           **Clarifying when Standards Track Documents may Refer Normatively to
                       Documents at a Lower Level
                     draft-kucherawy-rfc3967bis-00**

Abstract

   IETF procedures generally require that a standards track RFC may not
   have a normative reference to another standards track document at a
   lower maturity level or to a non standards track specification (other
   than specifications from other standards bodies). For example, a
   standards track document may not have a normative reference to an
   informational RFC. Exceptions to this rule are sometimes needed as
   the IETF uses informational RFCs to describe non-IETF standards or
   IETF-specific modes of use of such standards. This document
   clarifies and updates the procedure used in these circumstances.

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Table of Contents

1. Introduction

The Internet Standards Process [RFC2026] Section 4.2.4 specifies the
following:

   Standards track specifications normally must not depend on other
   standards track specifications which are at a lower maturity level
   or on non standards track specifications other than referenced
   specifications from other standards bodies.

One intent is to avoid creating a perception that a standard is more
mature than it actually is.

It should also be noted that Best Current Practice documents
[RFC1818] have generally been considered similar to Standards Track
documents in terms of what they can reference. For example, a
normative reference to an Experimental RFC has been considered an
improper reference per [RFC2026].

1.1. Normative References

Within an RFC, references to other documents fall into two general
categories: "normative" and "informative". Broadly speaking, a
normative reference specifies a document that must be read to fully
understand or implement the subject matter in the new RFC, or whose
contents are effectively part of the new RFC, as its omission would
leave the new RFC incompletely specified. An informative reference
is not normative; rather, it provides only additional background
information.

An exact and precise definition of what is (and is not) a normative
reference has proven challenging in practice, as the details and
implications can be subtle. Moreover, whether a reference needs to
be normative can depend on the context in which a particular RFC is
being published in the first place. For example, in the context of
an IETF Standard, it is important that all dependent pieces be
clearly specified and available in an archival form so that there is
no disagreement over what constitutes a standard. This is not always
the case for other documents.

The rest of this section provides guidance on what might (and might
not) be considered normative in the context of the IETF standards
process.

In the IETF, it is a basic assumption that implementors must have a
clear understanding of what they need to implement in order to be
fully compliant with a standard and to be able to interoperate with
other implementations of that standard. For documents that are

referenced, any document that includes key information an implementer
needs would be normative. For example, if one needs to understand a
packet format defined in another document in order to fully implement
a specification, the reference to that format would be normative.
Likewise, if a reference to a required algorithm is made, the
reference would be normative.

Some specific examples:

o If a protocol relies on IPsec to provide security, one cannot
   fully implement the protocol unless the specification for IPsec is
   available; hence, the reference would be normative. The
   referenced specification would likely include details about
   specific key management requirements, which transforms are
   required and which are optional, etc.

o In MIB documents, an IMPORTS clause by definition is a normative
   reference. When a reference to an example is made, such a
   reference need not be normative. For example, text such as "an
   algorithm such as the one specified in [RFCxxxx] would be
   acceptable" indicates an informative reference, since that cited
   algorithm is just one of several possible algorithms that could be
   used.

2. The Need for Downward References

There are a number of circumstances in which an IETF document may
need to make a normative reference to a document at a lower maturity
level, but such a reference conflicts with Section 4.2.4 of
[RFC2026]. For example:

o A standards track document may need to refer to a protocol or
   algorithm developed by an external body but modified, adapted, or
   profiled by an IETF informational RFC, for example, MD5 [RFC1321]
   and HMAC [RFC2104]. Note that this does not override the IETF's
   duty to see that the specification is indeed sufficiently clear to
   enable creation of interoperable implementations.

o A standards document may need to refer to a proprietary protocol,
   and the IETF normally documents proprietary protocols using
   informational RFCs.

o A migration or co-existence document may need to define a
   standards track mechanism for migration from, and/or co-existence
   with, an historic protocol, a proprietary protocol, or possibly a
   non-standards track protocol.

   o There are exceptional procedural or legal reasons that force the
      target of the normative reference to be an informational or
      historical RFC or to be at a lower standards level than the
      referring document.

   o A BCP document may want to describe best current practices for
      experimental or informational specifications.

3. The Procedure to Be Used

   For Standards Track or BCP documents requiring normative reference to
   documents of lower maturity, the normal IETF Last Call procedure will
   be issued, with the need for the downward reference explicitly
   documented in the Last Call itself. Any community comments on the
   appropriateness of downward references will be considered by the IESG
   as part of its deliberations.

   Once a specific down reference to a particular document has been
   accepted by the community (e.g., has been mentioned in several Last
   Calls), an Area Director may waive subsequent notices in the Last
   Call of down references to it. This should only occur when the same
   document (and version) are being referenced and when the AD believes
   that the document's use is an accepted part of the community's
   understanding of the relevant technical area. For example, the use
   of MD5 [RFC1321] and HMAC [RFC2104] is well known among
   cryptographers.

   This procedure should not be used if the proper step is to move the
   document to which the reference is being made into the appropriate
   category. It is not intended as an easy way out of normal process.
   Rather, the procedure is intended for dealing with specific cases
   where putting particular documents into the required category is
   problematic and unlikely ever to happen.

4. Security Considerations

   This document is not known to create any new vulnerabilities for the
   Internet. On the other hand, inappropriate or excessive use of the
   process might be considered a downgrade attack on the quality of IETF
   standards or, worse, on the rigorous review of security aspects of
   standards.

5. References

5.1. Normative References

   [RFC2026] Bradner, S., "The Internet Standards Process -- Revision
              3", BCP 9, RFC 2026, DOI 10.17487/RFC2026, October 1996,

<http://www.rfc-editor.org/info/rfc2026>.

5.2. Informative References

[RFC1321] Rivest, R., "The MD5 Message-Digest Algorithm", RFC 1321,
           DOI 10.17487/RFC1321, April 1992,
           <http://www.rfc-editor.org/info/rfc1321>.

[RFC1818] Postel, J., Li, T., and Y. Rekhter, "Best Current
           Practices", RFC 1818, DOI 10.17487/RFC1818, August 1995,
           <http://www.rfc-editor.org/info/rfc1818>.

[RFC2104] Krawczyk, H., Bellare, M., and R. Canetti, "HMAC: Keyed-
           Hashing for Message Authentication", RFC 2104,
           DOI 10.17487/RFC2104, February 1997,
           <http://www.rfc-editor.org/info/rfc2104>.

Appendix A. Acknowledgments

The author wishes to thank the following for reviews and comments on
this draft: Barry Leiba, (others)

Appendix B. Changes Since RFC3967

o None (yet).

Appendix C. Changes History

C.1. RFC3967 to -00

o Convert to xml2rfc.

o Reset Acknowledgments.

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