

## **Committee on WIPO Standards (CWS)**

**Seventh Session  
Geneva, July 1 to 5, 2019**

### **PROPOSAL FOR WIPO STANDARD ON WEB APPLICATION PROGRAMMING INTERFACE (API)**

*Document prepared by the International Bureau*

#### **INTRODUCTION**

1. Taking into account the fact that an increasing number of Intellectual Property Offices (IPOs) use web services to support their clients, at the fifth session of the Committee on WIPO Standards (CWS) held in 2017, the International Bureau proposed the creation of a new task to support IPOs in this development of web services (see CWS/5/15). The CWS created Task No. 56 and this Task was assigned to the XML4IP Task Force (XML4IP TF). The description of Task No. 56 is reproduced below:

“Prepare recommendations for data exchange supporting machine to machine communications focusing on:

- i. Message format, data structure and data dictionary in JSON and/or XML;
- ii. Naming conventions for Uniform Resource Identifier (URI) of resources.”

2. In conducting Task No. 56 and preparing the draft standard, the Task Force hopes that the following benefits will be realized by IPOs:

- guidance on industry best practices, regardless of the size of the Office;
- a recommendation on an appropriate data structure and a standardized business vocabulary which would facilitate communication between machines or software applications developed by IPOs;
- a recommendation on security and authentication solutions which would assist IPOs in selecting software and approaches to authentication where different required security levels exist; and

- a naming convention which will provide a standardized approach in identifying data resources while versioning of the said resources would facilitate Intellectual Property (IP) data exchange at the international level.

3. At its sixth session held in 2018, the CWS noted a working draft Web API standard prepared by the XML4IP Task Force (see document CWS/6/6 CORR.). Furthermore, the CWS approved two potential candidates as model Web APIs: an OPD (One Portal Dossier)-inspired web service and web services for exchange of patent legal status data (see paragraphs 44 to 46 of document CWS/6/34). The CWS approved the need for further revisions to the draft standard in order to provide a final document for consideration at the seventh session of the CWS (see paragraph 48 of document CWS/6/34).

4. Since the sixth session, the XML4IP Task Force, within the framework of conducting Task No. 56, organized several rounds of discussions through online meetings and on the Task Force wiki to improve on the draft document. During the XML4IP Task Force Meeting held in Seoul in March 2019, the discussions continued on both the scope and content of the standard.

5. Also since the sixth session, the International Bureau had internal discussions on the draft standard and plans to implement it in WIPO web services, where applicable.

#### REVISION OF WORKING DRAFT STANDARD

6. Taking into account the discussions at the Seoul XML4IP TF Meeting and further comments provided on the XML4IP Task Force wiki, a series of amendments have been made to the draft Web API standard. The revised document is available for consideration by participants as Annex I to the present document.

7. The following is a summary of the updates that have been conducted since the last version was made available to the CWS at its sixth session:

- there has been a rewrite of the standard to improve the expression and grammar used in the text;
- design rules have been classified according to whether they apply to JSON or XML response formats or are applicable to both. For example, [RSG-01] is a rule applicable to RESTful APIs with either XML or JSON response formats;
- design rules have been rewritten such that they use either 'SHOULD' or 'MUST' but not include both;
- Annex I has been provided in draft form with separate tables for different compliance levels ('AA', 'A') for different response formats (XML and JSON);
- Annex II has been provided in draft form and now includes both business (Industrial Property) and technical vocabulary for RESTful and SOAP web services;
- the example model contract indicated in paragraph 9 below has also been included as an Appendix to Annex IV, to assist readers in developing their own API specification, which replaces the RAML specification originally included; and
- the addition of Annex VIII, a list of representation terms which should be used.

It should be noted that there is still no SOAP Web API example model provided as Annex V of the draft standard. The XML4IP TF will discuss the suitability of providing an example after the seventh session of CWS.

8. In consultation with the Five IP Offices (IP5)<sup>1</sup>, who are owners of the OPD web services, DocList was selected as the most appropriate candidate to inspire the first example model specification. The current DocList service allows users to retrieve an up-to-date list of documents associated with a particular application number. The new example model will mimic this behavior but will be implemented with an 'AA' conformance level with the current draft standard and provide a response compliant with WIPO ST.96. For further details on the defined levels of conformance, refer to Annex I of this document.

