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Early IANA Code Point Allocation for IETF Stream Internet-Drafts
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Abstract

This memo describes the requirements for securing IANA code point assignments before RFC publication. In particular, it describes the "early allocation" process that allows for temporary but renewable allocations from registries that would ordinarily require an IESG-approved Internet-Draft: primarily, registries maintained in accordance with the "Standards Action," "IETF Review," "RFC Required," and, in some cases, "Specification Required" policies described in RFC 8126. This process can be used when code point allocation is needed to facilitate desired or required implementation and deployment experience prior to publication. The procedures in this document are intended to apply only to IETF Stream documents.

This document obsoletes RFC 7120.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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This Internet-Draft will expire on 5 March 2026.

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1. Introduction

In protocol specifications documented in RFCs, there is often a need to allocate code points for various objects, messages, or other protocol entities so that implementations can interoperate. Assignments from these code point spaces are handled by the Internet Assigned Numbers Authority (IANA) in accordance with processes described in [RFC8126].

In situations where code points are a scarce resource and/or the IETF community has consensus to retain tight control over which assignments qualify, policies such as "IETF Review" or "Standards Action" are used. However, these allocation policies present a problem in situations where implementation and/or deployment experience are desired or required before the document has been finalized and approved for publication by the IESG.

Because IANA normally waits for the IESG to approve publication before allocating values for Internet-Drafts, some document authors have historically chosen seemingly-unused code points to facilitate pre-publication testing, often by selecting the next available value in the registry.

However, values cannot be guaranteed until IANA allocates them. If IANA later assigns values that don’t match the values specified in the draft (for example, because those expected values were allocated for another purpose while the document was in development), that mismatch can result in interoperability problems between early "pre-RFC" implementations that use the unofficial values and implementations that adhere to the official IANA assignments published in the registry and the RFC. This is contrary to the main purpose of standards: namely, to facilitate interoperable implementations.

This memo outlines the process for making early allocations of code points in order to allow for such pre-RFC testing. In effect, allocations from registries that would otherwise require an IESG-approved Internet-Draft can be acquired on a time-limited basis earlier in the document development process, provided the allocation request meets certain eligibility criteria. When appropriate, these early allocations will be carried through to the final published specification.

1.1. Changes Since RFC 7120

This is the third edition of the document that describes the policy for early allocations. This edition, which obsoletes [RFC7120], extends the early allocation term from one year to two. It also clarifies aspects of the renewal process, notes that IANA requests expert approval if permanent allocation would require it (as in "Specification Required"), and emphasizes that early allocation requires the special process described in this document only when the registry requires RFC publication.

2. Conditions for Early Allocation

If the desired code points come from a "First Come First Served" or "Expert Review" space, authors can request permanent registration from IANA at any time, regardless of document status. (However, registry-specific eligibility criteria may apply, and experts may wish to postpone approval until the document advances.)

The following conditions must hold before IANA can process a request for early allocation of code points from other spaces:

a. The code points must come from a space that requires RFC publication. Most registries of this type use the "RFC Required," "IETF Review," and/or "Standards Action" registration procedures defined by [RFC8126], but some use combined or custom procedures. Additionally, this process can be applied to requests for early assignment from a "Specification Required" registry if the specification will be published as an RFC and if IANA can obtain expert approval.

b. The format, semantics, processing, and other rules related to handling the protocol entities defined by the code points (henceforth called "specifications") must be adequately described in an IETF Stream Internet-Draft.

c. The specifications of these code points must be stable; i.e., if there is a change, implementations based on the earlier and later specifications must be seamlessly interoperable.

d. The Working Group chairs and Area Directors (ADs) must determine that there is sufficient interest in the community for early (pre-RFC) implementation and deployment, or that failure to make an early allocation might lead to contention for the code point in the field.

3. Process for Early Allocation

There are three processes associated with early allocation: making the request for code points, following up on the request, and revoking an early allocation.

The processes described below assume that the document in question is the product of an IETF Working Group (WG). If this is not the case, replace "WG chairs" below with "Shepherding AD."

3.1. Request

The process for requesting and obtaining early allocation of code points is as follows:

1. The authors (editors) of the document submit a request for early allocation to the Working Group chairs, specifying which code points require early allocation and to which document they should be assigned.

2. The WG chairs determine whether the conditions for early allocations described in Section 2 are met, particularly conditions (c) and (d).

3. The WG chairs gauge whether there is consensus within the WG that early allocation is appropriate for the given document.

4. If steps 2) and 3) are satisfied, the WG chairs request approval from the AD(s). The AD(s) may apply judgment to the request, especially if there is a risk of registry depletion.

