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European Multi-Stakeholder Platform on ICT Standardization

Meeting: **4th December 2014**

Title document: ***Submission for: JavaScript Object Notation (JSON) RFC 7159 (Proposed Standard) RFC 4627 (Informational)***

Document for:

Information	
Decision	✓
Discussion	

The MSP is requested to take a decision on setting up an evaluation working group for identification of this technical specification.

Email: entr-ICT-standardisation@ec.europa.eu

Identification of ICT Specifications

Submission form

Disclaimer: the questions asked on this form are to assist in the evaluation of the specification against EU regulation 1025/2012, annex II criteria, and do not identify new or more stringent requirements

Part I: Information

I.i Information on the submitter:

1	Name, First name	Marijke Abrahamse
2	Organisation	Standardisation Forum Office, The Netherlands.
3	Position / Role	Advisor
4	Contact information: - Address - Phone number - e-Mail	Standardisation Forum Office Wilhelmina van Pruisenweg 52 2595 AN Den Haag The Netherlands 070 - 888 7776 Marijke.abrahamse@logius.nl
5	Date of submission	23 October 2014

I.ii Information on the submission:

6	Title of the specification[1]	JavaScript Object Notation (JSON) RFC 7159 (Proposed Standard) RFC 4627 (Informational)
7	Address where the version of the specification can be obtained/downloaded	RFC 7159: http://tools.ietf.org/html/rfc7159 RFC 4627: http://tools.ietf.org/html/rfc4627
8	Name, identifier and website of the standard developing organisation (SDO) of the specification	The Internet Engineering Task Force (IETF) http://www.ietf.org/
9	Contact information/contact person (including email address and phone number) a.) for the organisation (optional) b.) for the specification submitted (optional)	Contact information IETF: http://www.ietf.org/contact-the-ietf.html

1 The term "ICT specification" is used in the Regulation 1025/2012, Article 13, for specifications in the field of ICT that have been identified following the process of assessment against the Requirements and criteria laid down in Annex II to the Regulation. The 'specification' (as it will be cited along the present submission form) may be a single one or a 'coherent set' of ICT specifications; in all the cases the identity (including version) of each single document needs to be clearly announced, e.g. in one attached document.

10	Describe the reason for the submission, the need and intended use for the specification	The specification under consideration is part of a cluster of specifications targeted towards "setting-up a website". Reason for submission of these specifications to the MSP is that these specifications are widely adopted and used. The specifications in this cluster are: FTP, HTTPS, HTTP, URI, URL, URN, UTF-8 and JSON. Each of these specifications in the cluster are briefly described below in relation to the other specifications in the cluster. The File Transfer Protocol (FTP) is a standard network protocol used to transfer computer files from one host to another host over a TCP-based network, such as the Internet. The objectives of FTP are 1) to promote sharing of files (computer programs and/or data), 2) to encourage indirect or implicit (via programs) use of remote computers, 3) to shield a user from variations in file storage systems among hosts, and 4) to transfer data reliably and efficiently. FTP, though usable directly by a user at a terminal, is designed mainly for use by programs. FTP is built on a client-server architecture and uses separate control and data connections between the client and the server. FTP users may authenticate themselves using a clear-text sign-in protocol, normally in the form of a username and password, but can connect anonymously if the server is configured to allow it. For secure transmission that protects the username and password, and encrypts the content, FTP is often secured with SSL/TLS (FTPS). SSH File Transfer Protocol (SFTP) is sometimes also used instead, but is technologically different. Hypertext Transfer Protocol (HTTP) 1.1 is an application-level protocol for distributed, collaborative, hypermedia information systems. It is a generic, stateless, protocol which can be used for many tasks beyond its use for hypertext, such as name servers and distributed object management systems, through extension of its request methods, error codes and headers. A feature of HTTP is the typing and negotiation of data representation, allowing systems to be built independently of the data being transferred. HTTP has been in use by the World-Wide Web global information initiative since 1990. HTTP/1.1 is a revision of the original HTTP (HTTP/1.0). In HTTP/1.0 a separate connection to the same server is made for every resource request. HTTP/1.1 can reuse a connection multiple times to download images, scripts, stylesheets, etc after the page has been delivered. HTTP/1.1 communications therefore experience less latency as the establishment of TCP connections presents considerable overhead.

