# Overview of status of NGSI-LD

The NGSI-LD specification is developed in ETSI.

In 2026 the new Technical Committee DATA was created in ETSI.

The NGSI-LD specification is transitioned from ETSI ISG CIM to ETSI TC DATA as ISG CIM's activities are absorbed in the bigger TC DATA.

Version 2.0 of the specification is going to be published in March 2026.

Version 2.1 with new features is already work in progress.

27/01/2026

# ETSI TC DATA Activities (related to NGSI-LD)

- The following Work Items have been opened
  - **TS 104 175 NGSI-LD Core API**
  - **TS 104 176 NGSI-LD HTTP Binding**
  - **TS 104 178 NGSI-LD Information Model**
  - **TS 104 179 NGSI-LD Provenance and Integrity**
  - **TS 104 243 NGSI-LD MQTT Notification Binding**

  **Core NGSI-LD Specifications**
  - TR 104 205 NGSI-LD Primer
  - TR 104 204 SAREF and NGSI-LD
- Testing Task Force 4 (TTF046) has been transferred to TC DATA with the following Work Items:
  - TS 104 194 NGSI-LD Test Purposes Description Language
  - TS 104 193 NGSI-LD Test Suite Structure
  - TS 104 192 NGSI-LD Test purposes description
  - TS 104 191 NGSI-LD Test purposes description for Distributed Operations
  - TS 104 190 NGSI-LD Test suite
  - TR 104 189 NGSI-LD Testing environment validation
  - TS 104 188 NGSI-LD Interoperability tests specification
  - TS 104 187 NGSI-LD Implementation Conformance Statement
  - TR 104 186 Study of the EU Interoperable Test Bed platform

# Restructuring of NGSI-LD API Specification

NGSI-LD API Specification has become a very long document

→**Separate (abstract) core specification from binding(s)** – so far bindings are HTTP and MQTT (notifications only) → GS CIM 009 NGSI-LD API becomes

- TS 104 175 NGSI-LD Core API
- TS 104 176 NGSI-LD HTTP Binding
- TS 104 243 NGSI-LD MQTT Notification Binding

→As we **have to move from GS** (Group Specification, can only be handled by ISGs, not TCs) **to TS** (Technical Specification, can only be handled by TCs, not ISGs), we anyway have a **new document** and thus have the **opportunity to restructure the document**.

# Restructured NGSI-LD API Specification

GS-009 NGSI-LD API

→ TS 104 175 NGSI-LD Core API

→ TS 104 175 NGSI-LD HTTP Binding

| | Clause Old | Clause Name | Primary New Clause | Related New Clauses | Page Old |
|---|---|---|---|---|---|
| 2 | **1** | **Scope** | 1 | | 21 |
| 3 | 2 | References | 2 | | 21 |
| 4 | **2.1** | **Normative references** | 2.1 | 2.1 | 21 |
| 5 | **2.2** | **Informative references** | 2.2 | 2.2 | 22 |
| 6 | 3 | Definition of terms, symbols and abbreviations | 3 | 3 | 23 |
| 7 | **3.1** | **Terms** | 3.1 | 3.1 | 23 |
| 8 | **3.2** | **Symbols** | 3.2 | 3.2 | 26 |
| 9 | **3.3** | **Abbreviations** | 3.3 | 3.3 | 27 |
| 10 | 4 | Context Information Management Framework | 5 | 4 | 28 |
| 11 | **4.1** | | | | |
| 12 | 4.2 | | | | |
| 13 | **4.2.1** | | | | |
| 14 | **4.2.2** | | | | |
| 15 | **4.2.3** | | | | |
| 16 | **4.2.4** | | | | |
| 17 | **4.2.5** | | | | |
| 18 | 4.3 | | | | |
| 19 | **4.3.1** | | | | |
| 20 | **4.3.2** | | | | |
| 21 | **4.3.3** | | | | |
| 22 | **4.3.4** | | | | |
| 23 | **4.3.5** | | | | |
| 24 | 4.3.6 | | | | |
| 25 | **4.3.6.1** | | | | |

