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| ToR TTF T026 (Ref. Body ISG CIM) |
| Version: 1.4 |
| Author: Lindsay Frost – Date: 2022-07-20 |
| Last updated by: ETSI Secretariat– Date: 2023-01-03 |
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Terms of Reference –Testing Task Force Proposal

TTF T026 (Ref. Body ISG CIM)

NGSI-LD Conformance test specification maintenance and development Phase 2

Summary information

|  |  |  |
| --- | --- | --- |
| Approval status | Approved by Ref. Body (doc ref: [CIM(22)000145r1](https://docbox.etsi.org/ISG/CIM/05-CONTRIBUTIONS/2022/CIM%2822%29000145r1_TTF2_ToR_submission..docx)) | **YES** |
| Reference Body | Ref. Body ISG-CIM |
| ETSI Funding | **Maximum budget : 85 000 EUR + 3 000 EUR Travel** |
| Minimum of 4 ETSI Members Support | **YES** |
| Time scale | **From** | 2023-03-01 |
| **To** | 2024-03-31 |
| Work Items  | [**DGS/CIM-0027**](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=66894)**: NGSI-LD Testing Framework: Test Purposes Description Language (TPDL) TTF2 D1**[**RGS/CIM-0012v211**](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=66895)**: NGSI-LD Test Suite Structure TTF2 D2**[**RGS/CIM-0013v211**](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=66896)**: NGSI-LD Test purposes description TTF2 D3**[**RGS/CIM-0014v211**](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=66897)**: NGSI-LD Test suite TTF2 D4**[**RGS/CIM-0015v211**](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=66898)**: NGSI-LD Testing environment validation TTF2 D5**[**DGS/CIM-0028**](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=66899)**: NGSI-LD Interoperability tests TTF2 D6**[**DGS/CIM-0029**](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=66911)**: NGSI-LD Implementation Conformance Statement TTF2 D7** |
| TTF Roadmap reference | 2023 |

Part I –TTF Technical Proposal

# Rationale & Objectives

## Rationale

The ISG CIM group has defined an API for exchange of information (data and metadata, including e.g. relationships between entities and properties of properties) with the intent that the associated protocol (called NGSI-LD) become the “glue” between all kinds of applications and databases associated with services for Smart Cities, Smart Agriculture, etc. Furthermore, the protocol makes it easy (indeed, mandatory) to reference the definitions of all the terms and parameters in the data, hence overcoming one of the biggest issues with data exchange: namely that the precise meaning and provenance of the initial information is lost. This will enable a huge improvement for reliability of analytics and AI systems which need to control the scope and quality of their input data. Furthermore, the protocol is intended to be adopted by a very wide range of developers desiring a simple means to let their Apps interact with a variety of data sources.

However, these advantages will not occur if the protocol is not well understood and not well implemented. The community of users will not be solely highly professional engineers employed by big companies but will include many small teams and SMEs and even hobbyists. Already there are at least four open-source implementations (FIWARE Foundation, NEC, EGM, KETI). Therefore, it is essential that the developers have access to not only the standard but also a test specification and a testing environment to check that their work is (and remains) conformant to the ETSI NGSI-LD specification and can interoperate.

The developers usually write integration tests to validate the behaviour of their NGSI-LD implementation, but it is important to assert compliance to the specification based on a test suite agreed by the group creating the API specification, i.e., ETSI ISG CIM. Therefore, it is very important to create a set of ETSI-approved conformance test cases. In addition, as number of deployments are taking place, new components (e.g. for data ingestion, event processing, visualisation, etc.) get developed and interact through the NGSI-LD API of the context broker.

## Objectives of the work to be executed

The main objective of the project is to extend and improve the existing conformance test suite for the NGSI-LD API specification and initiate a first version of interoperability test suite to be played during a Plugtest event.

In order to produce automatized and standardized test suites, existing tests are implemented in a specific programming language (Robot framework). The new tests that will be developed will use the same programming language and the same testing environment as the existing tests.

Note: one output of the works is a set of test cases written in a specific programming language. The copyright for such code snippets remains with ETSI. The right of use, modification, inclusion in open-source projects, running in commercial or non-commercial test suites is explicitly granted so long as the original source is cited.

