   Improving Awareness of Running Code: the Implementation Status Section
                     draft-sheffer-running-code-05

Abstract

   This document describes a simple process that allows authors of
   Internet-Drafts to record the status of known implementations by
   including an Implementation Status section. This will allow
   reviewers and working groups to assign due consideration to documents
   that have the benefit of running code, by considering the running
   code as evidence of valuable experimentation and feedback that has
   made the implemented protocols more mature.

   The process in this document is offered as an experiment. Authors of
   Internet-Drafts are encouraged to consider using the process for
   their documents, and working groups are invited to think about
   applying the process to all of their protocol specifications. The
   authors of this document intend to collate experiences with this
   experiment and to report them to the community.

Status of this Memo

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

   Internet-Drafts are working documents of the Internet Engineering
   Task Force (IETF). Note that other groups may also distribute
   working documents as Internet-Drafts. The list of current Internet-
   Drafts is at http://datatracker.ietf.org/drafts/current/.

   Internet-Drafts are draft documents valid for a maximum of six months
   and may be updated, replaced, or obsoleted by other documents at any
   time. It is inappropriate to use Internet-Drafts as reference
   material or to cite them other than as "work in progress."

   This Internet-Draft will expire on November 15, 2013.

Copyright Notice

Table of Contents

1. Introduction

   Most IETF participants are familiar with the saying, "rough consensus
   and running code" [Tao], and can identify with its pragmatic
   approach. However, implementation is not a requirement for
   publication as an RFC. There are many examples of Internet-Drafts
   containing protocol specification that have gone through to
   publication as Proposed Standard RFCs without implementation. Some
   of them may never get implemented.

   Over time, a variety of policies have been applied within the IETF to
   consider running code. In the Routing Area it used to be a
   requirement that one or more implementations must exist before an
   Internet-Draft could be published as a Proposed Standard RFC
   [RFC1264]. That RFC was later obsoleted and the requirement for
   implementation was lifted, but each working group was given the
   authority to impose its own implementation requirements [RFC4794] and
   at least one working group (IDR) continues to require two independent
   implementations.

   The hypothesis behind the current document is that there are benefits
   to the IETF standardization process of producing implementations of
   protocol specifications before publication as RFCs. These benefits,
   which include determining that the specification is comprehensible
   and that there is sufficient interest to implement, are further
   discussed in Section 4.

   This document describes a simple mechanism that allows authors of
   Internet-Drafts to record and publicize the status of known
   implementations, by including an Implementation Status section. The
   document defines (quite informally) the contents of this section, to
   ensure that the relevant information is included. This will allow
   reviewers and working groups to assign due consideration to documents
   that have the benefit of running code, by considering the running
   code as evidence of valuable experimentation and feedback that has
   made the implemented protocols more mature.

   It is up to the individual working groups to use this information as
   they see fit, but one result might be the preferential treatment of
   documents resulting in them being processed more rapidly. We
   recommend that the Implementation Status section should be removed
   from Internet Drafts before they are published as RFCs.

   The process in this document is offered as an experiment. Authors of
   Internet-Drafts are encouraged to consider using the process for
   their documents, and working groups are invited to think about
   applying the process to all of their protocol specifications.

The scope of the intended experiment is all Internet-Drafts that
contain implementable specifications, whether produced within IETF
working groups or outside working groups but intended for IETF
consensus. I-Ds published on the Independent Stream are explicitly
out of scope. It is expected that the greatest benefit in the
experiment will be seen with Standards Track documents developed
within working groups.

The authors of this document intend to collate experiences with this
experiment and to report them to the community.

2. The "Implementation Status" Section

Each Internet-Draft may contain a section entitled "Implementation
Status". This section, if it appears, should be located just before
the "Security Considerations" section and contain, for each existing
implementation:

o The organization responsible for the implementation, if any.
o The implementation's name and/or a link to a web page describing
   the implementation.
o A brief general description.
o The implementation's level of maturity: research, prototype,
   alpha, beta, production, widely used etc.
o Coverage: which parts of the protocol specification are
   implemented and which versions of the Internet-Draft were
   implemented.
o Licensing: the terms under which the implementation can be used.
   For example: proprietary, royalty licensing, freely distributable
   with acknowledgement (BSD style), freely distributable with
   requirement to redistribute source (GPL style), other (specify).
o Contact information: ideally a person's name and email address,
   but possibly just a URL or mailing list.

In addition, this section can contain information about the
interoperability of any or all of the implementations, including
references to test case descriptions and interoperability reports,
when such exist.

Since this information is necessarily time-dependent, it is
inappropriate for inclusion in a published RFC. The authors should
include a note to the RFC Editor requesting that the section be
removed before publication.

2.1. **Introductory Text**

   The following boilerplate text is proposed to head the Implementation
   Status section:

      This section records the status of known implementations of the
      protocol defined by this specification at the time of posting of
      this Internet-Draft, and is based on a proposal described in [RFC
      Editor: replace by a reference to this document]. According to
      [RFC Editor: replace by a reference to this document], "this will
      allow reviewers and working groups to assign due consideration to
      documents that have the benefit of running code, by considering
      the running code as evidence of valuable experimentation and
      feedback that has made the implemented protocols more mature. It
      is up to the individual working groups to use this information as
      they see fit".

   Authors are requested to add a note to the RFC Editor at the top of
   this section, advising the Editor to remove the entire section before
   publication, as well as the reference to [RFC Editor: replace by a
   reference to this document].