| | Clause Ne | Clause Name | Primary Old Claus | Related O | Clauses |
|---|---|---|---|---|---|
| 2 | **1** | **Scope** | 1 | | |
| 3 | | | | | |
| 4 | 2 | References | 2 | | |
| 5 | **2.1** | **Normative references** | 2.1 | | |
| 6 | **2.2** | **Informative references** | 2.2 | | |
| 7 | | | | | |
| 8 | 3 | Definition of terms, symbols and abbreviations | 3 | | |
| 9 | **3.1** | **Terms** | 3.1 | | |
| 10 | **3.2** | **Symbols** | 3.2 | | |
| 11 | **3.3** | **Abbreviations** | 3.3 | | |
| 12 | | | | | |
| 13 | 4 | NGSI-LD conceptual overview (informative) | 4 | | |
| 14 | **4.1** | **Introduction** | 4.1 | | |
| 15 | 4.2 | NGSI-LD information model | 4.2 | | The normative clauses are in the Information Model TS (TS 104 178 ) |
| 16 | **4.2.1** | **Introduction** | 4.2.1 | | |
| 17 | **4.2.2** | **NGSI-LD meta model** | 4.2.2 | | |
| 18 | **4.2.3** | **Cross-domain ontology** | 4.2.3 | | |
| 19 | **4.2.4** | **NGSI-LD domain-specific models and instantiation** | 4.2.4 | | |
| 20 | **4.2.5** | **UML representation** | 4.2.5 | | |
| 21 | 4.3 | NGSI-LD architectures | 4.3 | | |
| 22 | **4.3.1** | **Introduction** | 4.3.1 | | |
| 23 | **4.3.2** | **Centralized architecture** | 4.3.2 | | |
| 24 | 4.3.3 | Distributed and federated architectures | 4.3.3 | 4.3.4 | |
| 25 | **4.3.3.1** | **Introduction** | NEW | | |

**Mapping has been documented in both directions (with some new clauses in the new documents) to ensure that no information has been lost.**

# TS 104 175 NGSI-LD Core API

| | |
|---|---|
| 1 | Scope |
| 2 | References |
| 3 | Definition of terms, symbols and abbreviations |
| **4** | **NGSI-LD conceptual overview (informative)** |
| 4.1 | Introduction |
| 4.2 | NGSI-LD information model |
| 4.3 | NGSI-LD architectures |
| 4.4 | API Overview |
| **5** | **Context information and representation** |
| 5.1 | Introduction |
| 5.2 | NGSI-LD modelling, data types and data representation |
| 5.3 | Representations in the different formats |
| 5.4 | NGSI-LD fragments |
| **6** | **API structure** |
| **7** | **API functionality** |
| 7.1 | Introduction |
| 7.2 | Filtering |
| 7.3 | Projection |
| 7.4 | Pagination |
| 7.5 | Counting results |
| 7.6 | Ordering |
| 7.7 | Linked Entity retrieval |
| 7.8 | Tenants |
| 7.9 | Snapshots |
| **8** | **Common API behaviours** |
| 8.1 | Introduction |
| 8.2 | JSON-LD processing |
| 8.3 | Errors and error handling |
| 8.4 | Common operation behaviours |
| 8.5 | Multi-Attribute behaviour |
| 8.6 | Limiting operations to local scope |
| **9** | **Distributed behaviour** |
| 9.1 | Introduction |
| 9.2 | Distributed operation names |
| 9.3 | Registrations |
| 9.4 | Matching Context Source registrations |
| 9.5 | Contacting Context Sources |
| 9.6 | Querying and retrieving distributed Entities as unitary operations - Entity Maps |
| 9.7 | Limiting cascading distributed operations |

