Abstract

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1. Introduction

Many application protocols use named parameters to represent data (for example, header fields in Internet mail messages and HTTP requests). Historically, protocol designers and implementers have often differentiated between "standard" and "experimental" parameters by prefixing experimental parameters with the string "X-", where the "X" stands for "eXperimental". This document argues that on balance the "X-" convention has more costs than benefits.

2. Argument

The "X-" convention has been in use for email header fields since the publication of [RFC822] in 1982, which distinguished between Extension-fields and user-defined-fields as follows:

The prefatory string "X-" will never be used in the names of Extension-fields. This provides user-defined fields with a protected set of names.

That rule was restated by [RFC1154] as follows:

Keywords beginning with "X-" are permanently reserved to implementation-specific use. No standard registered encoding keyword will ever begin with "X-".

This convention continued with various specifications for MIME [RFC2045] [RFC2046] [RFC2047], email [RFC2821] [RFC5321], HTTP [RFC2068] [RFC2616], and other technologies.

The primary problem with the "X-" convention is that experimental or implementation-specific parameters have a tendency to become standardized (whether de jure or de facto), thus introducing the need for migration from the "X-" name to the standardized name. Migration, in turn, introduces interoperability issues because older implementations will support only the "X-" name and newer implementations might support only the standardized name. To preserve interoperability, newer implementations simply support the "X-" name forever, which means that the experimental name becomes a de facto standard (thus obviating the need for segregation of the name spaces in the first place). We can see this phenomenon at work in [RFC2068]:

For compatibility with previous implementations of HTTP, applications should consider "x-gzip" and "x-compress" to be equivalent to "gzip" and "compress" respectively.
One of the original reasons for segregation of name spaces into standard and experimental areas was the perceived difficulty of registering names. However, the solution to that problem has been simpler registration rules, such as those provided by [RFC3864] and [RFC4288], as well as separate registries for permanent and provisional names. Indeed, [RFC4288] explicitly calls out the implications for experimental names:

> [W]ith the simplified registration procedures described above for vendor and personal trees, it should rarely, if ever, be necessary to use unregistered experimental types. Therefore, use of both "x-" and "x." forms is discouraged.

In some limited situations, segregating a name space can be justified; for example, when the names need to be very small (as in [RFC5646]) or when the names have significant meaning. However, in general, segregating experimental or implementation-specific parameters into an "X-" ghetto has few if any benefits, and has at least one significant interoperability cost. The practice is at best useless and at worst harmful.

The primary objections to discarding the "X-" convention are:

- Implementers are easily confused. However, implementers already are quite flexible about using both prefixed and non-prefixed names based on what works in the field, so the distinction between de facto names (e.g., "X-foo") and de jure names (e.g., "foo") is meaningless to them.

- Collisions are undesirable. However, names are usually cheap, so an experimental or implementation-specific name of "foo" does not prevent a standards development organization from issuing a similarly creative name such as "bar".

Therefore, this document recommends against the creation of new names with the special "X-" prefix in IETF protocols.

3. Security Considerations

Interoperability and migration issues with security-critical parameters can result in unnecessary vulnerabilities.

4. IANA Considerations

This document has no actions for the IANA.
5. Acknowledgements

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6. Informative References


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