds available scan resources  - Exceeds available scan system capabilities |
| timestamp | .04 | ISO 8601 datetime | 32 bytes | Timestamp of the associated status output. |

Table 8 – Scan Task Status Query Message Object

sxScanTaskStatusQuery (008)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | ID | Type | Length | Description |
| SensorID | .01 | String | 64 bytes | The unique ID assigned to the sensing device. The maximum length is 64 octets. |
| TaskID | .02 | String | 64 bytes | Unique ID for the Spectrum Scan. |
| timestamp | .03 | ISO 8601 datetime | 64 bytes | Timestamp of the originating query trigger (time of request by the SM, or time the sxScanTaskQuery was sent by the querying SCOS Client). |

Table 9 – Scan Task Completion Status Message Object

sxScanTaskCompletionStatus (009)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | ID | Type | Length | Description |
| SensorID | .01 | String | 64 bytes | The unique ID assigned to the sensing device. |
| TaskID | .02 | String | 64 bytes | Unique ID for the Spectrum Scan. |
| sensingTaskObject | .03 | Dictionary | 64 bytes | JSON object containing Sensing Task Object and Sensing Task Object Extended as defined in Table 17 and Table 18. |
| timestamp | .04 | ISO 8601 datetime | 32 bytes | Timestamp of the associated status output. |

4. Sensor Data Distribution Service

Table 10 – Sensor and Manager Publish Sensed Data Message Object

sxPublishSensingData (010)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | ID | Type | Length | Description |
| SensorID | .01 | String | 64 bytes | The unique ID assigned to the sensing device. |
| TaskID | .02 | String | 64 bytes | Unique ID for the Spectrum Scan. |
| SCOSClientID | .03 | String | 64 bytes | Unique ID for the SCOSClient requesting the scan task. |
| publishTimestamp | .04 | ISO 8601 datetime | 32 bytes | Timestamp of the time of data publish. |
| sensingTaskObject | .05 | Dictionary | n/a | JSON object containing Sensing Task Object Extended as defined in Table 17 and Table 18. |
| sensingDataObject | .06 | Dictionary | n/a | sensingData object of sensing measurements as per Table 21. |