9. The service contract specification, which forms the Appendix to Annex IV of the draft standard, prepared for the WIPO-Case document list API is included for reference as Annex II (ZIP file). This specification is comprised of two files: the API specification written in YAML and a service contract specification written to capture business requirements. This is an example of the 'contract-first' style approach (see paragraph 12 below).

10. Furthermore, the International Bureau is planning to implement the first of the example models as an API, available to users of the WIPO-CASE (Centralized Access to Search and Examination) system. This API is not intended to replace the current OPD web service, but, instead, provide an example of the full lifecycle of a web service developed according the recommendations within the draft standard. The current roadmap for development will see the web service implemented by the end of 2019, along with a new web service that will also retrieve the contents of these documents.

#### Areas for development

11. At this time, the XML4IP TF requests that the standard remains a working draft as there are still areas to improve and develop. As such, this working draft will be provided only in English at this time. The following paragraphs outline the proposal for future revisions of the draft standard.

12. Due to the lack of maturity of the Open API Specification (OAS) in its support of XML Schema Definitions (XSDs), Annex IV will now provide a set of Web API development guidelines, establishing criteria to determine whether to produce the contract (specification) first or the code first during development. At a high-level, the following approach is recommended:

- if there are existing XSD files, such as ST.96, it is very difficult to produce the specification before the code and as such this is not recommended; and
- if there are no existing XSD files, and these must be produced from scratch, then it is preferable to start with the contract (specification).

As a result, all rules which reference specifically the format of the request and response have been removed from the draft standard or have been down-graded from 'MUST' to 'SHOULD', for the purposes of compliance. This is to allow the draft standard to support this approach.

13. Further feedback is required from the CWS before both Annex I and Annex II can be finalized. In particular, feedback on the revised approach captured in Annex I to the present document for assessing compliance levels with the draft standard and its suitability for use is encouraged.

14. XML and JSON examples will be provided based on WIPO ST.96 to support the use of this Standard for Web API responses.

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<sup>1</sup> The members of IP5 are Chinese National Intellectual Property Administration, European Patent Office, Korean Intellectual Property Office, Japanese Patent Office and United States Patent and Trademark Office.

Outstanding topics

15. In addition to the areas of development for existing elements of the draft standard, the following outstanding issues were identified at the Seoul Task Force Meeting but remain unresolved:

- should the SOAP chapter remain part of the standard;
- to what degree should we consult with developers engaged by Member States and/or the International Bureau;
- if IPOs provide patent legal status data to be consumed by an API, should the data-set be provided as bulk data or for a particular IP right and what would be the frequency of the update;
- should there be guidelines on establishing a Sandbox for experimentation and how would API security work;
- is the scope of the security models provided in the standard too strict; and
- are IPOs interested in developing further standard-compliant OPD-inspired APIs.

PROPOSAL FOR AMENDMENT TO TASK NO. 56

16. Currently, Task No. 56 is managed by the XML4IP TF. However, the Task Force proposes that a new Task Force be created to manage this Task because the Task Force is comprised of business area experts who are familiar with XML but not necessarily with API development (see paragraph 33 of document CWS/7/3.)

17. On the basis of the CWS approving the creation of this new Task Force, the International Bureau additionally proposes the following for consideration:

(a) amendment of the description of Task No. 56 to now read as follows:

“Prepare recommendations for data exchange supporting machine to machine communications focusing on: (i) facilitation of the development of web services which access IP resources (ii) provision of business vocabulary and appropriate data structures and (iii) naming conventions for Uniform Resource Identifier (URI) of resources.”; and

(b) creation of an online forum to allow broader collaborative efforts between the newly established Task Force and developers currently, and potentially in the future, developing APIs for accessing Intellectual Property resources.

18. *The CWS is invited to:*

(a) *note the contents of the present document and its Annexes;*

(b) *consider and decide on the proposal concerning the creation of the new Task Force, as indicated in paragraph 16 above, ;*

(c) *consider the proposals for amendment of Task no. 56 and creation of an online forum as outlined in paragraph 17 above;*

(d) *encourage IP Offices to participate in testing the new WIPO CASE APIs once they are implemented, as indicated in paragraph 10;*

(e) *request that IP Offices provide feedback on the amended or new Annexes of the draft standard, as indicated in paragraphs 7, 12 and 13, including the scope of the Annexes;*

(f) *request that the International Bureau issue a circular inviting IP Offices to nominate their experts on Web API development to participate in the new Task Force, if approved; and*

(g) *request the new Task Force to present a final proposal for the new standard.*

[Annex follows]