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Internet-Draft	AT&T Laboratories
Intended status: Informational	D. Crocker
Expires: December 25, 2015	Brandenburg InternetWorking
	June 23, 2015

Non-Normative Synonyms in RFCs

draft-hansen-nonkeywords-non2119-03

Abstract

Specifications in RFCs contain normative keywords, as defined in RFC 2119, to signify requirements, permission or prohibitions. These include MUST, SHOULD and MAY, which are commonly recorded in all CAPITALS (but need not be). The RFC 2119 words are sometimes also used with non-normative meaning; this non-normative usage can be confusing and it is better to restrict the RFC 2119 words to be used solely as normative directives.

Happily, natural languages permit variation in phrasing, so that meaning can be retained without use of this otherwise-normative vocabulary. For such situations, this document provides some alternatives to the normative vocabulary of RFC 2119.

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1. Words That Do Double Duty

To indicate a degree of requirement, permission or prohibition for an aspect of a specification, words such as MUST, SHOULD and MAY are defined as normative vocabulary in the formal aspects of the RFC series [\[RFC2119\]](#). However it is also natural to use them non-normatively, in a narrative fashion. Even when this carries no obvious potential confusion, such as within RFCs that do not invoke the conventions of RFC 2119,

non-normative use of these words in RFCs invites confusion for the reader; their normative meaning is too deeply ingrained in the culture of the RFC series.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [\[RFC2119\]](#).

Fortunately, there are other words readily available, in lieu of the RFC 2119 words, when a non-normative meaning is intended. These alternatives, or their equivalents, are suggested for use instead of their normatively-encumbered vocabulary.

RFC 2119 Word	When Used With This Meaning	Alternative Word(s)
MUST, REQUIRED, SHALL	indicates that something is essential	needs to, necessary
SHOULD, RECOMMENDED	indicates that something is strongly urged	ought to, encouraged, suggested
MAY, OPTIONAL	indicates the possibility or capability of performing an action	can, might
	indicates permission to perform an action	is allowed to, is permitted to

Because the word "NOT" (or "not") only takes on a special meaning when it is combined with one of the RFC 2119 normative words, the word "not" can be freely used with any of the above suggestions and will not be taken to have any separate RFC 2119 connotation. For example, "ought not" is non-normative, while "should not" and "SHOULD NOT" are normative in the RFC 2119 sense.

As a rule, authors are strongly encouraged to use these alternative wordings, or their equivalents, in ALL documents processed as RFCs, but especially for those that conform to RFC 2119. (Of course, these words might also be used in internet drafts.)

Note that the above list of synonyms is not meant to be exhaustive; other non-RFC-2119-normative words can, of course, also be used at the author's discretion.

Authors who follow these guidelines might want to incorporate a declaration about usage, at the beginning of their document.

[Note to RFC Editor: please remove this paragraph before publication.] This document can be discussed on the ietf@ietf.org mailing list.

2. Acknowledgements

The comments from Ran Atkinson are gratefully acknowledged.

3. IANA Considerations

This document has no IANA considerations.

4. Security Considerations

The RFC 2119 terms are frequently used to specify behavior with security implications. The effects on security of changing something from a "MUST" to a "needs to", or vice versa, can be very subtle, as one has normative meaning and the other does not. Document authors need to take the time to consider the effects of using non-normative verbiage as specified in this document instead of the normative verbiage from RFC 2119.

5. Informative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

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Table of Contents

- [1. Words That Do Double Duty](#)
 - [2. Acknowledgements](#)
 - [3. IANA Considerations](#)
 - [4. Security Considerations](#)
 - [5. Informative References](#)
- [Authors' Addresses](#)