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Defining the Role and Function of IETF Protocol Parameter Registry Operators

Abstract

Many Internet Engineering Task Force (IETF) protocols make use of commonly defined values that are passed in messages or packets. To ensure consistent interpretation of these values between independent implementations, there is a need to ensure that the values and associated semantic intent are uniquely defined. The IETF uses registry functions to record assigned protocol parameter values and their associated semantic intentions. For each IETF protocol parameter, it is current practice for the IETF to delegate the role of Protocol Parameter Registry Operator to a nominated entity. This document provides a description of, and the requirements for, these delegated functions.

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 Architecture Board (IAB) and represents information that the IAB has deemed valuable to provide for permanent record. Documents approved for publication by the IAB are not 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/rfc6220.

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1. Overview

Many IETF protocols make use of commonly defined values that are passed within messages or packets. To ensure consistent interpretation of these values between independent implementations, there is a need to ensure that the values and associated semantic intent are uniquely defined. The IETF uses registries to record each of the possible values of a protocol parameter and their associated semantic intent. These registries, their registration policy, and the layout of their content are defined in the so-called "IANA Considerations" sections of IETF documents.

The organizational separation between the IETF and its Registry Operators parallels ones that are fairly common among standards development organizations (SDOs) although less common among technology consortia and similar bodies. These functions have been separated into different organizations for several reasons. They include dealing with administrative issues, addressing concerns about maintaining an adequate distance between basic policy and specific

allocations, and avoiding any potential conflicts of interest that might arise from commercial or organizational relationships. For example, most ISO and ISO/IEC JTC1 standards that require registration activities specify a Registration Authority (RA) or Maintenance Agency (MA) that, in turn, control the actual registration decisions. The databases of what is registered for each standard may then be maintained by a secretariat or database function associated with the RA or MA or, less frequently, by the secretariat of the body that created and maintains the standard itself.

This structural separation of roles exists within several places in the IETF framework (e.g., the RFC Editor function). The Internet Architecture Board (IAB), on behalf of the IETF, has the responsibility to define and manage the relationship with the Protocol Registry Operator role. This responsibility includes the selection and management of the Protocol Parameter Registry Operator, as well as management of the parameter registration process and the guidelines for parameter allocation.

As with other SDOs, although it may delegate authority for some specific decisions, the IETF asserts authority and responsibility for the management of all of its protocol parameters and their registries, even while it generally remains isolated from the selection of particular values once a registration is approved. This document describes the function of these registries as they apply to individual protocol parameters defined by the IETF Internet Standards Process [RFC2026] to allow for an orderly implementation by the Internet Administrative Oversight Committee (IAOC), and others as needed, under guidance from the IAB.

Below we provide a description of the requirements for these delegated functions, which the IETF traditionally refers to as the Internet Assigned Numbers Authority (IANA) function.

2. Roles and Responsibilities Concerning IETF Protocol Parameter Registries

The IETF’s longstanding practice is to outsource the management and implementation of some important functions (e.g., [RFC5620]). The protocol parameter registry function falls into this category of outsourced functions, and what follows here is the description of the roles and responsibilities with respect to the registration of IETF protocol parameters.

Specifically, this document describes the operation and role of a delegated IETF Protocol Parameter Registry Operator, to be selected and administered by the IETF Administrative Support Activity (IASA) [RFC4071]. While there is generally a single Protocol Parameter

Registry Operator, additional Operators may be selected to implement specific registries, and that has been done occasionally. Having a single Operator facilitates coordination among registries, even those that are not obviously related, and also makes it easier to have consistency of formats and registry structure, which aids users of the registries and assists with quality control.

Many protocols make use of identifiers consisting of constants and other well-known values. Even after a protocol has been defined and deployment has begun, new values may need to be assigned (e.g., for a new option type in DHCP, or a new encryption or authentication algorithm for IPsec). To ensure that such quantities have consistent values and interpretations in different implementations, their assignment must be administered by a central authority. For IETF protocols, that role is provided by a delegated Protocol Parameter Registry Operator. For any particular protocol parameter there is a single delegated Registry Operator.

2.1. Protocol Parameter Registry Operator Role

The IETF Protocol Parameter Registry function is undertaken under the auspices of the Internet Architecture Board.

