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An IETF URN Sub-namespace for Registered Protocol Parameters

Status of this Memo

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Abstract

This document describes a new sub-delegation for the 'ietf' URN namespace for registered protocol items. The 'ietf' URN namespace is defined in RFC 2648 as a root for persistent URIs that refer to IETF-defined resources.

1. Introduction

From time to time IETF standards require the registration of various protocol elements in well known central repository. The Internet Assigned Numbers Authority maintains this central repository and takes direction from the IETF on what, how and when to add items to it. The IANA maintains lists of items such as all assigned port numbers, MIME media types, enterprise numbers, etc.

Over time there has developed a need to be able to reference these elements as URIs in various schema. In the past this was done in a very ad hoc way that easily led to interoperability problems. This document creates a new sub-delegation below the "ietf" [2]URN namespace [1] called 'params' which acts as a standardized mechanism for naming the items registered for IETF standards. Any assignments below that are specified in an RFC according to the IETF consensus process and which include the template found in Section 4.

2. Terminology

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 RFC 2119.

3. IETF Sub-namespace Specifics

Sub-namespace name:

params

Declared registrant of the namespace:

The Internet Engineering Task Force

Declaration of structure:

The namespace is primarily opaque. The IANA, as operator of the registry, may take suggestions for names to assign but they reserve the right to assign whatever name they desire, within guidelines set by the IESG. The colon character (":") is used to denote a very limited concept of hierarchy. If a colon is present then the items on both sides of it are valid names. In general, if a name has a colon then the item on the left hand side represents a class of those items that would contain other items of that class. For example, a name can be assigned to the entire list of DNS resource record type codes as well as for each individual code. The URN for the list might look like this:

urn:ietf:params:dns:rr-type-codes

while the URN for the SOA records type code might look like this:

urn:ietf:params:dns:rr-type-codes:soa

Relevant ancillary documentation:

[3], [2], [1]

Identifier uniqueness considerations:

The IESG uses the IETF consensus process to ensure that sub-namespaces generate unique names within that sub-namespace. The IESG delegates to the IANA the task of ensuring that the sub-namespace names themselves are unique. Until and unless the IESG specifies differently, the IANA is directed to ensure uniqueness by comparing the name to be assigned

with the list of previously assigned names. In the case of a conflict the IANA is to request a new string from the registrant until the conflict is resolved.

Identifier persistence considerations:

Once a name has been allocated it MUST NOT be re-allocated for a different purpose. The rules provided for assignments of values within a sub-namespace MUST be constructed so that the meaning of values cannot change. This registration mechanism is not appropriate for naming values whose meaning may change over time. If a value that changes over time the assignment MUST name the container or concept that contains the value, not the value itself. For example, if a parameter called 'foo' has a value that changes over time, it is valid to create the name 'urn:ietf:params:foo-params:foo' that identifies that 'slot'. It is not valid to actually create a name that contains that value unless it is a persistent and unique value such as a version number.

Process of identifier assignment:

Identifiers are assigned only after a particular protocol element or number has been registered with the IANA using standard policies and procedures, or documented in an RFC describing a standards track protocol. This means that the 'gating' function for assignment is the "IETF Consensus" process documented in RFC 2434 [4].

Process of identifier resolution:

At this time no resolution mechanism is defined.

Rules for Lexical Equivalence:

Lexical equivalence is achieved by exact string match according to the rules for URN syntax found in RFC 2141 [1]. Specifically, due to the URN syntax definitions, the 'stringprep' standard found in RFC 3454 [7] does not apply.

Conformance with URN Syntax:

There are no additional characters reserved.

Validation mechanism:

None.

Scope:

Global

4. Assigning Names

The creation of a new registry name will be simple for most flat registries. The only required elements will be the registry name, a reference to relevant documents, a statement about which current/proposed document repositories contains the authoritative data for the registry, and a statement specifying which element in the registry is the value to be used in the URN. In most cases this last element will be the index value assigned by the IANA.

More complex registries (DNS Parameters for example) will need to repeat that information for any sub-namespaces. It should also be clear as to whether or not a name is assigned to the sub-namespace itself (i.e., is 'urn:ietf:params:dns:rr-types' valid by itself and if so, what does it name?).

The template:

Registry name: -- The name of the sub-namespace. In many cases this should be the same name that the IANA calls the registry itself.

Specification: -- Relevant IETF published documents that define the registry and the items in it.

Repository: -- A pointer to the 'current' location of the registry in the protocol parameters repository or the relevant RFCs that document the items being named. This value will change over time as the entity that maintains the repository moves files and or fileservers. It is not meant as a permanent binding to the filename but as a hint to the IANA for what the initial mapping would be.

Index value: -- Description of how a registered value is to be embedded in the URI form. This MUST include details of any transformations that may be needed for the resulting string to conform to URN syntax rules and any canonicalization needed so that the case-sensitive string comparison yields the expected equivalences.

The process for requesting that a URN be assigned is currently to put the above template or a reference to it in the IANA considerations section of the specifying document. Other more automated processes may be proposed at a latter time if demand requires it.

5. Security Considerations

None not already inherent to using URNs. Security considerations for URNs in general can be found in RFC 2141 [1]. Further security considerations for one specific URN resolution method can be found in Dynamic Delegation Discovery System (DDDS) Part Four: The Uniform Resource Identifiers (URI) Resolution Application (RFC 3404) [5] which is part of a series starting with Dynamic Delegation Discovery System (DDDS) Part One: The Comprehensive DDDS (RFC 3401) [6].

6. IANA Considerations

This document puts a new and significant burden on the IANA since it may require an additional assignment process to happen for each new IANA registry. To minimize the administrative burden on IANA, any parameter namespace registration is very clear about the criteria for inclusion in that namespace.

Defining a registry that fits the constraints of a URN namespace will impose extra discipline that should take some of the guess-work about creating and maintaining that registry.

7. Intellectual Property Statement

8. Normative References

[1] Moats, R., "URN Syntax", RFC 2141, May 1997.

[2] Moats, R., "A URN Namespace for IETF Documents", RFC 2648, August 1999.

[3] Daigle, L., van Gulik, D., Iannella, R. and P. Faltstrom, "Uniform Resource Names (URN) Namespace Definition Mechanisms", BCP 66, RFC 3406, October 2002.

[4] Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs", BCP 26, RFC 2434, October 1998.

[5] Mealling, M., "Dynamic Delegation Discovery System (DDDS) Part Four: The Uniform Resource Identifiers (URI)", RFC 3404, February 2002.

[6] Mealling, M., "Dynamic Delegation Discovery System (DDDS) Part One: The Comprehensive DDDS", RFC 3401, May 2002.

[7] Hoffman, P. and M. Blanchet, "Preparation of Internationalized Strings ("stringprep")", RFC 3454, December 2002.

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10. Full Copyright Statement

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