## Previous funded activities in the same domain

ISG-CIM benefited from a TTF (TTF T004) in 2021. It resulted in the production of six deliverables:

* [DGS/CIM-0016v111 (GS CIM 016)](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=59341) “NGSI-LD Testing Framework Test Template D1-1”
* [DGR/CIM-0011v111 (GR CIM 011)](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=58942) “NGSI-LD Testing Framework TPDL D1-2”
* [DGS/CIM-0012v111 (GS CIM 012)](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=58944) “NGSI-LD Test Suite Structure D2”
* [DGS/CIM-0013v111 (GS CIM 013)](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=58946) “NGSI-LD Test Purposes Descriptions D3”
* [DGS/CIM-0014v111 (GS CIM 014)](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=58947) “NGSI-LD Test Suite D4”
* [DGR/CIM-0015v111 (GR CIM 015)](https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=58948) “NGSI-LD Testing Environment Validation D5”

##

At the time of development of these deliverables, related to v1.3 of the NGSI-LD specification, there were no Context Brokers fully compliant with v1.3 for testing all the developed the test cases. An objective of the proposed TTF is then to review issues identified since then, correct the issues and ensure a complete coverage of the specification requirements.

Then these deliverables will be extended and updated to cover forthcoming versions of the NGSI-LD API.

## Consequences if not agreed

As described in the Rationale section, the major risk to avoid is the development of many different implementations of NGSI-LD which are not conformant to the standard (and more specifically to new features introduced in the specification since version 1.3.1).

A side-benefit of this TTF, which would not be available if the work is unfunded, is a reinforcement into the ETSI in-house knowledge base of the experiences in using the Robot Framewok testing programming language.

The production of conformance test specifications will not be possible or will be significantly delayed, at the risk of making them irrelevant to the industry. Without a standard test plan to demonstrate API compliance in a uniform way, there is a risk that implementations will not be interoperable. This can lead to much longer integration times for operators as they look to piece together an CIM system, and a general loss of confidence in the industry of the CIM system itself.

In addition, the last years have seen the development of a wider adoption of the NGSI-LD specification which has been adopted in India by IUDX and formally incorporated in BIS[[1]](#footnote-2) standard while South-Korea, with the support from KETI and TTA is using NGSI-LD for the deployment of a smart city initiative. The test cases and testing environment might become cited in global projects, showing once again the value of ETSI as a centre of expertise.

# ETSI Members Support

|  |  |  |
| --- | --- | --- |
| **#** | **ETSI Member** | **Supporting delegate** |
| 1 | NEC | Lindsay Frost |
| 2 | EGM | Franck Le Gall |
| 3 | FIWARE Foundation | Fernando Lopez |
| 4 | CNIT | Giuseppe Tropea |
| 5 | KETI | SeungMyeong Jeong |
| 6 | Orange | Thomas Hassan |

# Deliverables

## Base documents

|  |  |  |
| --- | --- | --- |
| **Document** | **Title** | **Status** |
| ETSI GS CIM 006 V1.1.1 | Context Information Management (CIM) ; Information Model (MOD0) | Published |
| ETSI RGS/CIM-0009v131 | Context Information Management (CIM); NGSI-LD API: NGSI-LD  | Published |
| ETSI RGS/CIM-0009v141 | Context Information Management (CIM); NGSI-LD API: NGSI-LD  | Published |
| ETSI RGS/CIM-0009v151 | Context Information Management (CIM); NGSI-LD API: NGSI-LD  | Published |
| ETSI RGS/CIM-0009v161 | Context Information Management (CIM); NGSI-LD API: NGSI-LD  | Published when TTF starts and roadmap is frozen |
| ETSI DGS/CIM-0016v111 | NGSI-LD Testing Framework Test Template | Published |
| ETSI DGR/CIM-0011v111 | NGSI-LD Testing Framework TPDL | Published |
| ETSI DGS/CIM-00121v111 | NGSI-LD Test Suite Structure | Published |
| ETSI DGS/CIM-0013v111 | NGSI-LD Test Purposes Descriptions | Published |
| ETSI DGS/CIM-0014v111 | NGSI-LD Test Suite | Published |
| ETSI DGR/CIM-0015v111 | NGSI-LD Testing Environment Validation | Published |
|  |  |  |