The roles of the Protocol Parameter Registry Operator are as follows:

- Review and Advise
  - A Registry Operator may be requested to review Internet-Drafts that are being considered by the Internet Engineering Steering Group (IESG), with the objective of offering advice to the IESG regarding the contents of the "IANA Considerations" section, whether such a section, when required, is clear in terms of direction to the Registry Operator, and whether the section is consistent with the current published Registry Operator guidelines.
- Registry
  - To operate a registry of protocol parameter assignments.
  - The delegated Registry Operator registers values for Internet protocol parameters only as directed by the criteria and procedures specified in RFCs, including Proposed, Draft, and full Internet Standards, Best Current Practice documents, and other RFCs that require protocol parameter assignment.

    If values for Internet protocol parameters were not specified, or in case of ambiguity, the Registry Operator will continue to

assign and register only those protocol parameters that have already been delegated to the Operator, following past and current practice for such assignments, unless otherwise directed in terms of operating practice by the IESG. In the case of ambiguity, the Registry Operator is expected to identify the ambiguity to the IAB or IESG as appropriate and either suggest better text or ask the appropriate parties for clarification.

* For each protocol parameter, the associated registry includes:

  + a reference to the RFC document that describes the parameter and the associated "IANA Considerations" concerning the parameter, and

  + for each registration of a protocol parameter value, the source of the registration and the date of the registration, if the date of registration is known, and

  + any other information specified as being included in the registration data in the RFC document that describes the parameter.

  + If in doubt or in case of a technical dispute, the Registry Operator will seek and follow technical guidance exclusively from the IESG. Where appropriate, the IESG will appoint an expert to advise the Registry Operator.

* The Registry Operator will work with the IETF to develop any missing criteria and procedures over time, which the Registry Operator will adopt when so instructed by the IESG.

* Unless special circumstances apply to subsets of the data and specific rules are established by IETF consensus, each protocol parameter registry operates as a public registry, and the contents of the registry are openly available to the public, on-line and free of charge.

* The Registry Operator assigns protocol parameter values in accordance with the policy associated with the protocol parameter, such as "First Come First Served" or "Expert Review" [RFC5226].

o Mailing Lists

* The Registry Operator maintains public mailing lists as specified in IANA Considerations [RFC5226]. Such lists are designated for the purpose of review of assignment proposals in conjunction with a designated expert review function. In addition, each Protocol

Parameter Registry Operator should maintain a mailing list that enables the registry staff of the Registry Operator to be contacted by email.

- o Liaison Activity
  - * The Registry Operator will nominate a liaison point of contact. The Registry Operator, through this liaison, may be requested to provide advice to the IESG on IETF protocol parameters as well as the "IANA Considerations" section of each Internet-Draft that is being reviewed for publication as an RFC. Where appropriate the IESG will appoint an expert to advise the Registry Operator.
- o Reporting
  - * The Registry Operator will submit periodic reports to the IAB concerning the operational performance of the registry function. As an example of the requirements for such reports, the reader is referred to a supplement [IAOC_SUPP] to the "Memorandum of Understanding Concerning the Technical Work of the Internet Assigned Numbers Authority" [RFC2860] that provides service level agreement (SLA) guidelines under which ICANN, the current protocol parameter registry, must operate.
  - * At the request of the chair of the IETF, IAB, or IAOC, the Registry Operator will undertake periodic reports to IETF Plenary meetings concerning the status of the registry function.
  - * The Registry Operator will publish an annual report describing the status of the function and a summary of performance indicators.
- o Intellectual Property Rights and the Registry Operator
  - * All assigned values are to be published and made available free of any charges.
  - * The assignment values may be redistributed without modification.
  - * Any intellectual property rights of the IETF protocol parameter assignment information, including the IETF protocol parameter registry and its contents, are to be held by the IETF Trust [RFC4748].

2.2. IAB Role

An Operator of an IETF protocol parameter registry undertakes the role as a delegated function under the authority of the IAB.

The IAB has the responsibility to review the current description of the registry function from time to time and direct the Registry Operator to adopt amendments relating to its role and mode of operation according to the best interests of the IETF and the Internet community in general.

