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| Title | **Syntax and semantics of basic structures for sensor data** |
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| Re: |  |
| Abstract | This contribution illustrates the basic JSON schema structure for representing basic structures for sensor information in the physical world in a standardized data format. The semantics and examples of the environmental sensor information are presented.  |
| Purpose | To start discussion on purpose of the standard |
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#  Basic structures for sensor data

## Root element

### General

This sub-clause specifies basic structures for sensor data type.

### Syntax

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| { "$schema": "http://json-schema.org/draft-07/schema#", "title": "Sensor data", "description": "Schema for sensor data", "type": "object", "properties": { "timeStamp": {"type": "datetime"}, "sensedInfoBaseAttributes": { "$ref": "#/definitions/sensedInfoBaseAttributes" }, // This is where the properties of each type of sensor data is declared by reference. // For Example,// "microphoneSensorType": {// "$ref": "#/definitions/microphoneSensorType"// },// "cameraSensorType": {// "$ref": "#/definitions/cameraSensorType "// },// … }, "additionalProperties": false, "required": [ "sensedInfoBaseAttributes" ], "minProperties": 2, "maxProperties": 3, "definitions": { "sensedInfoBaseAttributes": { "additionalProperties": false, "type": "object", "properties": { "id": {"type": "string"}, "sensorIdRef": {"type": "string"}, "linkedList": {"type": "string"}, "groupID": {"type": "string"}, "activate": {"type": "boolean"}, "priority": {"type": "integer", "minimum": 0} } },// This is where the properties of each type of sensor data is actually defined. // For Example,// "microphoneSensorType": {// …// },// "cameraSensorType": {// …// },// …}} |

### Semantics

Semantics of the root element

| *Name* | *Definition* |
| --- | --- |
| sensedInfoBaseAttributes | Describes a group of attributes for the sensed information. |
| timeStamp | Provides the time information at which the sensed information is acquired.  |
| id | Unique identifier for identifying individual sensed information |
| sensorIdRef | References a sensor that has generated the information included in this specific sensed information. |
| linkedlist | Describes the multi-sensor structure that consists of a group of sensors in a way that each record contains a reference to the ID of the next sensor. |
| groupID | Identifier for a group multi-sensor structure to which this specific sensor belongs.  |
| activate | Describes whether the sensor shall be activated. A value of ”true” means the sensor shall be activated and ”false” means the sensor shall be deactivated. In the binary representation, a value of ”1” means the sensor shall be activated and ”0” means the sensor shall be deactivated. |
| priority | Describes a priority for sensed information with respect to other sensed information sharing the same point in time when the sensed information becomes adapted. A value of one indicates the highest priority and larger values indicate lower priorities. If there is more than one sensed information with the same priority, the order of process can be determined by the Adaptation engine itself.EXAMPLE  The adaptation RV processes the individual sensed information of a group of sensors according to their priority in descending order due to its limited capabilities. That is, the sensed information with the lower priority might get lost. |

### Examples

In this example, a heart rate sensor with its sensor ID “HR-001” measured 98 BPM of heart rate at 18:25:43 23/04/2020. The metadata ID of this example is “HR000000023” and the priority is 1.

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| --- |
| { “timeStamp”: “2020-04-23T18:25:43.511Z”,“sensedInfoBaseAttributes”: { “id”: “HR000000023” “sensorIdRef”: “HR-001” “activate”: true “priority”: 1},“heartRateSensorType”: { “value”: 98,}} |