## New deliverables

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliv.** | **Work Item code****Standard number** | **Working title** | **Expected date for publication** |
| D1 | DGS/CIM-0027 (GS CIM 027) V1.1.1 | Working title: **NGSI-LD Testing Framework: Test Purposes Description Language (TPDL) TTF2 D1**Scope: includes test purpose description language extracted from ETSI GS CIM 016 | March 2024 |
| D2 | RGS/CIM-0012v211 (GS CIM 012) V2.1.1 | Working title: **NGSI-LD Test Suite Structure TTF2 D2**Scope: defines the organization or grouping of test cases based on the functionality to be tested (e.g. registration, subscription, query, etc.) and - most importantly - selects minimal subsets (“narrower scope”) of functionality to permit testing of the main features of an operating NGSI-LD systemIt will include Prerequisites and Test Configurations extracted from section 4 of ETSI GS CIM 016 | March 2024 |
| D3 | RGS/CIM-0013v211 -GS CIM 013) V2.1.1 | Working title: **NGSI-LD Test purposes description TTF2 D3**Scope: includes the description of each abstract test case using the Test Template and using the Test Purposes Description Language identified in CIM-0012. | March 2024 |
| D4 | RGS/CIM-0014v211 (GS CIM 014) V2.1.1 | Working title: **NGSI-LD Test suite TTF2 D4**Scope: uses the TPDL and Test Execution Environment and the defined Test Purposes Descriptions and documents implementation of the Test Purposes Descriptions into Executable Test Cases which are in a form which can be run in the Test Execution Environment.Note (not in Scope content):Annex A should be normative and contain test suites descriptions in Robot framework languageAnnex B should be informative and contain Python code generated from the Robot framework. | March 2024 |
| D5 | RGS/CIM-0015v211 (GS CIM 015) V2.1.1 | Working title: **Testing environment validation TTF2 D5**Scope: check that the complete test environment runs successfully and to allow to learn from use of the chosen test purposes description language and operating environment.  | March 2024 |
| D6 | DGS/CIM-0028 (GS CIM 028) V1.1.1 | Working title: **NGSI-LD Interoperability test specification TTF2 D6**Scope: To develop interoperability test descriptions to cover relevant ETSI RGS/CIM-0009 requirements to be agreed with ISG CIM.  | March 2024 |
| D7 | DGS/CIM-0029 (GS CIM 029) V1.1.1 | Working title: **NGSI-LD Implementation Conformance Statement TTF2 D7**Scope: includes and updated implementation conformance statement and related annexes extracted from ETSI GS CIM 016 | March 2024 |

# Maximum budget

## Task summary/Manpower Budget

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| --- | --- |
| **Task short description** | Budget (EUR) |
|
| Task 0 – Project management | 5 000 € |
| Task 1 – Test suites contribution process | 5 000 € |
| Task 2 – Improve the current Test Suite and testing environment | 20 000 € |
| Task 3 – Extending test suites up to latest specification version | 40 000 € |
| Task 4 – Develop interoperability test specification | 15 000 € |
| **TOTAL** | 85 000€  |

Note: access to running instances of a minimum of 3 NGSI-LD brokers to evaluate validity of the test cases will be provided over the duration of the TTF as volunteer contributions by ISG members. Additionally members are expecting to be able to contribute “issues”

## Travel budget

3000 euros

The TTF is expected to use virtual access to meet with the ISG CIM group on three occasions, for two half-days each, with therefore no travel budget. Assuming that an interop event is planned, at least two experts should attend that to handle questions/issues. Work is accounted under task T4 above.

## Other budget line

None

Part II – Details on TTF Technical Proposal

# Tasks, Technical Bodies and other stakeholders

## Organization of the work

The ISG CIM will be the steering committee monitoring the work and joint teleconferences will be scheduled on average every two weeks, for 30-60 minutes, initially during the regular ISG CIM teleconference meetings on Wednesdays. Documents needing discussion and/or approval at those sessions must be uploaded to the ISG CIM at least 3 working days in advance of the call.

