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Part 4: Registry server API

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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A list of all parts in the ISO/IEC 24751 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

For individualized accessibility, the needs and preferences of individual users need to be described in a concise and machine-readable manner. User interfaces and their components can then read such personal "AfA preference statements" and accommodate them in their adaptations. In addition, other aspects of the context of use need to be described so that user interfaces and their components can take the user's tasks, their equipment and their environment into account. Also, user interface resources need to be described so that “AfA services” can identify the most appropriate resources for a specific context of use.

For all descriptions, vocabularies are instrumental to allow for a strict semantic and machine-readability. ISO/IEC DIS 24751-1 [1)] introduces an AfA concept registry for “AfA concepts” for the description of AfA preference statements, other aspects of the context of use and user interface resources. For each AfA concept, a concept record contains a globally unique identifier and other characteristics of the AfA concept.

An AfA concept registry needs to be globally accessible through a well-defined API and format rules need to exist for the exchange of AfA concept records. This document specifies a RESTful API for an AfA concept registry service (a.k.a. registry server) and a JSON format for AfA concept records to be exchanged through the AfA concept registry API.

The following use cases are meant to illustrate the benefits of a standardized API and AfA concept record format. This list of use cases is not meant to restrict further uses of this document in any way.

— A person using an AfA concept registry (e.g., a developer of an assistive technology solution) registers an AfA concept on a registry server. This can be facilitated by either a web interface of the registry or by a third-party development application (e.g., an integrated development tool) running on the person's computer. The third-party development application has some advantages over the web interface since it allows for a tighter integration of development platform and registry server. It requires the definition of a concept registry API and of the format an AfA concept record.

— An infrastructure component (e.g., a tool for setting up AfA preference statements or an AfA service) looks up an AfA concept on a registry server. Thus, the definition of an AfA concept can be presented to the user or the range of allowed values of an AfA concept can be considered for the identification of matching AfA resources.

— A syntax checker (e.g., special lint tool) verifies the contents of a new AfA preference statement by validating against the AfA concept records on a registry server. By this procedure, invalid values for AfA concepts can be detected. In case of an invalid AfA preference statement, the syntax checker can notify the user about the error or make automatic corrections.

  NOTE 1 A syntax checker could be part of a service managing AfA preference statements, checking everything incoming AfA preference statement for syntax errors before storing it.

— Two services managing AfA preference statements synchronize their AfA preference statements. This could be a full synchronization over all contained AfA preference statements, or it could affect only a part of the statements. To avoid the distribution of invalid content, incoming statements can be verified against the AfA concept records of an AfA registry server (e.g., to detect invalid values), and erroneous statements can be skipped or automatically corrected.

— Two AfA registry servers synchronize their entries. This could be a full synchronization over all contained AfA concept records or it could affect only a part of the entries.

1) 2nd Edition under development. Stage at time of publication: ISO/IEC DIS 24751-1:2018.

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NOTE 2 While ISO/IEC DIS 24751-1 leaves open whether there is a single registry server or multiple registry servers, it is possible to run multiple registry servers globally. Some organizations have built, for security and privacy reasons, self-contained digital infrastructures (such as intranets) with only very few and well-defined gateways to the external internet. Such organizations would possibly prefer to have their own registry server running in their infrastructure, and have it synchronize with some global registry server in a secured way from time to time. Also, organizations that develop adaptive user interfaces or assistive technology solutions would likely want to have their own registry server for experimentation purposes.

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Information technology for learning, education and training — AccessForAll framework for individualized accessibility —

Part 4: Registry server API

1 Scope

This document specifies an API in support of ISO/IEC DIS 24751-1. In particular, this document specifies:

— a data format (in JSON) for the exchange of registry entries (AfA concept records) between registry servers;

— a set of RESTful operations for AfA registry servers to allow for the manipulation of AfA concept registry entries by external clients other than server-internal web interfaces.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 10646, *Information technology — Universal Coded Character Set (UCS)*

ISO/IEC/DIS 24751-1,[2)]*Information technology — Information technology for learning, education and training — AccessForAll Framework For Individualized Accessibility — Part 1: Framework and Registry*

IETF RFC 2046, *Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types, November 1996*, https://tools.ietf.org/html/rfc2046

IETF RFC 7231, *Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content, June 2014*, https://tools.ietf.org/html/rfc7231

IETF RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax, January 2005*, https://tools.ietf.org/html/rfc3986

IETF RFC 7159, *The JavaScript Object Notation (JSON) Data Interchange Format, March 2014*. https://tools.ietf.org/html/rfc7159

IETF BCP 47, *Tags for Identifying Languages, September 2009*. https://tools.ietf.org/html/bcp47

3 Terms and definitions

For the purposes of this document, the terms and definitions of ISO/IEC DIS 24751-1, and the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp/

2) 2nd Edition under development. Stage at time of publication: ISO/IEC DIS 24751-1:2018.

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