Overview

NEW

API Structure

API Functionality

Common API Behaviours

Distributed Behaviours

| | |
|---|---|
| **10** | **Core API operations** |
| 10.1 | Introduction |
| 10.2 | Context information provision |
| 10.3 | Context information provision - batch operations |
| 10.4 | Context information consumption |
| 10.5 | Context information Subscription |
| 10.6 | Context information availability |
| **11** | **Temporal API operations** |
| 11.1 | Introduction |
| 11.2 | Temporal context information provision |
| 11.3 | Temporal context information consumption |
| **12** | **Registry API operations** |
| 12.1 | Introduction |
| 12.2 | Context Source Registration |
| 12.3 | Context Source discovery |
| 12.4 | Context Source Registration Subscription |
| **13** | **Storing, managing and serving @contexts operations** |
| 13.1 | Introduction |
| 13.2 | Add @context |
| 13.3 | List @contexts |
| 13.4 | Serve @context |
| 13.5 | Delete and reload @context |
| **14** | **Context Source Entity mapping operations** |
| 14.1 | Introduction |
| 14.2 | Retrieve EntityMap |
| 14.3 | Update EntityMap |
| 14.4 | Delete EntityMap |
| 14.5 | Create EntityMap for query Entities |
| 14.6 | Create EntityMap for query Temporal Evolution of Entities |
| **15** | **Context Source identity information operations** |
| 15.1 | Introduction |
| 15.2 | Retrieve Context Source identity information |
| 16.8 | Snapshot status notification behaviour |

Core API

Temporal API

Registry API

@context Management API

| | |
|---|---|
| **16** | **Snapshot functionality operations** |
| 16.1 | Introduction |
| 16.2 | Create Snapshot |
| 16.3 | Clone Snapshot |
| 16.4 | Retrieve Snapshot status |
| 16.5 | Update Snapshot status |
| 16.6 | Delete Snapshot |
| 16.7 | Purge Snapshots |
| 16.8 | Snapshot status notification behaviour |
| **Annex A (normative): NGSI-LD identifier considerations** | |
| **Annex B (normative): Core NGSI-LD @context definition** | |
| **Annex C (informative): Examples of using the API** | |
| C.1 | Introduction |
| C.2 | Entity representation |
| C.2.1 | Property graph |
| C.2.2 | Vehicle Entity |
| C.2.3 | Parking Entity |
| C.2.4 | @context |
| C.3 | Context Source Registration |
| C.4 | Context Subscription |
| C.5 | Date representation |
| C.6 | @context utilization clarifications |
| C.7 | Link header utilization clarifications |
| C.8 | @context processing clarifications |
| C.9 | ValueType datatype utilization clarifications |
| C.10 | Entity with digital signature for a Property |
| **Annex D (informative): RDF-compatible specification of NGSI-LD meta-model** | |
| **Annex E (informative): Conventions and syntax guidelines** | |
| **Annex F (informative): Localization and internationalization support** | |
| **Annex G (informative): Suggested actuation workflows** | |
| **Annex H (informative): Change history** | |

Snapshot API

Examples

# TS 104 176 NGSI-LD HTTP Binding

| | |
|---|---|
| 1 | Scope |
| 2 | References |
| 3 | Definition of terms, symbols and abbreviations |
| **4** | **Introduction** |
| **5** | **Global definitions and resource structure** |
| **6** | **Common behaviours** |
| 6.1 | Introduction |
| 6.2 | General mapping to HTTP |
| 6.3 | Errors and error handling |
| 6.4 | Mapping NGSI-LD features to URI parameters and HTTP headers |
| 6.5 | Common operation behaviours |
| **7** | **Core API resources** |
| 7.1 | Introduction |
| 7.2 | Resource: entities/ |
| 7.2.1 | Description |
| 7.2.2 | Resource definition |
| 7.2.3 | Resource methods |
| 7.2.3.1 | GET/HEAD |
| 7.2.3.2 | POST |
| 7.2.3.3 | DELETE |
| … | … |
| **8** | **Temporal API resources** |
| **9** | **Registry API resources** |
| **10** | **Storing, Managing and Serving @contexts Resources** |
| **11** | **Context Source Entity mapping resources** |
| **12** | **Context Source identity information resources** |
| **13** | **Snapshot functionality resources** |