## The ISG CIM is responsible for contacting other standardisation groups for information or liaison or comment. Suggestions from the TTF experts are welcome. No specific coordination or alignment timetables exist.

## Other interested ETSI Technical Bodies

The ISG CIM will be the body to contact other ETSI bodies and expects to solicit comments from SmartM2M and ISG NFV regarding their relevant work.

## Other stakeholders

It is expected that the TTF will consult external stakeholders potentially interested by the TTF outcome. These will include:

* Developers willing to evaluate the compliance of their NGSI-LD implementation
* Authorities interested by the deployment of compliance testing activities, possibly leading to the setting up of certification framework, at the European (e.g. Living-In.eu) and global (e.g. IUDX/BIS, TTA, etc.) levels

Part III: Execution of Work

# Work plan, time scale and resources

## Task description

|  |  |
| --- | --- |
| **Task 0** | **Project management** |
| **Objectives** | * Planning of all tasks, including meeting agendas and action lists
* Planning timetable of deliverables, meetings, TTF teleconferences
* Soliciting and noting and acting on comments from ISG CIM about project processes and results
* Request clarifications from ISG CIM of any unclear timetables
* Arrange the required f2f meetings, including if needed additional TTF-internal f2f meetings
 |
| **Input** | * Basis for planning is this ToR
* ISG CIM meeting schedules are in the ETSI meeting scheduler (generally)
 |
| **Output** | * Action lists (and completion info)
* Meetings and Deadlines lists
* Progress and final reports
 |
| **Interactions** | * Interactions with ISG CIM
* Interactions with ETSI secretariat
 |
| **Resources required** | * Basic project-management skills
* The usual ETSI reporting tools (email accounts, TTF open areas)
 |

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| **Task 1** | **Test suite contribution process** |
| **Objectives** | This task will review the process/methodology for contribution to the test suite, considering both contributions from the TTF experts as well as handling of comments which may be provided by external stakeholders. It will specifically consider:* the process of handling the comments
* the process of validating the contributions;
* how to update the code base;
* how to update/maintain the testing framework and other dependencies (libraries, python version, etc.)
* when/how to notify the requester about handling of their contribution.

The validation process should be made lightweight while maintaining the test suite quality level so to adapt to the voluntary resources of the ISG CIM. The creation of a testing working group in ISG CIM, in charge of handling the processes, will be evaluated. |
| **Input** | * Previous deliverables produced by TTF T004
* NGSI-LD API specifications produced by ISG CIM
* Latest Robot framework and associated libraries improvements
* SAREF has set up a process for SAREF maintenance. ISG NFV is maintaining its Robot Framework based test system and test suites. Best practices will be collected from both initiatives to improve the TTF work wherever relevant.
 |
| **Output** | The task will produce the long-term processes and recommendations for handling of test suites. This will include:* Updated user guide
* Document defining the workflow for contributing to the test suite
* Tool for handling of contributions
* Working agreement
 |
| **Interactions** | * Regular interaction between the experts and the TTF Steering Committee.
* Interaction with ETSI technical staff that manages the information infrastructure and portal.
 |
| **Resources required** | Conformance test development expertise (requirements collection, test definitions); Robot Framework and Python development expertise; REST API execution and validation expertise;. |

