Figure 1: oneM2M logo

| oneM2M<br>Technical Report | oneM2M<br>Technical Report |
|---|---|
| Document Number | TR-0076-V-0.1.0 |
| Document Name: | Integrating NGSI-LD API in oneM2M\ |
| Date: | <20yy-mm-dd> |
| Abstract: | < An abstract of the document and information that may be used in subsequent electronic searches> |
| Template Version: January 2020 (do not modify) | |



About oneM2M

The purpose and goal of oneM2M is to develop technical specifications which

address the need for a common M2M Service Layer that can be readily embedded within various hardware and software, and relied upon to connect the myriad of devices in the field with M2M application servers worldwide.

More information about oneM2M may be found at: http//www.oneM2M.org





# Contents

# 1 Scope

The present document discusses how key features of the NGSI-LD API can be integrated in oneM2M and studies the impacts and necessary changes to oneM2M Specifications in particular in regard to the following.

The present document - describes the additional functionality that the integration of NGSI-LD API and its related functionality can bring to the oneM2M standard, including the resulting integrated use cases. - studies solutions for the architectural integration of NGSI-LD and its related functionalities into oneM2M, in particular with respect to oneM2M reference points and the existing oneM2M Common Service Functions. - studies the mapping of the information stored in oneM2M resources to the NGSI-LD information model. This includes, but is not limited to the current oneM2M semantic models (in particular SDT and the oneM2M base ontology, including SAREF integration) to the NGSI-LD information model, with the goal of making it available through an integration of NGSI-LD API and the Mca reference point. This may suggest changes to the current NGSI-LD and Mca, and the related information models. - studies the integration of NGSI-LD into oneM2M's management and security frameworks, in particular for registration, authentication, access control and device management.

# 2 References

## 2.1 Normative references

As a Technical Report (TR) is entirely informative it shall not list normative references.

References are either specific (identified by date of publication and/or edition number or version number) or nonspecific. For specific references,only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

The following referenced documents are necessary for the application of the present document.

Not applicable.

## 2.2 Informative references

Clause 2.2 shall only contain informative references which are cited in the document itself.

References are either specific (identified by date of publication and/or edition number or version number) or nonspecific. For specific references,only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] oneM2M Drafting Rules https://member.onem2m.org/static_Pages/others/Rules_Pages/oneM2M-Drafting-Rules-V1%202%202.doc
- [i.2] ETSI GS CIM 009: "Context Information Management (CIM); NGSI-LD API" https://www.etsi.org/deliver/etsi_gs/CIM/001_099/009/01.08.01_60/gs_CIM009v010801p.pdf
- [i.3] ETSI GS CIM 006: "Context Information Management (CIM); Information Model" https://www.etsi.org/deliver/etsi_gs/CIM/001_099/006/01.03.01_60/gs_CIM006v010301p.pdf

# 3 Definition of terms, symbols and abbreviations

Delete from the above heading the word(s) which is/are not applicable.

## 3.1 Terms

Clause numbering depends on applicability.

- A definition shall not take the form of, or contain, a requirement.

- The form of a definition shall be such that it can replace the term in context. Additional information shall be given only in the form of examples or notes (see below).
- The terms and definitions shall be presented in alphabetical order.

For the purposes of the present document, the [following] terms and definitions [given in ... and the following] apply:

Definition format

<defined term>: <definition>

If a definition is taken from an external source, use the format below where [N] identifies the external document which must be listed in Section 2 References.

<defined term>[N]: <definition>

example 1: text used to clarify abstract rules by applying them literally

NOTE: This may contain additional information.

## 3.2 Symbols

Clause numbering depends on applicability.

For the purposes of the present document, the [following] symbols [given in ... and the following] apply:

Symbol format

```
&lt;symbol>    &lt;Explanation>
&lt;2nd symbol>    &lt;2nd Explanation>
&lt;3rd symbol>    &lt;3rd Explanation>
```

## 3.3 Abbreviations

Abbreviations should be ordered alphabetically.

Clause numbering depends on applicability.

For the purposes of the present document, the [following] abbreviations [given in ... and the following] apply:

Abbreviation format

```
&lt;ABBREVIATION1>    &lt;Explanation>
&lt;ABBREVIATION2>    &lt;Explanation>
&lt;ABBREVIATION3>    &lt;Explanation>
```

# 4 Conventions

The key words “Shall”, “Shall not”, “May”, “Need not”, “Should”, “Should not” in this document are to be interpreted as described in the oneM2M Drafting Rules [i.1]

# 5 Introduction to NGSI-LD API and NGSI-LD Information Model

## 5.1 Motivation and key concepts

## 5.2 NGSI-LD Information Model

## 5.3 NGSI-LD API

### 5.3.1 Overview

The NGSI-LD resource structure will be introduced here or in an additional subclause.

### 5.3.2 Query operations

### 5.3.3 Subscription/notification operations

### 5.3.4 Management operations

## 5.4 Architectural considerations

# 6 Assessment of additional functionality brought by NGSI-LD

Based on the introduction in clause 5, description of the additional functionality that the integration of NGSI-LD API and its related functionality can bring to the oneM2M standard, including the resulting integrated use cases.

# 7 Architectural integration of NGSI-LD into oneM2M

Study solutions for the architectural integration of NGSI-LD and its related functionalities into oneM2M, in particular with respect to oneM2M reference points and the existing oneM2M Common Service Functions.

# 8 Mapping between the information stored in oneM2M resources and the NGSI-LD information model

Study the mapping between the information stored in oneM2M resources and the NGSI-LD information model. This includes, but is not limited to the current oneM2M semantic models (in particular SDT and the oneM2M base ontology, including SAREF integration) to the NGSI-LD information model, with the goal of making it available through an integration of NGSI-LD API and the Mca reference point. This may lead to an evolution of the current NGSI-LD and Mca, and the related information models.

# 9 Integration of NGSI-LD into oneM2M's management and security frameworks

Study the integration of NGSI-LD into oneM2M's management and security frameworks, in particular for registration, authentication, access control and device management.

# 10 Overall impact assessment and recommendations

Study the impacts and necessary changes to oneM2M Specifications

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## Annexes

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# Annex <A>:

Title of annex

<Text>

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# Annex <B>:

Title of annex

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## First clause of the annex

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### B.1.1 First subdivided clause of the annex

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# Annex <y>:

Bibliography The annex entitled “Bibliography” is optional.

It shall contain a list of standards, books, articles, or other sources on a particular subject which are not mentioned in the document itself.

It shall not include references mentioned in the document.

- <Publication>: “<Title>”.

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# History

This clause shall be the last one in the document and list the main phases (all additional information will be removed at the publication stage).

| Publication history | Publication history | Publication history |
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| V1.1.1 | <yyyy-mm-dd> | <Milestone> |

| Draft history (to be removed on publication) | Draft history (to be removed on publication) | Draft history (to be removed on publication) |
|---|---|---|
| V0.1.0 | 2024-04-24 | Includes the following contribution agreed during SDS64: SDS-2024-0045R01-TR-0076_Table_of_Contents |