Resource Structure

Common Behaviours

Core API

Temporal API

Registry API

@context Management API

Snapshot API

| **Annex A (informative): Examples of using the HTTP binding of the API** | |
|---|---|
| A.1 | Introduction |
| A.2 | Entity Examples |
| A.2.2 | Query Entities |
| A.2.3 | Query Entities (pagination) |
| A.2.4 | Query Entities (natural language filtering) |
| A.2.5 | Query Entities (preference) |
| A.2.6 | Scope Queries |
| A.3 | Temporal Entity Examples |
| A.3.1 | Temporal Query |
| A.3.2 | Temporal Query (simplified representation) |
| A.3.3 | Temporal Query (aggregated representation) |
| A.3.4 | Temporal Scope Queries |
| A.4 | Type Examples |
| A.4.1 | Retrieve available Entity Types |
| A.4.2 | Retrieve details of available Entity Types |
| A.4.3 | Retrieve available Entity Type information |
| A.5 | Attribute Examples |
| A.5.1 | Retrieve available Attributes |
| A.5.2 | Retrieve details of available Attributes |
| A.5.3 | Retrieve available Attribute information |
| Annex B (informative): Change history | |

Examples

# New Features and Fixes in NGSI-LD (TS 104 175/104 176)

Features

- Issue #58: Introduce support for HTTP HEAD method
- Issue #59: Introduce support for HTTP OPTIONS method
- Issue #13: Link header extension returning core context via parameter
- Issue #14: Support GET/HEAD on attributes: entities/{entityId}/attrs/{attrId}
- Issue #15: Introduce entities/{entityId}/attrs/{attrId}/value endpoint for directly handling values
- Issue #18: Temporal Multi-attribute representation as different datasets
- Issue #31: Replace propertyNames and relationshipNames with attributeNames

Fixes

- Issue #1: Remove Annex D -> Obsolete reference i.21
- Issue #5: Applicability of parameters in subscriptions to CsourceSubscription
- Issue #12: Clarify the use of multiple LINK headers
- Issue #19: Pagination on temporal instances is incomplete / needs fixing
- Issue #25: Return 508 Loop Detected
- Issue #26: Clarify what joinLevel 1 means
- Issue #27: Return code 202 when creating snapshots
- Issue #60: Issue when doing concise update with fragment
- Issue #29: Clarify Replace Entity and Merge Entity Clauses
- Issue #32: Clarify what to do while merging two Attributes when one of them doesn't have observedAt
- Issue #34: Merging Algorithm
- Issue #36: Clarify Auxiliary Registrations Behaviour
- Issue #38: Update examples referenced from Annex C

# Outlook for NGSI-LD 2.1- Features

- Issue #2: **Harmonization of Partial Success Responses**
- Issue #3: **Verbose Inter-Broker Communication**
- Issue #4: Compression of Requests and Responses
- Issue #6: Deprecate the options parameter and find suitable alternatives
- Issue #7: Advanced parameters for periodic subscriptions
- Issue #8: WebSocket Notification Binding
- [*Issue #9: DDS Integration (new document, split out)→ Arise project*]
- Issue #10: **Enhance error reporting with more details**
- Issue #11: Clarify and extend support for filtering if Attribute "value" is an array
- Issue #16: **Support service execution in the API**
- Issue #17: **Add query-related aspects to query results, e.g. distance when ordering by distance**
- Issue #20: **Enable Entity ordering in the distributed case using an extended EntityMap**
- Issue #21: **Extend Temporal API to retrieve/query Entities at point in time**
- Issue #22: fallbacktodefault parameter, in case instance with datasetId does not exist
- Issue #23: Add new Attribute type for links to services / media
- Issue #24: Add boundingBox field to EntityTypeInfo
- Issue #35: Except/omit registrations
- Issue #37: Add limit parameter to RegistrationManagementInfo

# Thank you for your attention

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