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| **Task 2** | **Improve the current Test Suite and testing environment** |
| **Objectives** | * Review the current structure of the Test Suite and implementation of the Test Cases.
* Refactor to improve the maintenance and evolution of the Test Suite where needed
* Fix or remove any obsolete test cases
* Upgrade the libraries used by the Test Suite to their last versions
* Organise the repository to handle the different versions of the NGSI-LD API specification, using task 1 recommendations.
* Improve the error reporting capabilities of the current test system by having logging of what came in, what came out, what should have come out. Also generate results in a more developer-friendly format (to be defined). The overall goal is to easily identify the cause of a “fail” and extract the sequence causing the fail and re-run it.
 |
| **Input** | * Previous deliverables produced by TTF T004
* NGSI-LD API specifications produced by ISG CIM
* Outcomes of Task 1
 |
| **Output** | * Updated and validated Robot implementations of the Test Descriptions and test cases
* Updated Robot documentation of the changed Test Descriptions on ETSI Forge
* Improved test environment, including friendly error reporting, which can be downloaded and run locally
* Documentation (e.g. whitepaper, publication, webinar, etc.) explaining key aspects of the provided test environment
* Significant progresses on
	+ D1 (DGS/CIM-0027)
	+ D2 (RGS/CIM-0012v211)
	+ D3 (RGS/CIM-0013v211)
	+ D4 (RGS/CIM-0014v211)
	+ D5 (RGS/CIM-0015v211)
	+ D7 (DGS/CIM-0029)
 |
| **Interactions** | * Regular interaction between the experts and the TTF Steering Committee.
* Interactions with external developers’ community to gather feedback
* Online webinar and feedback session for using the tool
* Communicate with authorities possibly interested by compliance testing like approaches (e.g. Living-In.eu, IUDX/BIS, TTA, etc.)
 |
| **Resources required** | Running instances of a minimum of 2 NGSI-LD brokers to evaluate validity of the test casesConformance test development expertise (requirements collection, test definitions); Robot Framework and Python development expertise; REST API execution and validation expertise; |

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| **Task 3** | **Extending test suites up to latest specification version** |
| **Objectives** | NGSI-LD specification is evolving on a regular basis. Context brokers and application willing to get NGSI-LD compliancy are interested to reach the higher and more recent version of the specification. While all versions should be covered uniformly and completely, resources availability makes it difficult. This task will thus start from the latest published version of the API specification (at the start of the TTF) to cover each feature of the latest version of the specification with a number of tests proportional to the complexity of the feature, building upon the test suite developed for version 1.3.In the process, test cases relevant for intermediate version of the specification will be tagged as such so test suites get initialised for all versions of the specification. |
| **Input** | * Contribution process from task 1
* V1.3.1 test suite and test system from task 2
* Latest version of the NGSI-LD specification with list of features as listed in the ‘change history’ annex of the API specification
 |
| **Output** | * Expanded test suite (abstract and executable) covering relevant features of the API specification up to the latest published version, including:
	+ Updated and validated Robot implementations of the Test Descriptions and test cases
	+ Updated Robot documentation of the changed Test Descriptions on ETSI Forge.
* Completion of:
	+ D1 (DGS/CIM-0027)
	+ D2 (RGS/CIM-0012v211)
	+ D3 (RGS/CIM-0013v211)
	+ D4 (RGS/CIM-0014v211)
	+ D5 (RGS/CIM-0015v211)
	+ D7 (DGS/CIM-0029)
 |
| **Interactions** | * Regular interaction between the experts and the TTF Steering Committee.
* Interactions with external developers’ community to gather feedback
 |
| **Resources required** | Running instances of a minimum of 3 NGSI-LD brokers to evaluate validity of the test casesConformance test development expertise (requirements collection, test definitions); Robot Framework and Python development expertise; REST API execution and validation expertise; |

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| **Task 4** | **Develop interoperability test cases to support a PlugTest** |
| **Objectives** | Several NGSI-LD brokers and software modules connecting to them (e.g. data ingestion, event processing, security, visualisation) are being developed around the world and organising an interoperability event gathering the existing implementations would help strengthening the specification. Objectives of the task will be:* Development of a selection of interoperability tests based on NGSI-LD specifications;
* Collecting the observations and issues seen in the NGSI-LD specifications;
* Supporting the preparation and remote integration phases, including participation to regular conference-calls;
* Assisting with the execution of the event and the production of the event Report.
 |
| **Input** | * This task will support the ETSI PlugTest team to validate the direction taken and required
* NGSI-LD specification
 |
| **Output** | * Test specifications
* Observations and issues to be listed in the event report and validated by ETSI CTI
* Support provided as requested by ETSI CTI
* D6 (DGS/CIM-0028)
 |
| **Interactions** | * Regular interaction between the experts and the TTF Steering Committee. As well as ETSI CTI
 |
| **Resources required** | * 1 expert with practical experience in writing interoperability test scenarios and proven knowledge of the NGSI-LD specification
 |

## Milestones

Milestone A – Test suite contribution process clarified and contributions initiated

