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Definition of new tags for relations between RFCs
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Abstract

An RFC can include a tag called "Updates" which can be used to link a new RFC to an existing RFC. On publication of such an RFC, the existing RFC will include an additional metadata tag called "Updated by" which provides a link to the new RFC. However, this tag pair is not well-defined and therefore it is currently used for multiple different purposes, which leads to confusion about the actual meaning of this tag and inconsistency in its use.

This document recommends the discontinuation of the use of the updates/updated by tag pair, and instead proposes three new tag pairs that have well-defined meanings and use cases.

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1. Introduction

An RFC can include a tag called "Updates" which can be used to link a new RFC to an existing RFC. On publication of such an RFC, the existing RFC will include an additional metadata tag called "Updated by" which provides a link to the new RFC. However, this tag pair is not well-defined and therefore it is currently used for multiple different purposes, which leads to confusion about the actual meaning of this tag and inconsistency in its use.

The "Updates/Updated by" tag pair is currently used consistently as different working groups or areas tend to apply different meanings to it. Opinions also differ greatly about the obligations on implementors for the updated RFC. While updating an RFC never makes the updated RFC invalid, updates can contain bug fixes or critical changes. Some groups apply the update tag only to these kind of changes with the expectation that new implementations are also obliged to implement the new updating RFC. Some other groups use the update tag to define optional extensions or new uses of extension points in the current protocol. This disconnect leads to a situation where it is desirable to add a "mandatory-to-implement" indication to an existing RFC.

Groups or individuals that apply such restrictive conditions to the Updates tag, consequently usually do not use the update tag for any extensions or addition to a protocol. However, as there is no other way in the current metadata scheme to link a new RFC to an existing RFC, not using the Updates tag makes it harder to find these new RFCs. While implementors might well benefit from some extensions or additions, they might not be aware of them and either not use them or, in the worst case, implement an alternate mechanism instead.

Currently the Updates/Updated by tag pair mainly provides a way to link two documents. The cases mentioned above clearly benefit from such a linkage which the expectation that readers of updated RFC as least look or also read the updating RFC. Additionally, there are more cases where such a linkage could be useful to improve awareness of some newer related technology without providing any indication on the importance of the linked document. As the conditions for the use of the Updates tag are not clear, often it is not used in such cases.

This document recommends the discontinuation of the use of the Updates/Updated by tag pair, and instead proposes three new tag pairs that have well-defined meanings and use cases.

2. Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

3. New Definitions

Based on the problems identified above this document defines three new tag pairs with the following meanings:

Amends/Amended by: This tag pair is used with an amending RFC that changes the amended RFC. This could include bug fixes, behavior changes etc. This is intended to specify mandatory changes to the protocol. The goal of this tag pair is to signal to anyone looking to implement the amended RFC that they MUST also implement the amending RFC.

Extends/Extended by: This tag pair is used with an extending RFC that defines an optional addition to the extended RFC. This can be used by documents that use existing extension points or clarifications that do not change existing protocol behavior. This signals to implementers and protocol designers that there are changes to the extended RFC that they need to consider but not necessarily implement.

See Also/See Also: This is intended as a catch-all tag where two documents are related loosely but do not fit either of the above categories. The main intention of this tag is to provide a forward reference from the existing RFC to the RFCs that may be of interest to read. However, it is not recommended to use this tag extensively.

These three tags MUST only be used for the defined meanings, mostly with respect to the implication on implementation requirements. This document does not mandate the use of these tags if one of the described use cases apply. Tags are optional metadata that are useful to understand the context of RFCs and navigate the RFC series. All three tags can only be used to reference other RFCs (and not as reference to external sources).

If a new RFC amends an old RFC while also defining an extension, usually it is sufficient to use the "Amends" tag. However, both tags could be used as well. In any case, it is more important to explain clearly in the abstract what is amended/extended by the new RFC (see section Section 4.3).

As today with "updates", none of the new tags makes the extended/amended RFC invalid. An implementation that conforms to the amended RFC still conforms to that RFC, even when an amendment is published. However, an implementation can, and hopefully should, of course be updated to also conform to the new RFC with the amendment. If only conformance to the new RFC is desired, obsoleting the respective RFC with a new full (bis) specification may be more appropriate and should be consider instead.

3.1. Cross-stream use and maturity levels

This document does not impose any restrictions on the status or maturity level of the RFC that uses these new tags in relation the RFC that gets amended/extended. Further, no restrictions are made on the use of these tags across RFC streams.

However, it is expected that some cases are less likely, e.g. an IETF-stream RFC gets amended by an RFC from another stream. For amendments that effectively change the originally RFC is is expected that the same consensus process is applied. This document does not specify any detailed process requirements on how this is achieved.

Examples exist where non IETF-stream documents update IETF-stream documents. However, these updates usually utilise an existing extension point and therefore the use of "Extends" would be expected in future, e.g. RFC 3579 (RADIUS Support For EAP) which is a document in the Independent Submission Stream updates RFC 2869 (RADIUS Extensions), an IETF stream document. In fact, this new, more clear definition of tags could even lead to an increase in cross stream usage of the "Extends" tag (if adopted by other streams, which is still open for discussion and may be reflected in future versions of this document).

