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RFCs Change

Researchers in many fields read RFCs to understand how various protocols work or, less commonly, to understand how IETF processes work. An RFC does not tell the reader whether the RFC has become obsolete, marked as historic, is updated by other RFCs, or has errata. Reading an RFC on either the Datatracker or the IETF Tools sites will give that information, but only if the reader knows to read the top of the RFC carefully.

Those sites, however, do not tell the reader if an RFC is currently likely to be obsoleted or updated. That information, however, is significant to researchers who are looking at a protocol (as compared to looking at RFCs as abstract entities). Everyone who works in the IETF knows that, even though an RFC is immutable, the topic of the RFC (a protocol, a protocol extension, an IETF process, and so on) changes over time.

Currently, there are approximately 190 RFCs that may be being updated by Internet Drafts. These updates might be relevant to the reader of an RFC: if the update changes core requirements (such as TLS 1.2 to TLS 1.3), if the update changes implementation requirements (changing a SHOULD to a MUST), and so on.

For readers of RFCs, knowing that an RFC is being obsoleted is probably even more important. Currently, there are approximately 80 RFCs being obsoleted by drafts. These include the core HTTP specifications, the OpenPGP message format, TLS 1.3, and other important specifications.

The IETF CLI tool (<https://github.com/paulehoffman/ietf-cli>) can be used by researchers to open RFCs in their local text editor and also see the status of the RFC, including whether there are drafts that are updating and/or obsoleting the RFCs. The tool can also open drafts in their local text editor, and also look at the status of the draft in the Datatracker and IETF Tools to assess the importance of the draft and the likelihood of it affecting the RFC in question.

Even just knowing that there are drafts updating an RFC might not be sufficient for giving a reader a good idea of the state of the RFC. For example, errata are not shown in place in the RFC, so one has to make a copy of the RFC and put the errata in context. The same is true for significant updates to RFCs by other RFCs or drafts. IETF regulars are familiar with working group discussions where someone states an interpretation of part of an RFC, and is corrected by other working group members who have different interpretations. In many cases, the original poster agrees with the majority opinion. However, this discussion and its conclusion is not captured in the RFC or any of the tools that a researcher might use to read the RFC.

A future tool for reading RFCs might be able to capture relevant information about RFCs that is not in any other RFC or even in drafts. Such a tool could show annotations from security researchers, software developers, and other protocol developers about an RFC. It could also show errata in place. If enough annotations show up in a widely-used RFC, that could trigger someone to write a draft to update or at least clarify the RFC; even if such a draft never gets created, the annotations themselves would be useful. ICANN is in the early stages of specifying and possibly creating such a tool, and are seeking information on any other tools that exist in this space.

(If this position paper is accepted, and the workshop is still meant to be hybrid, there is a chance that I could attend in person. It will depend on ICANN's travel policy as well as COVID requirements in the Netherlands.)

--Paul Hoffman--
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