Key words for use in RFCs to Indicate Requirement Levels

Status of this Memo

   This document specifies an Internet Best Current Practices for the
   Internet Community, and requests discussion and suggestions for
   improvements. Distribution of this memo is unlimited.

Abstract

   In many standards track documents several words are used to signify
   the requirements in the specification. These words are often
   capitalized. This document defines these words as they should be
   interpreted in IETF documents. Authors who follow these guidelines
   should incorporate this phrase near the beginning of their document:

      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
      RFC 2119.

   Note that the force of these words is modified by the requirement
   level of the document in which they are used.

1. **MUST**   This word, or the terms "REQUIRED" or "SHALL", mean that the
   definition is an absolute requirement of the specification.

2. **MUST NOT**   This phrase, or the phrase "SHALL NOT", mean that the
   definition is an absolute prohibition of the specification.

3. **SHOULD**   This word, or the adjective "RECOMMENDED", mean that there
   may exist valid reasons in particular circumstances to ignore a
   particular item, but the full implications must be understood and
   carefully weighed before choosing a different course.

4. **SHOULD NOT**   This phrase, or the phrase "NOT RECOMMENDED" mean that
   there may exist valid reasons in particular circumstances when the
   particular behavior is acceptable or even useful, but the full
   implications should be understood and the case carefully weighed
   before implementing any behavior described with this label.

[5](#). **MAY**   This word, or the adjective "OPTIONAL", mean that an item is
   truly optional. One vendor may choose to include the item because a
   particular marketplace requires it or because the vendor feels that
   it enhances the product while another vendor may omit the same item.
   An implementation which does not include a particular option MUST be
   prepared to interoperate with another implementation which does
   include the option, though perhaps with reduced functionality. In the
   same vein an implementation which does include a particular option
   MUST be prepared to interoperate with another implementation which
   does not include the option (except, of course, for the feature the
   option provides.)

[6](#). **Guidance in the use of these Imperatives**

   Imperatives of the type defined in this memo must be used with care
   and sparingly. In particular, they MUST only be used where it is
   actually required for interoperation or to limit behavior which has
   potential for causing harm (e.g., limiting retransmisssions) For
   example, they must not be used to try to impose a particular method
   on implementors where the method is not required for
   interoperability.

[7](#). **Security Considerations**

   These terms are frequently used to specify behavior with security
   implications. The effects on security of not implementing a MUST or
   SHOULD, or doing something the specification says MUST NOT or SHOULD
   NOT be done may be very subtle. Document authors should take the time
   to elaborate the security implications of not following
   recommendations or requirements as most implementors will not have
   had the benefit of the experience and discussion that produced the
   specification.

[8](#). **Acknowledgments**

   The definitions of these terms are an amalgam of definitions taken
   from a number of RFCs. In addition, suggestions have been
   incorporated from a number of people including Robert Ullmann, Thomas
   Narten, Neal McBurnett, and Robert Elz.

[9](#). Author's Address

Scott Bradner
Harvard University
1350 Mass. Ave.
Cambridge, MA 02138

phone - +1 617 495 3864

email - sob@harvard.edu