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A Uniform Resource Name (URN) Namespace for the Consultative Committee for Space Data Systems (CCSDS)

Abstract

This document describes a Uniform Resource Name (URN) namespace intended for persistently and uniquely naming resources published by the Consultative Committee for Space Data Systems (CCSDS).

Status of This Memo

This document is not an Internet Standards Track specification; it is published for informational purposes.

This document is a product of the Internet Engineering Task Force (IETF). It represents the consensus of the IETF community. It has received public review and has been approved for publication by the Internet Engineering Steering Group (IESG). Not all documents approved by the IESG are a candidate for any level of Internet Standard; see Section 2 of RFC 5741.

Information about the current status of this document, any errata, and how to provide feedback on it may be obtained at http://www.rfc-editor.org/info/rfc7738.

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1. Introduction

The Consultative Committee for Space Data Systems (CCSDS) [CCSDS] was formed in 1982 by the major space agencies of the world to provide a forum for discussion of common problems in the development and operation of space data systems. At the time of publication of this document, it is composed of eleven member agencies, twenty-eight observer agencies, and over 100 industrial associates. Since its establishment, CCSDS has been actively developing recommendations for data- and information-systems standards, intended to promote interoperability and cross support among cooperating space agencies.

CCSDS has a permanent secretariat reporting to the CCSDS Engineering Steering Group, which maintains documents for the CCSDS protocols. CCSDS also has its Naming Authority under the Space Assigned Number Authority (SANA) [SANA] that manages its registries and namespaces.

CCSDS produces protocol standards documents requiring a permanent and unique namespace. CCSDS also uses Extensible Markup Language (XML) schemas to define XML messaging in its various protocols recommendations. These schemas require a persistent, unique, and location-independent namespace for identification purposes.

This namespace specification is for a formal namespace identifier (NID), as per [RFC3406].

2. Requirements Language Section

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

3. URN Specification for "ccsds" Namespace ID

3.1. Namespace ID

"ccsds"

3.2. Registration Information

Registration version number: 1

Registration date: 2015-10-19

3.3. Declared Registrant of the Namespace

Registering organization:

Consultative Committee for Space Data Systems (CCSDS) Secretariat

Office of Space Communication (Code M-3)

National Aeronautics and Space Administration

Washington, DC 20546, USA

Email: secretariat@mailman.ccsds.org

Designated Contact:

Space Assigned Numbers Authority (SANA)

Email: info@sanaregistry.org

http://sanaregistry.org

3.4. Declaration of Syntactic Structure

The formal syntax definitions below are given in ABNF [RFC5234].

The namespace-specific string (NSS) in the urn:ccsds names hierarchy begins with a subnamespace identifier (SNID), followed by a delimiter and a subnamespace-dependent string

CCCSDS-URN = "urn:ccsds:" SNID ":" SUBNAMESPACE-SPECIFIC-STRING

where <SNID> is a unique subnamespace identifier for the specification, and <SUBNAMESPACE-SPECIFIC-STRING> is a unique identifier within the subnamespace identifier scope.

<SNID> has the same syntax as an <NID> as defined in [RFC2141].

SANA assigns SNIDs.

The syntax of <SUBNAMESPACE-SPECIFIC-STRING> is dependent on the <SNID> and MUST be defined by a CCSDS document. This document does not pose any additional restrictions to the <SUBNAMESPACE-SPECIFIC-STRING> other than what is defined in the NSS syntax as defined by [RFC2141]:

SUBNAMESPACE-SPECIFIC-STRING = 1*<URN chars>

<URN chars> is defined in Section 2.2 of [RFC2141].

3.5. Relevant Ancillary Documentation

SANA keeps the "urn:ccsds" namespace as a registry [SANA-Reg]. Procedures to register a subnamespace identifier are described in the header of the registry.

3.6. Identifier Uniqueness Considerations

SANA is the authority responsible for uniqueness of identifiers by the recommendations of CCSDS. SANA will assign unique identifiers and keep a public registry [SANA-Reg].

