

deviceQualityDataManagement

Service Description

Abstract

This document provides service description for the **deviceQualityDataManagement** service.



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1 Overview

This document describes the **deviceQualityDataManagement** service, which enables systems (with operator role or proper permissions) to query the measurement metric values and also to trigger the synchronization with ServiceRegistry Core System on demand.

The **deviceQualityDataManagement** service contains the following operations:

- *query* lists the measurement metric values that match the filtering requirements;
- *reload* triggers the synchronization process with the ServiceRegistry Core System in order to update the list of systems to be measured;

The rest of this document is organized as follows. In Section 2, we describe the abstract message operations provided by the service. In Section 3, we end the document by presenting the data types used by the mentioned operations.

1.1 How This Service Is Meant to Be Used

The most common use case is when a higher-level entity, such as a UI system, queries the actual metric values of a given system and visualizes them on a dashboard.

Additionally, a higher-level entity that is aware that new systems have recently joined the Local Cloud can trigger the synchronization process before the automatic routine would start.

1.2 Important Delimitations

The requester has to identify itself to use any of the operations.

1.3 Access policy

The service is only available for operators, dedicated Core/Support systems and those who have the proper authorization rights to consume it.



2 Service Operations

This section describes the abstract signatures of each operations of the service. The **deviceQualityDataManagement** service is used to *query* the measurement metric value records and to *reload* the new system entities on demand. In particular, each subsection names an operation, an input type and one or two output types (unsuccessful operations can return different structure), in that order. The input type is named inside parentheses, while the output type is preceded by a colon. If the operation has two output types, they are separated by a slash. Input and output types are only denoted when accepted or returned, respectively, by the operation in question. All abstract data types named in this section are defined in Section 3.

2.1 operation **query** (QoSDeviceStatQueryRequest) : QoSDeviceStatQueryResponse / ErrorResponse

Operation *query* lists the measurement metric value records that match the filtering requirements. The query data must meet the following criteria:

- The operation returns results in pages. There are default page data settings, but the requester can provide a custom specification.
- If page number is specified, the page size must be specified as well and vice versa.
- In some Local Clouds there is a maximum page size.
- If a filter expects a list, there is an OR relation between the elements of the filter.
- There is an AND relation between different kind of filters.

2.2 operation **reload** (QoSDeviceReloadRequest) : QoSDeviceReloadResponse / ErrorResponse

Operation *reload* triggers the synchronization process with the ServiceRegistry Core System.



3 Information Model

Here, all data objects that can be part of the **serviceOrchestrationLockManagement** service are listed and must be respected by the hosting system. Note that each subsection, which describes one type of object, begins with the *struct* keyword, which is used to denote a collection of named fields, each with its own data type. As a complement to the explicitly defined types in this section, there is also a list of implicit primitive types in Section 3.8, which are used to represent things like hashes and identifiers.

3.1 struct QoSDeviceStatQueryRequest

| Field | Type | Mandatory | Description |
|----------------|-------------------------|-----------|--|
| authentication | Identity | yes | The requester of the operation. |
| pageNumber | Number | no (yes) | The number of the requested page. It is mandatory, if page size is specified. |
| pageSize | Number | no (yes) | The number of entries on the requested page. It is mandatory, if page number is specified. |
| pageSortField | String | no | The identifier of the field which must be used to sort the entries. |
| pageDirection | Direction | no | The direction of the sorting. |
| metricGroup | MetricGroup | yes | Requester is looking for records with the specified metric group. |
| from | DateTime | no | The requester is looking for records that are not older than the specified timestamp. |
| to | DateTime | no | The requester is looking for records that are not newer than the specified timestamp. |
| aggregation | List<MetricAggregation> | no | Requester is looking for records with any of the specified aggregations. |
| systemNames | List<SystemName> | no | Requester is looking for records associated with any of the specified systems. |

3.2 struct Identity

An Object which describes the identity of a system. It also contains whether the identified system has higher level administrative rights.



3.3 struct **QoSDeviceStatQueryResponse**

| Field | Type | Description |
|---------|---------------------------|---------------------------------------|
| status | OperationStatus | Status of the operation. |
| records | List<QoSDeviceStatRecord> | List of metric value records. |
| count | Number | Total number of metric value records. |

3.4 struct **QoSDeviceStatRecord**

| Field | Type | Description |
|-------------|------------------|--|
| metricGroup | MetricGroup | The metric group of the result. |
| id | Number | The numeric identifier of the record that is unique within the metric group. |
| timestamp | DateTime | Timestamp of the record. |
| uuid | UUID | The uuid of the associated device entity. |
| minimum | Number | Aggregated value. |
| mean | Number | Aggregated value. |
| median | Number | Aggregated value. |
| maximum | Number | Aggregated value. |
| current | Number | Aggregated value. |
| systems | List<SystemName> | Systems that the record is associated with. |

3.5 struct **ErrorResponse**

| Field | Type | Description |
|--------------|-----------------|------------------------------|
| status | OperationStatus | Status of the operation. |
| errorMessage | String | Description of the error. |
| errorCode | Number | Numerical code of the error. |
| type | ErrorType | Type of the error. |
| origin | String | Origin of the error. |



3.6 struct QoSDeviceReloadRequest

| Field | Type | Mandatory | Description |
|----------------|----------|-----------|---------------------------------|
| authentication | Identity | yes | The requester of the operation. |

3.7 struct QoSDeviceReloadResponse

| Field | Type | Description |
|---------|-----------------|--------------------------|
| status | OperationStatus | Status of the operation. |
| message | String | A result message. |

3.8 Primitives

Types and structures mentioned throughout this document that are assumed to be available to implementations of this service. The concrete interpretations of each of these types and structures must be provided by any IDD document claiming to implement this service.

| Type | Description |
|-------------------|---|
| DateTime | Pinpoints a specific moment in time. |
| Direction | The direction of a sorting operation. Possible values are the representation of ascending or descending order. |
| ErrorType | Any suitable type chosen by the implementor of service. |
| List<A> | An <i>array</i> of a known number of items, each having type A. |
| MetricAggregation | The aggregation type of a measurement metric. |
| MetricGroup | The group identifier for a given measurement metric. |
| Number | Decimal number. |
| Object | Set of primitives and possible further objects. |
| OperationStatus | Logical, textual or numerical value that indicates whether an operation is a success or a failure. Multiple values can be used for success and error cases to give additional information about the nature of the result. |
| String | A chain of characters. |
| SystemName | A string identifier that is intended to be both human and machine-readable. Must follow PascalCase naming convention. |
| UUID | Universally Unique Identifier that is a 128-bit String identifier used to uniquely distinguish objects in distributed systems. |



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5 Revision History

5.1 Amendments

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5.2 Quality Assurance

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