Internet Architecture Board (IAB)
Internet-Draft
Intended status: Informational

Expires: 22 May 2015

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18 November 2014

Principles for Operation of Internet Assigned Numbers Authority (IANA) Registries

draft-iab-iana-principles-00

Abstract

This document provides principles for the operation of Internet Assigned Numbers Authority (IANA) registries.

Note: This is Internet-Draft was developed by the IAB IANA Evolution Program, and it should be discussed on the InternetGovtech@iab.org mail list. See http://www.iab.org/mailman/listinfo/internetgovtech for subscription details.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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0. Document Background

{{{ RFC Editor: Please delete this section prior to publication. }}}

This document is a split off from draft-iab-iana-framework-02. This document contains principles that were scattered in various places in the IANA Framework, pulling them into one place.

The IANA Framework has been under discussion since February 2011.

1. Introduction

The Internet Engineering Task Force (IETF) and its predecessors have traditionally separated the publication of protocol specifications in immutable Request for Comments (RFCs) and the registries containing protocol parameters. The latter is maintained by a set of functions traditionally known collectively as the Internet Assigned Numbers Authority (IANA). Dating back to the earliest days of the Internet, specification publication and the registry operations were tightly coupled: Jon Postel of the Information Sciences Institute (ISI) of the University of Southern California (USC) was responsible for both RFC publication and IANA registry operation. This tight coupling has advantages, but it has never been a requirement. Indeed, today the RFC Editor and IANA registry operation are provided by different entities.

Internet registries are critical to the operation of the Internet, since they provide a definitive record of the value and meaning of identifiers that protocols use when communicating with each other. Almost every Internet protocol makes use of registries in some form. At the time of writing, the IANA maintains more than two thousand protocol parameter registries.

Internet registries hold protocol identifiers consisting of constants and other well-known values used by Internet protocols. These values can be numbers, strings, addresses, and so on. They are uniquely assigned for one particular purpose or use. Identifiers can be maintained in a central list (such as a list of cryptographic algorithms) or they can be hierarchically allocated and assigned by separate entities at different points in the hierarchy (such as IP addresses and domain names).

The registry system is built on trust and mutual cooperation. The use of the registries is voluntary and is not enforced by mandates or certification policies. While the use of registries is voluntary, it is noted that the success of the Internet creates enormous pressure to use Internet protocols and the registries associated with them.

This document provides principles for the operation of IANA registries, ensuring that protocol identifiers have consistent meanings and interpretations across all implementations and deployments, and thus providing the necessary trust in the registries.

2. Principles for the Operation of IANA Registries

The following key principles underscore the successful functioning of the IANA registries, and they provide a foundation for trust in those registries:

Unique: The same protocol identifier must not be used for more than one purpose.

Stable: Protocol identifier assignment must be lasting.

Predictable: The process for making assignments must be predictable.

Public Publication: The protocol identifiers must be published in a manner that makes them available to everyone in selected well-known locations.

Open: The process that sets the policy for protocol identifier assignment and registration must be open to all interested parties.

Transparent: The protocol registries and their associated policies should be developed in a transparent manner.

Accountable: Registry policy development and registry operations need to be accountable to the affected community.

3. Discussion

The principles discussed in Section 2 provide trust and confidence in the IANA registries.

3.1. Unique, Stable, and Predictable

Protocol identifier assignment and registration must be unique, stable, and predictable. Developers, vendors, customers, and users

depend on the registries for unique protocol identifiers that are assigned in a stable and predictable manner. A protocol identifier may only be reassigned for a different purpose after due consideration of the impact of such a reassignment, and if possible, with the consent of the original assignee.

3.2. Public Publication

Once assigned, the protocol identifiers must be published in a manner that makes them available to everyone. The use of a consistent publication location builds confidence in the registry. This does not mean that the publication location can never change, but it does mean that it must change infrequently and only after adequate prior notice.

3.3. Open and Transparent

The process that sets the policy for protocol identifier assignment and registration must be open to all interested parties and operate in a transparent manner.

For many registries there is a de-facto separation of the policy setting and the evaluation of the policy that takes place at implementation. Splitting those roles can expose instances where policies lack of clarity, which provides helpful feedback to allow those policies to be improved. In addition, this separation prevents the risks of the policy evaluation from being burdened with (perceptions of) favoritism and unfairness.

3.4. Accountable

The process that sets the policy for protocol identifiers and the operation of the registries must be accountable to the parties that rely on the protocol identifiers. Oversight is needed to ensure these are properly serving the affected community.

In practice accountability mechanisms may be defined by contract, memoranda of understanding, or service level agreements (SLAs). An oversight body is held accountable to the wider community by different mechanisms, for instance recall and appeal processes.

For protocol parameters [RFC6220], the general oversight over the IANA function is performed by the IAB as a chartered responsibility from [RFC2850] (also see Section 5.4). In addition the IAOC, a body responsible for IETF administrative and financial matters [RFC4071], maintains an SLA with ICANN, thereby specifying the operational requirements with respect to the coordination of evaluation, and the maintenance and publication of the registries. Both the IAB and the

IAOC are accountable to the larger Internet community and are being held accountable through the IETF Nomcom process [BCP10].

4. Security Considerations

Internet Registries are critical to elements of Internet security. The principles described in this document are necessary for the Internet community to place trust in the IANA registries..

5. Contributors and Acknowledgements

This text has been developed within the IAB IANA Evolution Program. The ideas and many text fragments, and corrections came from or were inspired on comments from: Bernard Aboba, Jaap Akkerhuis, Jari Arkko, Marcelo Bagnulo, Mark Blanchet, Brian Carpenter, David Conrad, Steve Crocker, John Curran, Alissa Cooper, Leslie Daigle, Elise Gerich, John Klensin, Bertrand de La Chapelle, Danny McPherson, George Michaelson, Thomas Narten, Andrei Robachevsky, and Greg Wood. Further inspiration and input was drawn from various meetings with IETF and other Internet community (RIRs, ISOC, W3C, IETF, and IAB) leadership.

It should not be assumed that those acknowledged endorse the resulting text.

6. IANA Considderations

This document does not contain updates to any registries.

7. Informative References

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