3.7. Identifier Persistence Considerations

CCSDS is committed to guaranteeing the accessibility and persistence of all the resources that are assigned URNs.

3.8. Process of Identifier Assignment

Assignment of identifiers is limited to CCSDS and those authorities explicitly designated by CCSDS. CCSDS is committed to assigning URN identifiers only in accordance with the rules specified in this document or in future updates to this document, either published as IETF RFC documents or as CCSDS recommendations.

3.9. Process for Identifier Resolution

The CCSDS namespace is not currently listed with a Resolution Discovery System (RDS), but nothing about the namespace prohibits the future definition of appropriate resolution methods or listing with an RDS.

3.10. Rules for Lexical Equivalence

The <SNID> part of URNs in the CCSDS hierarchy is case insensitive. Thus, the <SNID> MUST be case normalized before comparison.

3.11. Conformance with URN Syntax

The intention of this document is to only restrict the syntax of the <SNID>. The syntax of the <SUBNAMESPACE-SPECIFIC-STRING> follows the general syntax of a URN:

SUBNAMESPACE-SPECIFIC-STRING = 1*<URN chars>

Documents defining a subnamespace identifier SHOULD specify further syntactic restrictions in <SUBNAMESPACE-SPECIFIC-STRING>. It is RECOMMENDED that these documents forbid the assignment of URNs containing characters in the <reserved> set ("%", "/", "?", and "#") as defined in [RFC2141]. This is in accordance with Section 2.2 of [RFC3986].

3.12. Validation Mechanism

The validation mechanism of URNs in the hierarchy is specific for each SNID and SHOULD be defined when an SNID is assigned.

URNs in the hierarchy without an assigned SNID are considered to be invalid.

3.13. Scope

Global URNs are relevant for the space agencies networks both in space and on Earth.

4. Examples

URNs in this section are not guaranteed to be real and are listed here only for illustration purposes. The following are examples of valid URNs for the "document" and "schema" categories:

urn:ccsds:document:313x0y1

urn:ccsds:schema:ndm:aem

5. Namespace Considerations

CCSDS is an international standards development organization in the field of space and Earth communications. The use of this URN hierarchy is expected to be broad, including but not limited to usage for:

CCSDS documents

XML Schemas

CCSDS registries

The CCSDS documents and registries are available openly.

6. Community Considerations

Usage of the URN namespace has been requested within the CCSDS community for various projects.

7. Security Considerations

No additional security considerations are relevant, other than those normally related with the general use and resolution of URNs.

8. IANA Considerations

IANA has registered the "ccsds" NID within the IANA registry of URN NIDs in the "Formal URN Namespaces" subregistry.

9. References

9.1. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <http://www.rfc-editor.org/info/rfc2119>.

[RFC2141] Moats, R., "URN Syntax", RFC 2141, DOI 10.17487/RFC2141, May 1997, <http://www.rfc-editor.org/info/rfc2141>.

[RFC3406] Daigle, L., van Gulik, D., Iannella, R., and P. Faltstrom, "Uniform Resource Names (URN) Namespace Definition Mechanisms", BCP 66, RFC 3406, DOI 10.17487/RFC3406, October 2002, <http://www.rfc-editor.org/info/rfc3406>.

[RFC3986] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, RFC 3986, DOI 10.17487/RFC3986, January 2005, <http://www.rfc-editor.org/info/rfc3986>.

[RFC5234] Crocker, D., Ed. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", STD 68, RFC 5234, DOI 10.17487/RFC5234, January 2008, <http://www.rfc-editor.org/info/rfc5234>.

9.2. Informative References

[CCSDS] CCSDS, "The Consultative Committee for Space Data Systems", <http://www.ccsds.org/>.

[SANA] SANA, "Space Assigned Numbers Authority", <http://sanaregistry.org/>.

[SANA-Reg] SANA, "Space Assigned Number Authority (SANA) Registry", <http://sanaregistry.org/r/urn>.

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