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**Experimental Codepoint Allocation for the Path Computation Element
communication Protocol (PCEP)
draft-ietf-pce-pcep-exp-codepoints-02**

Abstract

IANA assigns values to the Path Computation Element (PCE) communication Protocol (PCEP) parameters (messages, objects, TLVs). IANA established a new top-level registry to contain all PCEP codepoints and sub-registries. The allocation policy for each new registry is by IETF Review.

This document updates [RFC 5440](#) by changing the allocation policies for these three registries to mark some of the code points as assigned for Experimental Use.

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[1.](#) Introduction

The Path Computation Element communication Protocol (PCEP) provides mechanisms for Path Computation Elements (PCEs) to perform path computations in response to Path Computation Clients (PCCs) requests.

Further, in order to support use cases described in [[RFC8051](#)], [[I-D.ietf-pce-stateful-pce](#)] specifies a set of extensions to PCEP to enable stateful control of MPLS-TE and GMPLS LSPs via PCEP. [[I-D.ietf-pce-pce-initiated-lsp](#)] describes the setup, maintenance and teardown of PCE-initiated LSPs under the stateful PCE model.

In [section 9 of \[RFC5440\]](#), IANA assigns values to the PCEP protocol parameters (messages, objects, TLVs). IANA established a new top-level registry to contain all PCEP codepoints and sub-registries. The allocation policy for each new registry is by IETF Review as described in [[RFC8126](#)]. Also, early allocation [[RFC7120](#)] provides some latitude for allocation of these code points, but is reserved for features that are considered appropriately stable.

With some recent advancement, there is an enhanced need to experiment with PCEP. It is often necessary to use some sort of number or constant in order to actually test or experiment with the new function, even when testing in a closed environment. In order to run experiments, it is important that the value won't collide not only with existing codepoints but any future allocation.

This document updates [[RFC5440](#)] by changing the allocation policies for these three registries to mark some of the code points as assigned for Experimental Use. See [[RFC3692](#)] for further discussion of the use of experimental codepoints.

[2.](#) PCEP Messages

PCEP message types are in the range 0 to 255. This document sets aside message types 252-255 for experimentation as described in [Section 6.1](#).

[3.](#) PCEP Objects

PCEP objects are identified by values in the range 0 to 255. This document sets aside object identifiers 248-255 for experimentation as described in [Section 6.2](#).

[4.](#) PCEP TLVs

PCEP TLV type codes are in the range 0 to 65535. This document sets aside object identifiers 65504-65535 for experimentation as described in [Section 6.2](#).

5. Handling of Unknown Experimentation

A PCEP implementation that receives an experimental PCEP message, that it does not recognize, would react as per [section 6.9 of \[RFC5440\]](#) by sending a PCErr message with Error-value=2 (capability not supported).

A PCE that does not recognize an experimental PCEP object, will reject the entire PCEP message and send a PCE error message with Error- Type="Unknown Object" or "Not supported object" as described in [\[RFC5440\]](#).

As per [section 7.1 of \[RFC5440\]](#), unknown experimental PCEP TLV would be ignored.

6. IANA Considerations

IANA maintains the "Path Computation Element Protocol (PCEP) Numbers" at [<http://www.iana.org/assignments/pcep>](http://www.iana.org/assignments/pcep).

6.1. New PCEP Messages

Within this registry IANA maintains a sub-registry for PCEP Messages (see PCEP Messages at [<http://www.iana.org/assignments/pcep>](http://www.iana.org/assignments/pcep)).

IANA is requested to change the registration procedure for this registry to read as follows:

0-251	IETF Review
252-255	Experimental Use

IANA is also requested to mark the values 252-255 in the registry accordingly.

6.2. New PCEP Objects

Within this registry IANA maintains a sub-registry for PCEP Objects (see PCEP Objects at [<http://www.iana.org/assignments/pcep>](http://www.iana.org/assignments/pcep)).

IANA is requested to change the registration procedure for this registry to read as follows:

0-247	IETF Review
248-255	Experimental Use

IANA is also requested to mark the values 248-255 in the registry accordingly.

6.3. New PCEP TLVs

Within this registry IANA maintains a sub-registry for PCEP TLVs (see PCEP TLV Type Indicators at <<http://www.iana.org/assignments/pcep>>).

IANA is requested to change the registration procedure for this registry to read as follows:

0-65503	IETF Review
65504-65535	Experimental Use

IANA is also requested to mark the values 65504-65535 in the registry accordingly.

7. Security Considerations

This document does not introduce any new security considerations to the existing protocol. Refer to [RFC5440] for further details of the specific security measures.

[RFC3692] asserts that the existence of experimental code points introduce no new security considerations. However, implementations accepting experimental codepoints need to take care in how they parse and process the messages, objects, and TLVs in case they come, accidentally from another experiment.

8. Acknowledgments

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9. References

9.1. Normative References

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9.2. Informative References

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- [I-D.ietf-pce-pce-initiated-lsp]
Crabbe, E., Minei, I., Sivabalan, S., and R. Varga, "PCEP Extensions for PCE-initiated LSP Setup in a Stateful PCE Model", [draft-ietf-pce-pce-initiated-lsp-10](#) (work in progress), June 2017.

[Appendix A](#). Other PCEP Registries

Based on the feedback from the WG, it was decided to focus only on the essentials in the scope of this documents. For others, Experiments can use a new experimental TLV/Object instead.

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