		Hypertext Transfer Protocol Secure (HTTPS) is a communications protocol for secure communication over a computer network, with especially wide deployment on the Internet. Technically, it is not a protocol in and of itself; rather, it is the result of simply layering the Hypertext Transfer Protocol (HTTP) on top of the SSL/TLS protocol, thus adding the security capabilities of SSL/TLS to standard HTTP communications. The security of HTTPS is therefore that of the underlying TLS, which uses long-term public and secret keys to exchange a short term session key to encrypt the data flow between client and server. In computing, a Uniform Resource Identifier (URI) is a string of characters used to identify a name of a resource. Such identification enables interaction with representations of the resource over a network, typically the World Wide Web, using specific protocols. Schemes specifying a concrete syntax and associated protocols define each URI. The most common form of URI is the uniform resource locator (URL), frequently referred to informally as a web address. More rarely seen in usage is the uniform resource name (URN), which was designed to complement URLs by providing a mechanism for the identification of resources in particular namespaces. The URN defines an item's identity, while the URL provides a method for finding it. Uniform Resource Locator (URL) (also known as web address, particularly when used with HTTP), is a specific character string that constitutes a reference to a resource. In most web browsers, the URL of a web page is displayed on top inside an address bar. An example of a typical URL would be "http://en.example.org/wiki/Main_Page". The address contains three elements: the type of protocol used to access the file (e.g., HTTP for a Web page, ftp for an FTP site); the domain name or IP address of the server where the file resides; and, optionally, the pathname to the file. Uniform Resource Names (URNs) are intended to serve as persistent, location-independent, resource identifiers and are designed to make it easy to map other namespaces (which share the properties of URNs) into URN-space. Therefore, the URN syntax provides a means to encode character data in a form that can be sent in existing protocols, transcribed on most keyboards, etc. UTF-8 (UCS Transformation Format—8-bit) is a variable-width encoding that can represent every character in the Unicode character set. It was designed for backward compatibility with ASCII and to avoid the complications of endianness and byte order marks in UTF-16 and UTF-32. UTF-8 has become the dominant character encoding for the World Wide Web, accounting for more than half of all Web pages. The Internet Mail Consortium (IMC) recommends that all e-mail programs be able to display and create mail using UTF-8. UTF-8 is also increasingly being used as the default character encoding in operating systems, programming languages, APIs, and software applications.

		JavaScript Object Notation (JSON), is an open standard format that uses human-readable text to transmit data objects consisting of attribute value pairs. It is used primarily to transmit data between a server and web application, as an alternative to XML. Although originally derived from the JavaScript scripting language, JSON is a language-independent data format, and code for parsing and generating JSON data is readily available in a large variety of programming languages. JSON is now a formal international data processing specification: ECMA 404. http://www.i-programmer.info/news/167-javascript/6484-json-is-now-an-ecma-standard.html
11	Is any other evaluation of this specification known, e.g. by member states or European Commission projects? If so, provide a link to this evaluation and –if possible- attach the evaluation in in Annex 1 of this form.	Yes, JSON has been evaluated by the Dutch Standardisation Office in 2013. Result was that the specification has been placed on the 'commonly-used' list of the Standardisation Office. See: https://lijsten.forumstandaardisatie.nl/open-standaard/json
12	State whether this submission concerns: A) Identification of a new specification B) a revision of an already identified specification C) a proposal to withdraw the identification of an already identified specification	A
12a	If 12, Case B, applies: please provide information on backward and forward compatibility with the version already approved.	
12b	If 12, Case C applies: explain why the ICT specification no longer complies with the requirements for identification or the reasons for its withdrawal	

13	Is the submitted ICT specification: A) the first ICT specification from this standards developing organisation B) an ICT specification coming from a SDO of which a specification has previously been identified and which has undergone the same development and approval processes in the organisation. *If 13 B applies please give information concerning the identified ICT specification(s).*	B. JSON is a specification from IETF. Previous submissions of IETF specifications to the MSP are DKIM, LDAP, DNSSEC and IPv6.

Information on the criteria of Annex II

All these questions are optional. If an answer is provided and explanation note should be given including as many links and references.

1. The technical specifications have market acceptance and their implementations do not hamper interoperability with the implementations of existing European or international standards. Market acceptance can be demonstrated by operational examples of compliant implementations from different vendors.

14	Has the specification been used for different implementations by different vendors/suppliers?	YES JSON is already widely applied and many web browsers support JSON, such as Internet Explorer, Safari, Opera, Firefox and Google. JSON is also used outside the browser-environment, for instance,the PostgreSQL database supports JSON as a datatype and Amazon Elastic Search uses JSON for configuration files.
15	Does the implementation of the specification hamper interoperability with the implementation of existing European or international standards?	NO There are no interoperability issues for JSON and other existing European or international standards. JSON is a good alternative to XML, which has already been identified by the European Commission / MSP as an EU technical specification. However, they are not conflicting.
16	Are you aware of public references of the respective specification by public authorities (especially policies or in procurements)	YES JSON is already used by the Dutch government on the open data portal as an alternative for XML.

