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

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Abstract

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

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   Note: This 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.

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 had advantages, but it was never 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 principles contained in this
document should be taken into consideration for all hierarchical
Internet registries to maximize trust and usefulness throughout each
identifier space. The IAB will encourage support for these
principles in all delegations of Internet identifiers.

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 identifier 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 IANA
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:

Ensure Uniqueness: 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 not include
    unexpected steps.

Public: The protocol identifiers must be made available in a manner
    that makes them freely available to everyone in 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. Ensuring Uniqueness, Stability, and Predictability

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.

Recognizing that some assignments involve judgment, such as those involving a designated expert [RFC5226], a predictable process does not require completion in a predetermined number of days. Rather, it means that no unexpected steps are introduced in the process of making an assignment.

3.2. Public

Once assigned, the protocol identifiers must be made available in a manner that makes them freely available to everyone without restrictions. 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.

When a registries is established, a policy is set for the addition of new entries and the updating of existing entries. While making additions and modifications, the registry operator may expose instances where policies lack of clarity. When this occurs, the registry operator should provide helpful feedback to allow those policies to be improved. In addition, the registry operator not being involved in establishing registry policy avoids the risks associated with (perceptions of) favoritism and unfairness.

Recognizing that some assignments involve judgment, such as those involving a designated expert [RFC5226], the recommendations by

   designated experts must be visible to the public to the maximum
   extent possible and subject to challenge or appeal.

3.4. Accountable

   The process that sets the policy for IANA registries 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 for the registry operator may
   be defined by contract, memoranda of understanding, or service level
   agreements (SLAs). An oversight body uses these mechanisms to ensure
   that these registry operator is meeting the needs of the affected
   community, but the oversight body is held accountable to the affected
   community by vastly 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]. In addition the IETF Administrative Oversight
   Committee (IAOC), a body responsible for IETF administrative and
   financial matters [BCP101], maintains an SLA with the current
   registry operator, the Internet Corporation for Assigned names and
   Numbers (ICANN), thereby specifying the operational requirements with
   respect to the coordination, maintenance, and publication of the
   protocol parameter 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].

   For the Internet Number Registries [RFC7249], oversight is performed
   by the Regional Internet Registries (RIRs) as described RFC 7020
   [RFC7020]. The RIRs are member-based organizations, and they are
   accountable to the affected community by elected governance boards.
   Furthermore, per agreement between the RIRs and ICANN, the policy
   development for the global IANA number registries is coordinated by a
   community-elected number council and subject to process review before
   ratification by the ICANN Board of Trustees [ASOMOU].

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. IANA Considerations

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This document does not contain updates to any registries.

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IAB Members at the Time of Approval

    Jari Arkko (IETF Chair)
    Mary Barnes
    Marc Blanchet
    Joel Halpern
    Ted Hardie
    Joe Hildebrand
    Russ Housley
    Eliot Lear
    Xing Li
    Erik Nordmark
    Andrew Sullivan
    Dave Thaler
    Brian Trammell

Contributors and Acknowledgements

Authors' Addresses

    Russ Housley
    918 Spring Knoll Drive
    Herndon, VA 20170
    USA
    Email: housley@vigilsec.com

    Olaf Kolkman
    Science Park 400
    Amsterdam 1098 XH
    The Netherlands
    EMail: kolkman@isoc.org