3. **Alternative Formats**

   Sometimes it can be advantageous to publish the implementation status
   separately from the base Internet-Draft, e.g. on the IETF wiki:

   o When the Implementation Status section becomes too large to be
      conveniently managed within the document.
   o When a working group decides to have implementors, rather than
      authors, keep the status of their implementations current.
   o When a working group already maintains an active wiki and prefers
      to use it for this purpose.

   It is highly desirable for all readers of the Internet-Draft to be
   made aware of this information. Initially this can be done by
   replacing the Implementation Status section's contents with a URL
   pointing to the wiki. Later, the IETF Tools may support this
   functionality, e.g. by including such a link from the HTMLized draft
   version, similar to the IPR link.

   If the implementation status is published separately from the I-D,
   then this information needs to be openly available without requiring
   authentication, registration or access controls if it is to have any
   useful effects.

[4](#). Benefits

Publishing the information about implementations provides the working group with several benefits:

o Working group members, chairs and ADs may use the information
   provided to help prioritize the progress of I-Ds, e.g. when there
   are several competing proposals to solve a particular problem.
o Similarly, the information is useful when deciding whether the
   document should be progressed on a different track (individual
   submission, Experimental etc.).
o Making this information public and an explicit part of WG
   deliberations will motivate participants to implement protocol
   proposals, which in turn helps in discovering protocol flaws at an
   early stage.
o Other participants can use the software, to evaluate the
   usefulness of protocol features, its correctness (to some degree)
   and other properties, such as resilience and scalability.
o WG members may choose to perform interoperability testing with
   known implementations, especially when they are publicly
   available.
o In the case of open source, people may want to study the code to
   better understand the protocol and its limitations, determine if
   the implementation matches the protocol specification, and whether
   the protocol specification has omissions or ambiguities.
o And lastly, some protocol features may be hard to understand, and
   for such features, the mere assurance that they can be implemented
   is beneficial. We note though that code should never be used in
   lieu of a clear specification.

We do not specify here whether and to what degree working groups are expected to prefer proposals that have "running code" associated with them, over others that do not.

[5](#). Process Experiment

The current proposal is proposed as an experiment. The inclusion of "Implementation Status" sections in Internet-Drafts is not mandatory, but the authors of this document wish to encourage authors of other Internet-Drafts to try out this simple mechanism to discover whether it is useful. Working group chairs are invited to suggest this mechanism to document editors in their working groups, and to draw the attention of their working group participants to "Implementation Status" sections where they exist.

Following a community discussion, it was concluded that [[RFC3933](#)] is not an appropriate framework for this experiment, primarily because

no change is required to any existing process.

5.1. Duration

Given the typical time to produce an RFC (see [Stats]), we propose a
duration of 18 months for the experiment. Thus, 18 months after the
date of publication of this document as an RFC, the authors will
report on the experiment as described in the next section.

5.2. Summary Report

The authors will summarize the results of the experiment at the end
of the period assigned to the experiment (see Section 5.1). If
nothing happens (no I-Ds or only a handful include an "Implementation
Status" section), an email to the IETF list will be sufficient. This
would obviously constitute a failure to adopt the idea and the
authors will abandon the experiment.

If this idea is adopted by document authors, a summary I-D will be
written containing the statistics of such adoption, as well as
(necessarily subjective) reports by working group members, chairs and
area directors who have used this mechanism.

The authors may then propose more wide-scale use of the process and
might suggest more formal adoption of the process by the IETF.

5.3. Success Criteria

The goal of this experiment is to improve the quality of IETF
specifications. This is impossible to quantify, of course. We
suggest that generally positive answers to the following questions
would indicate that the experiment was successful:

o Did the working group make decisions that were more informed when
   comparing multiple competing solutions for the same work item?
o Did authors significantly modify proposed protocols based on
   implementation experience?
o Did disclosure of implementations encourage more interoperability
   testing than previously?
o Did non-authors review documents based on interactions with
   running code and/or inspection of the code itself?

6. Implementation Status

[Note to RFC Editor: please remove this entire section before
publication.]

This is a process document and therefore does not have any meaningful
implementation status. "Implementation" in the context of this
document means actual program code.

6.1. Current Drafts Using This Guidance

As of this writing, the following drafts include an Implementation
Status section, citing the current draft: draft-clausen-lln-loadng,
draft-ovsienko-babel-hmac-authentication, draft-wilde-xml-patch,
draft-ietf-mpls-multipath-use.

7. Security Considerations

This is a process document and therefore, it does not have a direct
effect on the security of any particular IETF protocol. However,
better reviewed protocols are likely to also be more secure.

8. IANA Considerations

None.

9. Acknowledgements

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to thank Nico Williams, its author.

10. Informative References

[RFC1264]   Hinden, R., "Internet Engineering Task Force Internet
            Routing Protocol Standardization Criteria", RFC 1264,
            October 1991.

[RFC3933]   Klensin, J. and S. Dawkins, "A Model for IETF Process
            Experiments", BCP 93, RFC 3933, November 2004.

[RFC4794]   Fenner, B., "RFC 1264 Is Obsolete", RFC 4794,
            December 2006.

[Stats]   Arkko, J., "Distribution of Processing Times",

                  December 2012,
                  <http://www.arkko.com/tools/lifecycle/wgdistr.html>.

   [Tao]   Hoffman, P., Ed., ""The Tao of IETF: A Novice's Guide to
                  the Internet Engineering Task Force", 2012,
                  <http://www.ietf.org/tao.html>.

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