Conformance Terms to Indicate Requirement Levels
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Abstract

In many protocol specifications and related documents, special
conformance terms (e.g., the uppercase words "MUST", "SHOULD", and
"MAY") are often used to signify requirement levels. This document
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Process. If approved, this document obsoletes RFC 2119 and changes its
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Status of this Memo

Copyright Notice

Table of Contents

1. Introduction

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[BCP9]. If approved, this document obsoletes RFC 2119 and changes its
status to Historic.
The discussion venue for this document is the <ietf@ietf.org> mailing
list, for which archives and subscription information are available at
<https://www.ietf.org/mailman/listinfo/ietf>.
[[NOTE TO RFC EDITOR: Upon publication, please remove the foregoing
paragraph.]]

2. Definitions

2.1. MUST

This term means that the feature or behavior is an absolute requirement of the specification, so that an implementation has an obligation to implement the feature or to behave as defined. The terms "SHALL" and "REQUIRED" are equivalent to "MUST".

2.2. MUST NOT

This term means that the feature or behavior is an absolute prohibition of the specification, so that an implementation has an obligation to not implement the feature or to not behave as defined. The term "SHALL NOT" is equivalent to "MUST NOT".

2.3. SHOULD

This term means that the feature or behavior is a conditional requirement of the specification, so that an implementation has an obligation to implement the feature or to behave as defined unless there is a strong reason why it might be prudent not to do so in particular circumstances. Specification authors are strongly encouraged to clearly describe such reasons, along with the implications of not conforming with the conditional requirement. Those who implement the specification or deploy conformant technologies need to understand and carefully weigh the full implications of not conforming to the conditional requirement before doing so. The term "RECOMMENDED" is equivalent to "SHOULD".

2.4. SHOULD NOT

This term means that the feature or behavior is a conditional prohibition of the specification, so that an implementation has an obligation to not implement the feature or to not behave as defined unless there is a strong reason why it might be prudent to do so in particular circumstances. Specification authors are strongly encouraged to clearly describe such reasons, along with the implications of not conforming with the conditional prohibition. Those who implement the specification or deploy conformant technologies need to understand and carefully weigh the full implications of not conforming to the conditional prohibition before doing so. The term "NOT RECOMMENDED" is equivalent to "SHOULD NOT".

2.5. MAY

This term means that the feature or behavior is purely discretionary. One implementation can choose to implement the feature or behavior whereas another implementation can choose not to, without any resulting harm to interoperability. An implementation that does not implement the

feature or behavior needs to interoperate with another implementation
that does do so, although perhaps with reduced functionality. Likewise,
an implementation that implements the feature or behavior needs to
interoperate with another implementation that does not do so (except,
of course, with respect to the defined feature or behavior). The term
"OPTIONAL" is equivalent to "MAY".

3. Usage

The conformance terms defined in this document ought to be used
judiciously. In particular, the absolute and conditional requirements
and prohibitions ought be used only to specify features and behaviors
that are necessary for interoperability, or to forbid features and
behaviors that have the potential to cause significant harm. For
example, such terms are not to be used to impose a particular method on
implementers if the method is not necessary for interoperability.
When it is not appropriate to use the conformance terms, authors can
use a variety of alternative words and phrases, such as: "need to" or
"mandatory" instead of "MUST"; "ought to" or "strongly encouraged"
instead of "SHOULD"; and "might" or "discretionary" instead of "MAY".
To prevent confusion, authors ought to use these alternative words and
phrases instead of the lowercase versions of the conformance terms, and
to use the conformance terms only in their uppercase versions.

4. Boilerplate

In order for the requirements force of the conformance terms to apply,
authors who follow the guidelines specified herein need to incorporate
this sentence near the beginning of their documents:

    *The following conformance terms are to be interpreted as
     described in [RFCXXXX]: "MUST", "SHALL", "REQUIRED"; "MUST NOT",
     "SHALL NOT"; "SHOULD", "RECOMMENDED"; "SHOULD NOT", "NOT
     RECOMMENDED"; "MAY", "OPTIONAL".

[[NOTE TO RFC EDITOR: Upon publication, please change "XXXX" to the
number assigned to this document.]]

5. Security Considerations

The conformance terms defined in this document are frequently used to
specify features and behaviors that have security implications. The
effects on security of not implementing a "MUST" or a "SHOULD", or of
doing something the specification says "MUST NOT" or "SHOULD NOT" be
done, can be very subtle. Specification authors are strongly encouraged
to clearly describe the security implications of not conforming to
absolute and conditional requirements, since implementers might not
have the benefit of the experience and discussion that produced the
specification.

6. IANA Considerations

This document requests no actions of the IANA.

7. Acknowledgements

This document borrows text from [RFC2119]; Scott Bradner, the author of that document, is gratefully acknowledged.
Thanks also to Harald Alvestrand and Julian Reschke for their feedback.

8. Differences from RFC 2119

The following modifications were made from RFC 2119.

* Clarified the definitions to specify that features and behaviors
  are absolutely required ("MUST"), absolutely prohibited ("MUST
  NOT"), conditionally required ("SHOULD"), conditionally
  prohibited ("SHOULD NOT"), or purely discretionary ("MAY").

* Expanded the definitions of "SHOULD" and "SHOULD NOT" to include
  the notion of conforming unless there is a strong reason to do
  so, and encouraged specification authors to clearly describe such
  reasons and the implications of not conforming.

* Suggested alternative words and phrases for use when the
  conformance terms are not appropriate.

* Encourage use of the conformance terms only in their uppercase
  versions.

* Modified the title to use the phrase "conformance terms" instead
  of the phrase "key words".

* Modified the boilerplate to include "NOT RECOMMENDED" (erratum
  #499) and to group similar terms together.

9. References

[BCP9]	Bradner, S., "The Internet Standards Process -- Revision 3", BCP 9, RFC 2026, October 1996.
[RFC2119]	Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

Appendix A. Changelog

[[NOTE TO RFC EDITOR: Upon publication, please delete this entire section.]]

Appendix A.1. [00 to 01](#)

*Added section describing differences from RFC 2119.

*Changed "limited" to "conditional" in definitions of "SHOULD" and
 "SHOULD NOT".

*Changed "truly a matter of preference" to "purely discretionary"
 in definition of "MAY".

*Recommended that specification authors clearly describe the
 reasons why it might be prudent to not conform with "SHOULD" and
 "SHOULD NOT" statements, and the implications of non-conformance.

*Adjusted and harmonized wording throughout.

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