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| **Title\*:** | Tasks proposal for STF ToR on | | |
|  |  | | |
| from **Source**\*: | ETSI | | |
| Contact: | Michele Carignani | | |
|  |  | | |
| input for **Committee**\***:** | MTS | | |
|  |  | | |
| Contribution **For\*:** | Decision |  |  |
|  | Discussion | **X** |  |
|  | Information |  |  |
|  |  | | |
| Submission date**\***: | 2019-01-24 | | |
|  |  | | |
| Meeting & Allocation: | **MTS#76** - | | |
| Relevant WI(s), or deliverable(s): |  | | |
|  | | | |

**ABSTRACT:***Task list and objectives for a ToR under draft to request a STF for DEG/MTS-1029511.*

Task 1 – Ground setting

Objectives

* Have clear and agreed definitions of:
  + Terminology,
  + Scope of the work
  + Fundamental references
  + Target audiences
* Define the summary and structure of the deliverable
* Compilation of information to be gathered in Task 2 into a short questionnaire.

Input

Base documents, available literature.

Output

Summary of the deliverable, first draft of terminology, first draft of normative and informative references. Questionnaire for Task 2.

Interactions

Interested TBs will be consulted and asked to review and contribute to the clauses provided.

Resources required

Expertise in design of interfaces for telecommunication systems with RESTful paradigm (REST APIs).

Task 2 – Survey and collection of current Activities inside and outside ETSI

Objectives

* Learn from experiences of Specification and Testing of REST APIs in the context of standardization, including (but not limited to):
  + 3GPP
  + ETSI TC SmartM2M and OneM2M Partnership Project
  + ISG NFV
  + ISG MEC
  + ISG CIM
  + OSG OSM
* Report on specification activities from other SDOs or industry associations
* Collect overall requirements for Standardization of REST APIs

Input

Deliverables and documentation respectively specified in the target groups. Direct interaction with rapporteurs and officials involved.

Output

Knowledge based of standardization activities for REST APIs

Interactions

Direct interaction with key delegates and officials of the ETSI group targeted.

Resources required

NA

Task 3 – Report knowledge base gathered in Task 2

Objectives

* Compilation, in a unified manner, of information collected from the different groups and initiatives

Input

Information collected in Task 2

Output

Clause of the target deliverable to document and report the current activities and the main requirements they address or signal.

Interactions

NA

Resources required

NA

Task 4 – Guidelines on adoption of REST APIs in Standardization activities

* Provide guidance in support of decision to adopt the RESTful approach for APIs in ETSI, and when not to.
* Very brief comparison against other approaches, which may include comparison with technologies such as:
  + SOAP,
  + GRAPHQL, FALCOR, (g)RPC, COM, RMI, JMS/RABBITMQ, Bus topologies.

Objectives

* Provide guidance in support of decision to adopt the RESTful approach for APIs in ETSI, and when not to.
* Brief highlights of pros and cons of a RESTful approach, with references to the difference against other approaches, which may include comparison with technologies such as:
  + SOAP,
  + GRAPHQL, FALCOR,
  + (g)RPC,
  + COM,
  + RMI,
  + JMS/RABBITMQ,
  + Bus topologies.
* The focus is on a synthetic process to select the best approach rather than a complete documentation.

Input

Literature on the domain and target technologies.

Output

Clause of the deliverable reporting guidance for ETSI TBs on REST APIs adoption.

Interactions

NA

Resources required

NA

Task 5 – Propose a unified guideline for specification and testing: process and best practices

Objectives

* Formulate and document a process for APIs specification and testing;
* The process needs to go through all the stages of standardization and testing;
* In particular:
  + Specification best practices
    - Specification of provisions (requirements, recommendations, options)
    - Data modelling practices
    - Specification formats (e.g. OpenAPIs, RAML, etc.)
    - Generation of documentation from machine readable specification formats
  + API design best practices
    - Communication patterns (e.g. asynchrounous notifications)
    - Security (authorizations, authentication)
  + Testing best practices
    - Instantiation of ETSI testing methodology with highlights on specifics for REST APIs, such as
      * Generic test architecture
      * Recommendations on Test Purposes
      * Recommendations on Abstract Test Suites
    - Recommendations on Conformance checks in Interoperability test activities,
    - Test Generation and Automation opportunities
  + REST API specification and test development process
    - Steps for an ETSI or PP working group to develop and maintain an API in an efficient way, meeting the high quality of ETSI standards

Input

TBD

Output

TBD

Interactions

NA

Resources required

NA

Task 6 – Creation of an example with ETSI Tools (TDL + TTCN) and others (OpenAPIs)

Objectives

Provide an example to illustrate the process of API specification and testing proposed.

Input

NA

Output

* An end-to-end example of a REST API specification and test specifications developed, using the methodology proposed in task 5, applied to the tools and languages developed by TC MTS and ETSI.

Interactions

* Remote email interaction with TC MTS representatives if needed
* Remote email interaction with ETSI departments CTI and ITC

Resources required

NA

Task 7 – Dissemination and validation activities

Objectives

Validate, refine, document and refine the methodology and the use case proposed with various activities including publication of web pages, presentations at ETSI Meetings, a webinar.

Input

TBD

Output

* Publication of publicly available web page to introduce and explain the methodology
* Participation of at least 2 ETSI/PP meetings to present the outcome of the work
* ETSI Webinar on REST APIs development at ETSI

Interactions

Resources required