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| --- | --- | --- |
| **Milestone** | **Description** | **Cut-Off Date** |
| **A** | Test suite contribution process clarified and contributions initiated | 2023-05-31 |
| Reference Body Deliverable | Working agreement available from Task 1D1, D2, D3, D4, D5, D7 early draft submitted to ISG CIM |
| ETSI Deliverable | Progress Report approved by using approved ETSI template approved by ISG CIM |

Milestone B – API v1.3 conformance test suite available and extension to latest API versions initiated

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| **Milestone** | **Description** | **Cut-Off Date** |
| **B** | API v1.3 conformance test suite available and extension to latest API versions initiated | 2023-08-31 |
| Reference Body Deliverable | D1, D2, D7 stable draftD3, D4, D5 advanced draft (including T2 contributions and outline for T3 contributions) submitted to ISG CIM |
| ETSI Deliverable | Interim Report approved by using approved ETSI template approved by ISG CIM |

Milestone C – TTF Closing

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| --- | --- | --- |
| **Milestone** | **Description** | **Cut-Off Date** |
| **C** | TTF Closing | 2024-03-31 |
| Reference Body Deliverable | All deliverables published |
| ETSI Deliverable | Final Report approved by using approved ETSI template approved by ISG CIM |

## Task summary

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| --- | --- | --- | --- |
| **Code** | **Task / Milestone**  | Target Date | Estimated Cost (EUR) |
| From | To |
|  | Start of work | Mar. 2023 |  |
| T0 | Project management | Mar. 2023 | Mar. 2024 | 5 000 € |
| T1 | Test suites contribution process | Mar. 2023 |  Apr. 2023 | 5 000 € |
| Milestone A | Progress Report approved by ISG CIM D1, D2, D3, D4, D5, D7 early draft submitted to ISG CIM | May. 2023 |  |
| T2 | Improve the current Test Suite and testing environment | May. 2023 | Jul. 2023 | 20 000 € |
| Milestone B | Progress Report approved by ISG CIM D1, D2, D7 stable draftD3, D4, D5 advanced draft (including T2 contributions and outline for T3 contributions) submitted to ISG CIM | Aug. 2023 |  |
| T3 | Extending test suites up to latest specification version | Aug. 2023 | Jan. 2024 | 40 000 € |
| T4 | Develop interoperability tests | Dec. 2023 | Mar. 2024 | 15 000 € |
| Milestone*C* | Final Report approved by ISG CIM D1, D2, D3, D4, D5, D7 Deliverables published, TTF closed | Mar. 2024 |  |
|  | **85 000 €** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Task/ Mil.** | **M** | **A** | **M** | **J** | **J** | **A** | **S** | **O** | **N** | **D** | **J** | **F** | **M** |
| T0 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T1 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T2 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MA |  |  | X |  |  |  |  |  |  |  |  |  |  |
| T3 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MB |  |  |  |  |  | X |  |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MC |  |  |  |  |  |  |  |  |  |  |  |  | X |

# Expertise required

## Team structure

2 to 4 participants are required, to ensure the following mix of competences.

The ISG CIM Chair appoints a TTF Leader, in consultation with ETSI staff.

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| --- | --- |
| **Priority** | **Qualifications and competences** |
| High | Knowledge of the NGSI-LD specification |
| High | Knowledge of test suites development with the ETSI formalism based on Robot framework |
| Medium | Knowledge of interoperability tests development and evaluation |

Part IV: TTF performance evaluation criteria

# Performance Indicators

The performance indicators must include qualitative and quantitative assessment of the following elements, as applicable:

