



The Standards People

New Features and Relevant Fixes in NGSI-LD v1.7.1

Martin Bauer

ETSI ISG CIM

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Overview

- New Features and Fixes in NGSI-LD v1.7.1
 - Vocabulary Property
 - Change of simplified representation in multi-attribute case
 - More detailed aspects to be specified in Context Registrations
 - Defined special NGSI-LD roles for Context Registrations
 - Clarifications regarding user @context
 - Add Batch Query to “Federation Ops” group
 - Relaxing of tenant name requirement

Vocabulary Property

The value of a Vocabulary Property is expanded to a URI if the term is defined in the JSON-LD @context

To enable this behaviour, the JSON-LD key has to be defined as @vocab in the JSON-LD context. Thus, a Vocabulary Property has a "vocab", instead of the "value" of a regular Property

```
"vocab": {
  "@id": "ngsi-ld:hasVocab",
  "@type": "@vocab"
}
```

Example:

```
"category": {
  "type": "VocabularyProperty",
  "vocab": "non-commercial"
}
```

where the @context contains

```
"non-commercial": "http://example.org/vehicle/non-commercial"
```

A Vocabulary Property enables the uniqueness of the value as it is mapped to a URI and allows different short terms to be associated, i.e., a different @context can map it to a different language, e.g.,

```
"nicht-kommerziell": "http://example.org/vehicle/non-commercial"
```

Change of simplified representation in multi-attribute case



Goal: simplified representations should also be usable for merge/patch updates

Problem: simplified representation in NGSI-LDv1.6.1 and earlier does not distinguish between multi-attribute case, in which values are represented as array, and case, where the value itself is an array.

```
{
  "id": "urn:ngsi-ld:Person:001",
  "type": "Person",
  "name": ["David Robert Jones", "David Bowie", " Ziggy Stardust"]
}
```

Alternative Names with different datasetIds (omitted in simplified representation) – makes sense here!

Array as a Value – does not make sense here, but how should an NGSI-LD Broker know?

→ Change representation of multi-attribute case in simplified representation

■ New representation for multi-attribute case – array as a value stays as it was. (“@none” to represent the default value)

```
  "name": {
    "dataset": {
      "@none": "David Robert Jones",
      "urn:ngsi-ld:datasetId:001": "David Bowie",
      "urn:ngsi-ld:datasetId:002": "Ziggy Stardust"
    }
  }
}
```

More detailed aspects to be specified in Context Registrations



As part of a Context Registration, Context Sources can now specify a **JSON-LD @context to be used** (which may be different from the one used by the original requester). The Broker then has to compact the request to be forwarded using this @context.

For example this enables an easier wrapping of NGSiv2 sources as the use of the correct short terms is enforced and the capability of JSON-LD expansion and compaction is not required.

This also enforces the use of **"application/json"** and putting the specified JSON-LD @context in the Link Header.

All Context Sources have to support **normalized representation** and allowing the keyword **"sysAttrs"** to be specified in the request (even if system-generated attributes are not really available). The support of other representations (concise or simplified) is optional.

Defined special NGSi-LD roles for Context Registrations



API	Functionality	Operations
Registry API	Context Source Registration - operations for registering Context Sources and managing Context Source Registrations (CSRs)	5.9.2 Register Context Source 5.9.3 Update CSR 5.9.4 Delete CSR
	Context Source Discovery - operations for retrieving and discovering CSRs	5.7.1 Retrieve CSR 5.7.2 Query CSRs
	Context Source Registration Subscription - operations for subscribing to CSRs, receiving notifications and managing CSRs	5.11.2 Create CSR Subscription 5.11.3 Update CSR Subscription 5.11.4 Retrieve CSR Subscription 5.11.5 Query CSR Subscription 5.11.6 Delete CSR Subscription 5.11.7 CSR Notification
NGSi-LD Role	Implements	Uses
Context Registry	5.9.2 Register Context Source 5.9.3 Update CSR 5.9.4 Delete CSR 5.7.1 Retrieve CSR 5.7.2 Query CSRs 5.11.2 Create CSR Subscription 5.11.3 Update CSR Subscription 5.11.4 Retrieve CSR Subscription 5.11.5 Query CSR Subscription 5.11.6 Delete CSR Subscription	5.11.7 CSR Notification

Clarifications regarding user @context

Clarification regarding the use of a user NGSI-LD @context (and its relation to the core NGSI-LD @context as defined in the NGSI-LD API specification)

- Terms defined in the Core Context as non-reified Properties (such as "datasetId", "instanceId" etc.) shall not be used as Attribute names.
- An @context shall not contain any embedded @context: JSON-LD Scoped Contexts (see [2], section 4.1.8).
- @context in a payload body can only appear at the top level of the NGSI-LD document.
- Parts of user @context that are not following the points above should result in an error of type BadRequestData, because JSON-LD Scoped Contexts and nested embedded @context could be used to modify terms defined in the Core @context or to reshape NGSI-LD Elements during the expansion of terms.

Add Batch Query to “Federation Ops” group

Operation Group name	Implements
federationOps	<ul style="list-style-type: none"> • retrieveEntity • queryEntity • queryBatch • retrieveEntityTypes • retrieveEntityTypeDetails • retrieveEntityTypeInfo • retrieveAttrTypes • retrieveAttrTypeDetails • retrieveAttrTypeInfo • createSubscription • updateSubscription • retrieveSubscription • querySubscription • deleteSubscription

Relaxing of tenant name requirement

- A tenant name can now be a string. It can still be a URI (string), but this is no longer required.
- Example: Table 5.2.9-1 CsourceRegistration data type definition

Name	Data Type	Restriction	Cardinality	Description
tenant	String		0..1	Identifies the Tenant that has to be specified in all requests to the Context Source that are related to the information registered in this Context Source Registration. If not present, the default Tenant is assumed. Should only be present in systems supporting multi-tenancy