

# 1752.1 Metadata Schemas

Part of Std. 1752.1-2021 IEEE Standard for Open Mobile Health Data—Representation of Metadata, Sleep, and Physical Activity Measures <https://ieeexplore.ieee.org/document/9540821>

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# 1752.1 Schemas

- A schema defines how instance data should look like in terms of data types, properties, etc.
- 1752.1 schemas are written in JSON Schema  
<https://json-schema.org/>
- 1752.1 schemas, including metadata schemas  
<https://opensource.ieee.org/omh/1752/-/tree/main/schemas/metadata>  
and sample data are available on the repository  
<https://opensource.ieee.org/omh/1752/-/tree/main>

# 1752.1 metadata schemas

# 1752.1 Schemas

JSON Schema header structures  
standardized minimum metadata

Name	Last commit	Last update
..		
environment	Resolve "Create version 1.0 for publication"	1 month ago
metadata	Resolve "Create version 1.0 for publication"	1 month ago
physical_activity	Resolve "Create version 1.0 for publication"	1 month ago
sleep	Resolve "Create version 1.0 for publication"	1 month ago
survey	Resolve "Create version 1.0 for publication"	1 month ago
utility	Resolve "Create version 1.0 for publication"	1 month ago
README.md	Resolve "Create version 1.0 for publication"	1 month ago

README.md
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Name
..
data-point-1.0.json
data-series-1.0.json
header-1.0.json
schema-id-1.0.json

# Categories of Metadata



Datapoint (may be observed or computed)

Description of the datapoint itself



Source

From what sensor(s) did the datapoint come?



Acquisition / Processing

How was the datapoint acquired? processed?



Attribution

What app or product provided this datapoint?



Privacy

Who can access, when, why, for what

# Instance = header + body

- Instance can be of data point or data series
- Header complies with header schema  
<https://opensource.ieee.org/omh/1752/-/blob/main/schemas/metadata/header-1.0.json>
- In a data point, body complies with the schema identified in the header  
<https://opensource.ieee.org/omh/1752/-/blob/main/schemas/metadata/data-point-1.0.json>
- In a data series, body is an array, each element complies with the schema identified in the header  
<https://opensource.ieee.org/omh/1752/-/blob/main/schemas/metadata/data-series-1.0.json>

# Examples: header and schema-id

- All sample data in metadata folder  
[https://opensource.ieee.org/omh/1752/-/tree/main/sample\\_data/metadata](https://opensource.ieee.org/omh/1752/-/tree/main/sample_data/metadata)
- Required data elements, as defined with the “required” keyword in the schema
- Optional data elements
- “Minimum” metadata

# Examples: data point and data series

- ambient temperature: data point  
[https://opensource.ieee.org/omh/1752/-/blob/main/sample\\_data/metadata/data-point-sample-data-ambient-temp.json](https://opensource.ieee.org/omh/1752/-/blob/main/sample_data/metadata/data-point-sample-data-ambient-temp.json)
- physical activity: data point  
[https://opensource.ieee.org/omh/1752/-/blob/main/sample\\_data/metadata/data-point-sample-data-phys-activity.json](https://opensource.ieee.org/omh/1752/-/blob/main/sample_data/metadata/data-point-sample-data-phys-activity.json)
- ambient temperature: data series  
[https://opensource.ieee.org/omh/1752/-/blob/main/sample\\_data/metadata/data-series-sample-series-ambient-temp.json](https://opensource.ieee.org/omh/1752/-/blob/main/sample_data/metadata/data-series-sample-series-ambient-temp.json)



# 1752.1 Schemas

Sample data as supporting documentation

Name	Last commit	Last update
..		
environment	fixed indentation for all sample data files	1 year ago
metadata	fixed indentation for all sample data files	1 year ago
physical_activity	fixed indentation for all sample data files	1 year ago
sleep	Update apnea-hypopnea-index-sample-data-two.json	8 months ago
survey	Update Example Survey-Sleep related habits.md	8 months ago
utility	fixed indentation for all sample data files	1 year ago
README.md	Using Mermaid markdown to display the repository structure instead o...	1 year ago

## README.md

Name
..
data-point-sample-data-ambient-temp.j...
data-point-sample-data-phys-activity.json
data-series-sample-series-ambient-tem...
header-sample-data.json
schema-id-sample-data.json

# 1752.1 Sample Data

Sample instance of ambient temperature (header and body)

data-point-sample-data-ambient-temp.json 905 Bytes

```
1  {
2    "header": {
3      "uuid": "123e4567-e89b-12d3-a456-426655440000",
4      "source_creation_date_time": "2013-02-05T07:25:00+01:00",
5      "schema_id": {
6        "namespace": "ieee",
7        "name": "ambient-temperature",
8        "version": "1.0"
9      },
10     "modality": "sensed",
11     "acquisition_rate": {
12       "value": 0.05,
13       "unit": "Hz"
14     },
15     "external_datasheets": [
16       {
17         "datasheet_reference": "iri-of-some-ambient-thermometer"
18       },
19       {
20         "datasheet_type": "study",
21         "datasheet_reference": "iri-of-some-study-protocol"
22       }
23     ]
24   },
25   "body": {
26     "ambient_temperature": {
27       "value": 19,
28       "unit": "C"
29     },
30     "effective_time_frame": {
31       "date_time": "2013-02-05T07:25:00+01:00"
32     }
33   }
34 }
```

# Sample Data

Sample instance of blood glucose (header and body) — not from IEEE repository

Shows expandable external\_datasheets array

Next steps:

- associate a value set to datasheet\_type
- define and standardize additional data elements based on community input

```
{
  "header": {
    "uuid": "123e4567-e89b-12d3-a456-426655440000",
    "source_creation_date_time": "2019-03-10T00:00:30-08:00",
    "schema_id": {
      "namespace": "omh",
      "name": "blood-glucose",
      "version": "3.0"
    },
    "modality": "sensed",
    "acquisition_rate": {
      "number_of_times": 1,
      "time_window": {
        "value": 5,
        "unit": "min"
      }
    }
  },
  "external_datasheets": [
    {
      "datasheet_type": "source-device",
      "datasheet_reference": "iri-of-cgm-device"
    },
    {
      "datasheet_type": "algorithm",
      "datasheet_reference": "iri-of-algorithm"
    },
    {
      "datasheet_type": "udi",
      "datasheet_reference": "udi-of-cgm-device"
    },
    {
      "datasheet_type": "umhai",
      "datasheet_reference": "umhai-of-cgm-device-app"
    }
  ],
  "body": {
    "blood_glucose": {
      "unit": "mg/dL",
      "value": 113
    },
    "effective_time_frame": {
      "time_interval": {
        "start_date_time": "2019-02-26T00:00:01-08:00",
        "end_date_time": "2019-03-10T00:00:00-08:00"
      }
    }
  },
  "specimen_source": "interstitial fluid",
  "descriptive_statistic": "average"
}
```

