

PCE working group  
Internet-Draft  
Intended status: Standards Track  
Expires: April 24, 2014

Q. Wu  
Huawei  
October 21, 2013

IGP extension for PCEP transport capability support in the PCE discovery  
[draft-wu-pce-discovery-priority-allocation-01](#)

## Abstract

[[RFC5088](#)][RFC5089] define a method to advertise path computation capabilities using IGP flooding. OSPF and ISIS are extended to support such capabilities advertisement. However [[RFC5088](#)][RFC5089] don't provide a method to advertise PCEP over TLS support capability.

This document proposes new capability flag bit for PCE-CAP-FLAGS sub-TLV that can be announced as attribute in the IGP advertisement (defined in [[RFC5088](#)][[RFC5089](#)]) to distribute transport support information.

## Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of [BCP 78](#) and [BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at <http://datatracker.ietf.org/drafts/current/>.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on April 24, 2014.

## Copyright Notice

Copyright (c) 2013 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents (<http://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents

Internet-Draft

IGP for PCEP Transport

October 2013

carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

## Table of Contents

<a href="#">1.</a>	Introduction . . . . .	<a href="#">2</a>
<a href="#">2.</a>	Conventions used in this document . . . . .	<a href="#">2</a>
<a href="#">3.</a>	IGP extension for PCEP transport capability support . . . . .	<a href="#">3</a>
3.1.	Use of PCEP transport capability support for PCE discovery . . . . .	<a href="#">3</a>
<a href="#">4.</a>	Security Considerations . . . . .	<a href="#">4</a>
<a href="#">5.</a>	IANA Considerations . . . . .	<a href="#">4</a>
<a href="#">6.</a>	References . . . . .	<a href="#">4</a>
<a href="#">6.1.</a>	Normative References . . . . .	<a href="#">4</a>
<a href="#">6.2.</a>	Informative References . . . . .	<a href="#">4</a>
	Author's Address . . . . .	<a href="#">4</a>

## [1.](#) Introduction

As described in [\[RFC5440\]](#), PCEP communication privacy is one importance issue, especially in an inter-AS context, where PCEP communication end-points do not reside in the same AS, as an attacker that intercepts a PCE message could obtain sensitive information related to computed paths and resources.

Among the possible solutions mentioned in these documents, Transport Layer Security (TLS) [\[RFC5246\]](#) provides support for peer authentication, and message encryption and integrity. In order for a PCC to begin a connection with a PCE server using TLS, PCC should know whether PCE server Support TLS as transport.

[\[RFC5088\]](#)[\[RFC5089\]](#) define a method to advertise path computation capabilities using IGP flooding. OSPF and ISIS are extended to support such capabilities advertisement. However [\[RFC5088\]](#)[\[RFC5089\]](#) don't provide a method to advertise PCEP over TLS support capability.

This document proposes new capability flag bit for PCE-CAP-FLAGS sub-TLV that can be announced as attribute in the IGP advertisement (defined in [\[RFC5088\]](#) [\[RFC5089\]](#)) to distribute transport support

information.

## [2.](#) Conventions used in this document

Wu

Expires April 24, 2014

[Page 2]

---

Internet-Draft

IGP for PCEP Transport

October 2013

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119](#) [[RFC2119](#)].

## [3.](#) IGP extension for PCEP transport capability support

The PCE-CAP-FLAGS sub-TLV is defined in [section 4.5 of](#) [\[RFC5088\]](#) [RFC5089] and an optional sub-TLV used to advertise PCE capabilities. In this section, we extend the PCE-CAP-FLAGS sub-TLV to include the capability and indications that are described for PCEP over TLS support in the present document.

In the PCE-CAP-FLAGS sub-TLV defined in [[RFC5088](#)] [RFC5089], nine capability flags defined in [[RFC4657](#)] and two capability flags defined [[RFC5557](#)] [RFC6006] are included and follows the following format: The PCE-CAP-FLAGS sub-TLV has the following format:

- o TYPE: 5
- o LENGTH: Multiple of 4
- o VALUE: This contains an array of units of 32 bit flags with the most significant bit as 0. Each bit represents one PCE capability

and the processing rule of these flag bits are defined in [[RFC5088](#)] [RFC5089]. In this document, we define one new capability flag bit that indicate TCP MD5 support, TCP A0 support, PCEP over TLS support and PCEP over TLS and TCP A0 support respectively as follows:

Bit	Capability Description
xx	TCP MD5 support
xx	TCP A0 Support
xx	PCEP over TLS support
xx	PCEP over TLS support and TCP A0 support

### [3.1.](#) Use of PCEP transport capability support for PCE discovery

TCP MD5, TCP A0, PCEP over TLS support and PCEP over TLS and TCP A0 support flag bits are advertised using IGP flooding. If the PCE server supports only TCP MD5 as transport, IGP advertisement Should not include PCEP over TLS support flag bit or TCP A0 support flag bit. If the PCE server supports both TCP MD5 and TCP A0, IGP advertisement Should include both TCP A0 support flag bit and TCP MD5 support flag bit in the PCE-CAP-FLAGS sub-TLV. If the PCE server only supports TLS over TCP as transport, IGP advertisement MUST include PCEP over TLS support flag bit in the PCE-CAP-FLAGS sub-TLV.

Wu

Expires April 24, 2014

[Page 3]

---

Internet-Draft

IGP for PCEP Transport

October 2013

If the client is looking for connecting with PCE server with TCP A0 support, the client MUST check if TCP A0 support flag bit in the PCE-CAP-FLAGS sub-TLV is set before retrieving PCE location information from IGP message. if not, the client should discard PCEPD TLV with TCP A0 support flag bit clear. If the client is looking for connecting with PCE server using TLS, the client MUST check if PCEP over TLS support flag bit in the PCE-CAP-FLAGS sub-TLV is set before retrieving PCE location information from IGP message. If not, then the client should discard PCED TLV with PCEP over TLS support flag bit clear.

## [4.](#) Security Considerations

This document raises no new security issues beyond those described in [\[RFC5088\]](#) [RFC5089].

## [5.](#) IANA Considerations

IANA is requested to allocate a new bit in "PCE Capability Flags" registry for PCEP over TLS support capability.

## [6.](#) References

### [6.1.](#) Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", March 1997.
- [RFC5088] Le Roux, JL., "OSPF Protocol Extensions for Path

Computation Element (PCE) Discovery", [RFC 5088](#), January 2008.

[RFC5089] Le Roux, JL., "IS-IS Protocol Extensions for Path Computation Element (PCE) Discovery", [RFC 5089](#), January 2008.

## [6.2.](#) Informative References

[RFC5246] Dierks, T., "The Transport Layer Security (TLS) Protocol Version 1.2", [RFC 5440](#), August 2008.

[RFC5440] Le Roux, JL., "Path Computation Element (PCE) Communication Protocol (PCEP)", [RFC 5440](#), March 2009.

Author's Address

Wu

Expires April 24, 2014

[Page 4]

---

Internet-Draft

IGP for PCEP Transport

October 2013

Qin Wu  
Huawei  
101 Software Avenue, Yuhua District  
Nanjing, Jiangsu 210012  
China

Email: [sunseawq@huawei.com](mailto:sunseawq@huawei.com)