		The European Commission listed the current state of play of recommended/mandatory ICT standards and specifications in the EU Member States. JSON is listed in France. See: https://joinup.ec.europa.eu/community/camss/og_page/list-standards

2. The technical specifications are coherent as they do not conflict with European standards, that is to say they cover domains where the adoption of new European standards is not foreseen within a reasonable period, where existing standards have not gained market uptake or where these standards have become obsolete, and where the transposition of the technical specifications into European standardisation deliverables is not foreseen within a reasonable period.

17	Does the technical specification or standard cover areas different from areas addressed by technical specifications being under consideration to become a European standard? (*i.e. technical specifications provided by a non-formal standardisation organisation, that is other than CEN, CENELEC or ETSI can be under consideration to become a European standard or alternatively an identified technical specification*)	YES JSON is a good alternative to XML that covers more or less the same area. JSON is often compared to XML, but they are not conflicting. Both standards are commonly used. XML is standardized by W3C, which is not a formal European standardization organization. XML has been identified by the European Commission / MSP as an ICT technical specification. http://www.json.org/xml.html
18	a/ Is the adoption of new European Standards which cover the same areas as the proposed specification (or standard) foreseen within a reasonable timeframe? . b/ Are there existing European standards with market uptake which cover the same areas as the proposed specification (or standard) being assessed? c/ If yes, are the existing standards becoming obsolete?	a) NO, there is no adoption of new European Standards foreseen covering the same area as JSON. b) NO, there are no existing European standards with market uptake covering the same area as JSON.

3. The technical specifications were developed by a non-profit making organisation which is a professional society, industry or trade association or any other membership organisation that within its area of expertise develops standards in the field of information and communication technologies and which is not a European, national or international standardisation body

19	Is the standards developing organisation a non-profit making organisation?	YES See: http://www.ietf.org/newcomers.html

.....through processes which fulfil the following criteria:

3.a Openness: the technical specifications were developed on the basis of open decision-making accessible to all interested parties in the market or markets affected by the standard.

20	Is participation in the creation process of the specification open to all interested parties (e.g. organisations, companies or individuals)?	YES The IETF is completely open to newcomers. There is no formal membership, no membership fee, and nothing to sign. The IETF's standards development work is organized into 8 Areas (http://www.ietf.org/iesg/area.html). Each Area has 1 or more Area Directors (ADs), which together comprise the Internet Engineering Steering Group (IESG). The IESG is responsible for technical management of IETF activities, the Internet standards process, and

		for the actions associated with entry into and movement along the Internet "standards track," including final approval of specifications as Internet Standards and publication as an RFC. Within each Area there are multiple Working Groups (WG). Each WG has one or more chairs who manage the work, and a written charter defining what the work is and when it is due. There are more than 100 WGs. The WGs produce Internet Drafts (I-Ds) which often lead to the publication of an Internet standard as an RFC

3.b Consensus: the decision-making process was collaborative and consensus based and did not favour any particular stakeholder. Consensus means a general agreement, characterised by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments. Consensus does not imply unanimity.

21	Are the specifications approved in a decision making process which aims at reaching consensus?	YES The IETF is a consensus-based group, and authority to act on behalf of the community requires a high degree of consensus and the continued consent of the community. The process of creating an Internet Standard is straightforward: a specification undergoes a period of development and several iterations of review by the Internet community and revision based upon experience, is adopted as a

		Standard by the appropriate body and is published. In practice, the process is more complicated, due to (1) the difficulty of creating specifications of high technical quality; (2) the need to consider the interests of all of the affected parties; (3) the importance of establishing widespread community consensus; and (4) the difficulty of evaluating the utility of a particular specification for the Internet community. The goals of the Internet Standards Process are: • technical excellence; • prior implementation and testing; • clear, concise, and easily understood documentation; • openness and fairness; and • timeliness. The goal of technical competence, the requirement for prior implementation and testing, and the need to allow all interested parties to comment all require significant time and effort. The Internet Standards Process is intended to balance these conflicting goals. The process is believed to be as short and simple as possible without sacrificing technical excellence, thorough testing before adoption of a standard, or openness and fairness. See http://www.ietf.org/about/process-docs.html

3.c Transparency:

(i) all information concerning technical discussions and decision making was archived and identified.

(ii) information on new standardisation activities was widely announced through suitable and accessible means.

(iii) participation of all interested categories of interested stakeholders was sought with a view to achieving balance.

(iv) consideration and response were given to comments by interested parties.