5. If the ADs approve step 4), the WG chairs contact IANA to request an early allocation.

6. If the allocation comes from a "Specification Required" registry, or another registry that requires both RFC publication and review by an IESG-designated expert, IANA asks the expert(s) to approve the request.

7. IANA makes an allocation from the appropriate registry, marking the allocation as "Temporary," valid for a period of two years from the date of allocation. The date of first allocation and the date of expiry are also recorded in the registry and made visible to the public.

Note that Internet-Drafts should not include a specific value of a code point until IANA has completed the early allocation for this value. If a desired value must be named in the document before IANA can allocate the code point, it should be clearly labeled as, e.g., "(suggested)" or "(TBD)."

3.2. Follow-Up

It is the responsibility of the document authors and the Working Group chairs to review changes in the document, and especially in the specifications of the code points for which early allocation was requested, to ensure that the changes are backward compatible.

If at some point changes that are not backward compatible are nonetheless required, a decision needs to be made as to whether previously allocated code points must be deprecated (see Section 3.3 for more information on code point deprecation). The considerations include aspects such as the possibility of existing deployments of the older implementations and, hence, the possibility for a collision between older and newer implementations in the field.

If the document progresses to the point at which IANA normally makes code point allocations, it is the responsibility of the authors and the WG chairs to remind IANA that there were early allocations and of the code point values allocated in the IANA Considerations section of the RFC-to-be. Allocation is then just a matter of removing the "Temporary" tag from the allocation description.

3.3. Expiry

As described in Section 3.1, each temporary assignment is recorded in the registry with the date of expiry of the assignment. If an early allocation will expire before the IESG approves the document for publication, IANA will contact the WG chairs and AD to ask whether they wish to renew the code points for an additional two-year period.

After the first extension, any further renewal requests must also be approved by the IESG. The renewal request to the IESG must include the reason(s) another renewal is necessary and the WG's plans for the specification.

If an extension is not approved, IANA will ask the WG chairs whether they recommend deprecating the code point; completely de-allocating it, making it available for assignment again; or leaving the allocation in place, but with its "temporary" marker, and an expiration date indicating that it is no longer valid.

A deprecated code point is not marked as allocated for use as described in any document (that is, it is not allocated) and is not available for allocation in a future document. The WG chairs may recommend to IANA that a deprecated code point can be completely de-allocated at any time after it has been deprecated. Factors influencing this decision will include whether there may be implementations using the previous temporary allocation and the availability of other unallocated code points in the registry.

Implementers and deployers need to be aware that deprecation and de-allocation could take place at any time after expiry; therefore, an expired early allocation is best considered as deprecated.

Note that if a document is submitted for review to the IESG, and at the time of submission some early allocations are valid (not expired), these allocations must not be considered to have expired while the document is under IESG consideration.

4. IANA Considerations

This document defines procedures for early allocation of code points in registries that require RFC publication and as such directly affects IANA.

IANA will continue to register approved early allocations as described in this document, requesting IESG-designated expert approval when the registry requires it; track and report expiring early allocations; and initiate the early allocation renewal process.

5. Security Considerations

It is important to keep in mind that denial-of-service attacks on IANA are possible as a result of the processes defined in this memo. There are two that are immediately obvious: depletion of code space by early allocations and process overloading of IANA itself. The processes described here attempt to alleviate both of these potential attacks, but they are subject to scrutiny by IANA to ensure that they work. IANA may at any time request that the IESG suspend the procedures described in this document.

There is a significant concern that the procedures in this document could be used as an end-run around the IETF process to achieve code point allocation when an RFC will not be published. For example, a WG or a WG chair might be pressured to obtain an early allocation for a protocol extension for a particular company or for another Standards Development Organization even though it might be predicted that an IETF LC or IESG Evaluation would reject the approach that is documented. The requirement for AD consent is an important safeguard, and ADs with any concern are strongly recommended to escalate the issue for IESG-wide discussion.

6. References

6.1. Normative References

[RFC8126] Cotton, M., Leiba, B., and T. Narten, "Guidelines for Writing an IANA Considerations Section in RFCs", BCP 26, RFC 8126, DOI 10.17487/RFC8126, June 2017, <https://www.rfc-editor.org/info/rfc8126>.

6.2. Informative References

[RFC7120] Cotton, M., "Early IANA Allocation of Standards Track Code Points", BCP 100, RFC 7120, DOI 10.17487/RFC7120, January 2014, <https://www.rfc-editor.org/info/rfc7120>.

Appendix A. Acknowledgments

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