4. Additional Recommendations

4.1. Discontinuation of the Use of Updates/Updated by

[NOTE: This is open for discussion and we would like opinions on whether the use of Updates needs to be discontinued for all future documents or not. This requires further discussion with the RFC Editor and the other stream managers to see if we can have a unified policy for all streams]

This document makes the updates tag obsolete for future use: it MUST NOT be used in new IETF stream documents. The new tags are to be used instead, beginning with the publication of this document as an RFC.

However, the Updates/Updated by tag pair will remain in existing documents and there is no plans to change these metadata in order to apply the new tags instead. While it would be possible to change the "Updated by" tag in the metadata without republishing the updating RFC, the mapping to either "Amended by", "Extended by", or "See also" is not always straight forward and as such would require building consensus for each RFC separately. Further, simply replacing the tag would in any way not be sufficient, as also RFCs that currently do not have an updates tag would probably qualify to have one of the new tags defined in this document.

4.2. Formatting Style of Amendments

This document does not impose any requirements on the form of the amendment made. Some RFCs use and OLD/NEW style to highlight actual text changes others simply describe the changes in text. Both can make sense in certain situation. However, this document does recommend to use the OLD/NEW rather for smaller and a limited number of changes, while if larger or many changes are needed, a new document revision that obsoletes the old RFC should be considered.

4.3. Indication of Linkage in the Abstract and Introduction

The RFC style guide [RFC7322] recommends to indicate updates in the abstract and introduction. Note that both is needed as the abstract is meant to function in a stand-alone fashion. This document will keep this practice for the new Amends/Amended by and Extends/Extended by tag pairs as well. It is further recommended to provide additional information about the extension in the abstract or introduction for the Extends/Extended by tag pair in order to provide the reader some assistance whether he or she also needs to read the rest of extending RFC.

For the See Also/See Also tag pair, additional information of the linked RFC may be added in the introduction but there is no expectation to name these RFC in the abstract.

5. Future work

There will be a need to update the RFC Style Guide [RFC7322] (and specifically Section 4.1.4.) in order to discuss the new tags if and when this document is published.

Further, the "updates" attribute is part of the "xml2rfc" Version 3 Vocabulary [RFC7991]. Therefore an extension to [RFC7991] is need as well. This may be done by a future version of this draft or in a separate draft, e.g. with other extension or amendments to [RFC7991].

6. Alternative Approaches

This document proposes three new meta data tag pairs to address the problem that the use of the "Updates" tag is currently undefined which causes confusion due to various different practices applied in different group and after all a waste of time in recurring discussion about using or not using the tag.

Alternatively, in order to solely solve the problem of avoiding unnecessary discussion time, it would also be possible to document that the "Updates" tag is undefined and as such there are no strict rules about applying it or any implications of using it. This was proposed by the IESG providing an IESG statement for community discussion and lead to community feedback indicating that this solution is not preferred.

However, rather than defining three new tags, one could also just clearly define the meaning of the existing update tag. Still, this could also be confusing as it would not apply to RFCs that are already published. So re-naming and defining one tags, instead of three, would be an alternative. This one tag could either cover all three usages that are described in this draft or only one (probably the one as defined by the proposed "Amends" tag, as this is usually seen as the most important one).

This draft proposes three tags as those tags are considered to cover most of the usages that we see today for the "Updates" tag, assuming that these cases are benefiting from a forward reference of an already published RFC to a new RFC. Especially separating changes to an existing RFC, as often done by use of the OLD/NEW notation, from extension/additions to an RFC is one of the main confusion and discussion points and therefore this draft proposes different tags for it. However, if it is observed that not all proposed tags are actively used in future, or their usage is still not sufficiently clear, it should be considered to deprecate the unused tags and therefore restrict forward references to only some of the identified usages.

7. Security Considerations

The changes in this document do not have directly impact the security of any protocol or mechanism specified in the RFC series. However, amendments or extensions can help to improve security or discuss security-related issues. Therefore, the use of the proposed tags and their clear definition can also support such RFCs in their intended goals regarding security.

If a document is amended, it is expected that the same consensus process is used as for the original document as an amended can be seen as an actual change of the original document. For extension points usually the original specification also defines requirement for an extension mechanism to be used, e.g. in form of policy for IANA registries. Of course, the requirement must be considered when extending a protocol.

There is a risk that this experiment fails by either not seeing adoption from the community or not addressing the discussed problems sufficiently (ambiguity of use, implications for implementations). However, it is not expected that the proposed tags will make these problems worse. In the worst case, if the experiment is decided to be reverted in future and the Updates tag should be used instead again, this will likely not make the situation worse or more confusing than it already is either. Maybe this effort is then seen as a waste of time but the same recurring discussions about using or not using the Updates tag (especially during IESG review but also before that in the working group discussion) are a waste of time as well.

8. Acknowledgments

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