|  |
| --- |
| **Select relevant Performance indicators applicable for these ToR (X)** |
| Contribution from ETSI Members to TTF work |
| Steering Group meetings (number of meetings / participants / duration)  | 3 meetings with ISG CIM  |
| Number of delegates directly involved in the review of the deliverables  | expect minimum 3 delegates on the decision points  |
| Number of NGSI-LD implementations (endpoints) made available to TTF for evaluation of the test suite  | At least 2 implementations of the NGSI-LD API specification should be tested if available.  |
|  |  |
| **Contribution from the TTF to ETSI work** |
| Contributions to ISG CIM meetings (number of documents / meetings / participants)  | Updated draft WIs about every 4 – 6 weeks  |
|  |  |
| **Liaison with other stakeholders** |
| Stakeholder participation in the project (category, business area) | Min 3 Authorities dealing with compliance testing and having interest in certification framework deployment contacted to identify priority areas of interest |
| Comments received on drafts (e.g. on WEB site, mailing lists, etc.) | One webinar organised with feedback survey.Min. 3 progress presentations made to developers community (e.g. Fiware Technical Steering Committee) to gather feedback  |
|  |  |
| **Quality of deliverables** |
| Respect of time scale. Earlier delivery of results is highly appreciated.  | Baseline is start/end dates in the approved ToR  |
| Approval of deliverables according to schedule  | Baseline is to get agreement of Drafts V1.0.1 by ISG CIM within 4 weeks after deliverable schedule  |
| Comments from Quality review by ISG CIM  | Note the decisions of CIM on each WI and the handling of any requests for changes.  |
| Comments from Quality review by ETSI Secretariat | *Stability of decision processes*  |
| Deliverables approved by ISG CIM accepted by the ETSI Secretariat for publication  | All deliverables published  |

# Document history

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| --- | --- | --- | --- | --- |
|  | **Date** | **Author** | **Status** | **Comments** |
| 0.0 | 2022-07-06 | Plenary |  |  |
| 1.0 | 2022-07-20 | T.O. | Final draft | Created work items and spotted missing parts |
| 1.1 | 2022-07-22 | F. Le Gall | Revised Final draft | Corrected deliverables presentation to align with ETSI CTI methodology  |
| 1.2 | 2022-08-25 | U Mulligan | Editorial changes |  |
| 1.3 | 2022-11-07 | ETSI Secretariat | Final | Updates before IKOM |
| 1.4 | 2023-01-03 | ETSI Secretariat | Final  | Updates before CL publication |

Annex I Response to the Request for Proposals
CfE – T026 (REFERENCE BODY ISG CIM) Deadline: 03/02/2023

|  |
| --- |
| **Contractor information \*** |
|  |
| **Contractor name \*:***Indicate the Company/Organization Name* |  |
|  |
| **Contact person for the technical aspects** | **Contact person for Decision on ETSI financial offer to this project (if any)** |
| Title |  | Title |  |
| First name |  | First name |  |
| Last name  |  | Last name  |  |
| Role |  | Role |  |
| e-mail |  | e-mail |  |
| Phone |  | Phone |  |
|  |
|  | **Yes** | **No** |
| Do you or any employee of your Company/Organization hold an elected or appointed position in the Reference Body requesting the  T026 creation? | oIndicate in which position:----------------------------------- | o |
| **If you are self-employed candidate:**Do you currently have other contracts in progress with ETSI? | o | o  |

All fields marked with an asterix (\*) are mandatory

**1.1 Introduction**

A short presentation of the technical structure responsible for this activity, e.g.:

* Business area, number of employees, link to WEB site,
* Department(s)/team(s)/experts in charge of the technical activities related to this Project,
* Reference to products/services of your Company/Organization or supporting Member to which the standards developed by this Project will apply,
* Motivation for your Company/Organization or supporting Member to participate in this Project.

**1.2 Proposed approach**

**Proposed contribution to tasks & related cost**

Identify the tasks to which your Company/Organization is proposing to contribute by filling-in the table below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tasks\_****No** | **Tasks\_Description** | **Max\_Budget\_****Allocated\_in\_Euro** | **Amount\_in\_Euro****\_(mandatory)** | **%\_of\_whole\_Task\_****(mandatory)** |
| 00 | Project management | 5000 | . | . |
| 01 | Test suites contribution process | 5000 | . | . |
| 02 | Improve the current Test Suite and testing environment | 20000 | . | . |
| 03 | Extending test suites up to latest specification version | 40000 | . | . |
| 04 | Develop interoperability tests | 15000 | . | . |

**Amount in Euro (mandatory)**: Indicate the price offered for your contribution to the task(s)

**% of whole task (mandatory)**: Indicate to which percentage of the execution of the whole task your offer corresponds

Provide a description of the proposed approach, competences, reference to related activities:

* Explain which part of the task is corresponding to the requested percentage that your Company/Organization will handle,
* Explain the scope that your Company/Organization will cover,
* Explain your approach to the management of the quality and,
* Explain your approach to the management of the risks and their mitigation,
* Describe and justify the proposed costs to achieve this project objectives.