The IAB has the responsibility to appoint an organization to undertake the delegated functions of the Protocol Parameter Registry Operator for each IETF protocol parameter. Specifically, the IAB defines the role and requirements for the desired functions. The IAOC is responsible for identifying a potential vendor, and once under agreement, managing the various aspects of the relationships with that vendor. To be clear, the IAB is in the deciding role (e.g., for appointment and termination), but must work in close consultation with the IAOC.

The IAB has the responsibility to determine the terms and conditions of this delegated role. Such terms and conditions should ensure that the registry operates in a manner that is fully conformant to the functions described in this document. In addition, such terms and conditions must not restrict the rights and interests of the IETF with respect to the registry contents and maintenance.

2.3. IESG Role

The IESG is responsible for the technical direction regarding entries into IETF protocol parameter registries and maintaining the policies by which such technical directions are given. Technical direction itself is provided through the adoption of directives within the "IANA Considerations" section of IETF Stream RFCs or through stand-alone "IANA Considerations" RFCs.

The IESG shall verify that Internet-Drafts that are offered for publication as IETF Stream RFCs [RFC4844] include "IANA Considerations" sections when needed, and that "IANA Considerations" sections conform to the current published guidelines.

Since technical assessment is not generally a responsibility of the Registry Operator, as part of providing the technical direction the IESG is responsible for identifying the technical experts that are required to, where appropriate, review registration requests or resolve open technical questions that relate to the registration of parameters.

At its discretion, the IESG will organize the liaison activities with the Registry Operator's liaison point of contact so as to facilitate clear communications and effective operation of the registry function.

2.4. Role of the IETF Trust

The IETF Trust [RFC4748] was formed to act as the administrative custodian of all copyrights and other intellectual property rights relating to the IETF Standards Process, a function that had previously been performed by the Internet Society (ISOC) and the Corporation for National Research Initiatives (CNRI).

Any intellectual property rights of IETF protocol parameter assignment information, including the registry and its contents, and all registry publications, are to be held by the IETF Trust on behalf of the IETF.

The IETF Trust may make such regulations as appropriate for the redistribution of assignment values and registry publications.

2.5. Role of the IAOC

The IAOC is responsible for identifying a potential vendor in a manner of their choosing, based on IAB consultation, and for managing the various aspects of the relationships with that vendor.

In addition, the IAOC has the responsibility to ensure long-term access, stability, and uniqueness across all such registries. This responsibility is of particular significance in the event that a relation with a Protocol Parameter Registry Operator is terminated.

3. Miscellaneous Considerations

While this document has focused on the creation of protocols by the IETF, the requirements provided are generically applicable to the extended IETF community as well (e.g., Internet Research Task Force (IRTF)).

The IESG is responsible for the technical direction of the IETF Protocol Parameter registries and maintaining the policies by which such technical directions are given. The IESG is responsible, as part of the document approval process associated with the IETF Stream RFCs [RFC4844], for "IANA Considerations" verification. For the other RFC streams, the approval bodies are responsible for verifying that the documents include "IANA Considerations" sections when needed, and that "IANA Considerations" sections conform to the

current published guidelines. In the case that IANA considerations in non-IETF document streams lead to a dispute, the IAB makes the final decision.

This document talks about "Registry Operator" (singular), and while there are stability and economy-of-scale advantages for one single Operator, this document does not exclude having different Operators for different protocol registries when justified by the circumstances.

4. Security Considerations

This document does not propose any new protocols and does not introduce any new security considerations.

5. IANA Considerations

This document requires no direct IANA actions in terms of the creation or operation of a protocol parameter registry. However, this document does define the roles and responsibilities of various bodies who are responsible for, and associated with, the operation of protocol parameter registration functions for the IETF.

6. Informative References

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[RFC5620] Kolkman, O., Ed., and IAB, "RFC Editor Model (Version 1)", RFC 5620, August 2009.

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7. Acknowledgements

This document is adapted from "Guidelines for Writing an IANA Considerations Section in RFCs" [RFC5226], and has been modified to include explicit reference to Intellectual Property Rights and the roles of the IAB and IESG in relation to the IETF Protocol Parameter Registry function.

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