22	Is relevant documentation of the development and approval process of the specification archived and identified?	YES All the information concerning development and approval processes can be found here: http://www.ietf.org/about/process-docs.html All information on the specification is recorded in the RFC. If an RFC is updated, it gets a new number, therefore all the information on past adjustments is available in the previous RFCs.
23	Is information on (new) standardisation activities widely announced through suitable and accessible means?	YES When you are interested you can subscribe to the mailing list and receive all the information concerning (new) standardisation activities. The meetings are held a several times per year and are open to everybody. They are announced on the website and a report on each meeting is published here as well.

24	All relevant stakeholders can formally appeal or raise objections to the development and approval of specifications?	YES As much as possible the process is designed so that compromises can be made, and genuine consensus achieved, however there are times when people are unable to agree. To achieve the goals of openness and fairness, such conflicts must be resolved by a process of open review and discussion. See process RFC 2026, Internet Standard Process: http://www.ietf.org/rfc/rfc2026.txt

4. The technical specifications meet the following requirements:

4.a Maintenance: Ongoing support and maintenance of published specifications are guaranteed over a long period.

25	Does the specification have a defined maintenance and support process?	YES IETF has a clear policy that all revisions of standards must go through the same process as a new standard. The organization has stated commitment to support the standard throughout its life. See: https://webgate.ec.europa.eu/fpfis/mwikis/idabc-camss/index.php/Evaluation_of_Ten_Standard_Setting_Organizations_with_Regard_to_Open_Standards,_IETF JSON Working Group: The WG will work on an restricted profile of JSON designed to maximize interoperability. https://datatracker.ietf.org/wg/json/charter/

4.b Availability: Specifications are publicly available for implementation and use on reasonable terms (including for a reasonable fee or free of charge).

26	Is the specification publicly available for implementation and use on reasonable terms?	YES The RFCs are publicly available, free of charge, for implementation. RFC 4627 (Informational) and RFC 7159 should also be consulted when implementing.

4.c Intellectual Property Rights (IPR) essential to the implementation of specifications are licensed to applicants on a (fair) reasonable and non-discriminatory basis ((F)RAND), which includes, at the discretion of the intellectual property rightholder, licensing essential intellectual property without compensation.

27	a/ Is the specification licensed on a (F)RAND basis? b/ Is the formal specification licensed on a royalty-free basis?	YES The IETF requires an IPR disclosure if a participant in the standardisation has or is aware of IPR on the technology. The IPR policy of IETF is defined in RFC 4879 and http://www.ietf.org/ipr/policy.html The IETF data tracker can be used to search for IPR disclosures and the licensing terms offered by the IPR claimant: https://datatracker.ietf.org/ipr/search/ For RFC 7159 and 4627 no disclosures were found. The specification is licensed on a royalty-free basis.

4.d Relevance:

(i) the specifications are effective and relevant;

(ii) specifications need to respond to market needs and regulatory requirements.

28	a/ Does the specification address and facilitate interoperability between public administrations?	YES JSON has been widely used and facilitates interoperability. JSON is increasingly being used for "Internet of Things" / "Wireless Sensor Network" services, which is part of the Digital Agenda (http://ec.europa.eu/digital-agenda/en/internet-things)
	b/ Is there evidence that the adoption of the specification positively impacts one or several of the following: organisational processes; the environment; the administrative burden; the disability support; cross-border services, public policy objectives and societal needs ?	Maybe: we could not find documented evidence for positive impact on these aspects. However, when interoperability between IT systems is increased by using this protocol, this indirectly positively impacts these aspects.

4.e Neutrality and stability:

(i) specifications whenever possible are performance oriented rather than based on design or descriptive characteristics;

(ii) specifications do not distort the market or limit the possibilities for implementers to develop competition and innovation based upon them;

(iii) specifications are based on advanced scientific and technological developments.

29	a/ Is the formal specification largely independent from specific vendor products? b/ Is the formal specification largely independent from specific platforms or technologies?	YES The specification can be used independently from specific vendor products. YES The specification can be used on any operating system and hardware platform.

4.f Quality:

(i) the quality and level of detail are sufficient to permit the development of a variety of competing implementations of interoperable products and services;

(ii) standardised interfaces are not hidden or controlled by anyone other than the organisations that adopted the technical specifications.

30	Has the specification sufficient detail, consistency and completeness for the use and development of products and services?	YES JSON already has been widely implemented and used.

Annex:

MSP question number	Reference question in CAMSS
14	A.28
17	A.49
18	A.47 and A.48
20	A.17
21	A.20
24	A.22
25	A.44
26	A.24
27	A.26 and A.27
28	A.33, A.34, A.35, A.39 and A.40 merged in one question
29	A.7 and A.8
30	A.11