Annex II Terms and Conditions
CfE – T026 (REFERENCE BODY ISG CIM) Deadline: 03/02/2023

**2.1 Submission of Proposals**

All proposals in response to this CfE shall be submitted before the deadline indicated in thisCollective Letter, using exclusively the WEB application on the ETSI Portal at the following address: <https://portal.etsi.org/cfe>.

Proposals shall be composed of Curriculum Vitae of the proposed service providers’ personnel and the Annex I of this CfE duly filled-out.

Proposals that will be partial or incomplete at the deadline will not be accepted.

The Terms and Conditions in this Annex will apply.

**2.2 Modification and Withdrawal of Proposals**

Applicants may, without prejudice to themselves, modify or withdraw their proposal by written request, provided that the request is received by ETSI prior to the due date and time, at the address to which their proposal was submitted. The applicant may submit a new proposal provided that such new proposal is received prior to the deadline for responding which is specified in this Collective Letter.

**2.3 Assessment of Proposals**

The ETSI Director-General, in consultation with the Reference Body Chairman, is responsible for the selection of the service providers that will be contracted to perform this Project work. The ETSI Director-General and the Reference Body Chairman may be assisted by a Selection Panel to assess the applications received and make the final decision.

As per article 1.10.4 of the ETSI Directives, the Director-General may discard proposals that could be identified as creating potential conflict of interest.

The ETSI Secretariat will only communicate to the applicants the result of the selection (accepted or not accepted). Should applicants need more information on the rationale for the selection, they must address a formal request to the ETSI Director-General.

The following evaluation criteria will be applied to all proposals, in order of priority:

* Evidence that the applicant has the necessary structure and expertise to ensure delivery
* Reference to current or previous activities in the specific technical domain of this project
* Critical review of the most efficient way to achieve the objectives in this Project ToR
* Effective proposed approach/methodology for the execution of the tasks
* Implementation schedule
* Clear pricing policy

Compliance with the first two (2) criteria is mandatory.

Proposals that are not considered compliant with these criteria will be discarded.

Priority will be given to technical quality of the proposals. Pricing considerations will be taken into account to ensure that the best value for money is achieved. Compatibility with the maximum budget allocated to this Project will be verified before placing a Service Contract.

Following the assessment process, ETSI reserves the right to grant contracts to other than the cheapest proposals, to accept or reject any offer completely or in part, or to reject all proposals, without providing the reasons. If no offer is accepted, ETSI may decide to abandon the work or proceed in any other manner ETSI may select.

**2.4 IPR and confidentiality Agreements**

The information provided in this CfE, as well as the fact that the applicant has received the CfE, is considered confidential and protected under copyright laws. The applicant may not discuss, share, or use the information in this CfE for any purpose other than the response to this CfE.

ETSI will not disclose the content of any proposals to other applicants or any other party, with the exception of the persons involved in the assessment process described in §2.3 above.

However, ETSI reserves the right to make use of the information provided in this proposal to improve this project definition for the purpose of this CfE or any other manner in which ETSI may decide to proceed to select the service providers.

If successful, the applicant will be required to sign a Service Contract, which includes IPR and Confidentiality clauses aligned with the relevant policies in the ETSI Directives.

**2.5 Preparation cost**

ETSI will not be responsible for any costs or expenses that the applicant may incur in preparing and/or submitting the proposal.

**2.6 Service Contract**

A Service Contract will be proposed to the applicants that will be selected to perform the work.

Details on the Terms and Conditions of this contract can be found on the ETSI Portal, at the following address: <https://portal.etsi.org/STF/STFs/Contracts.aspx>

1. Indian Standard IS 18003 (Part 2): 2021, “Unified Data Exchange - Part 2 API Specifications “, https://iudx.org.in/wp-content/uploads/2021/07/18003-2.pdf [↑](#footnote-ref-2)