Workgroup: Network Working Group
Internet-Draft: draft-liu-lsr-p2poverlan-06
Published: 7 February 2022
Intended Status: Informational
Expires: 11 August 2022
Authors: D. Liu J. Halpern C. Zhang
Ericsson Ericsson Ericsson

Interface Stack Table Definition and Example for Point-to-Point (P2P) Interface over LAN

Abstract

[RFC5309] defines the Point-to-Point (P2P) circuit type, one of the two circuit types used in the link state routing protocols, and highlights that it is important to identify the correct circuit type when forming adjacencies, flooding link state database packets, and monitoring the link state.

The P2P interface over LAN ifType value 303, has been assigned by IANA Expert Review, and this document requests IANA to add this document as a reference to ifType 303. This document provides advice about the ifStack for the P2P interface over LAN ifType to facilitate operational control, maintenance and statistics.

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 https://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 11 August 2022.

Table of Contents

1. Introduction

[RFC5309] defines the P2P circuit type and highlights that it is important to identify the correct circuit type when forming adjacencies, flooding link state database packets, and monitoring the link state.

The assignment of 303, as the value for p2pOverLan ifType was made by Expert Review [Assignment]. This document requests IANA to add this document as a reference to ifType 303.

To simplify configuration and operational control, it is helpful to represent the fact that an interface is to be considered a P2P interface over LAN type explicitly in the interface stack. This enables, for example, routing protocols to automatically inherit the correct operating mode from the interface stack without further configuration (No need to explicitly configure the P2P interface in routing protocols).

It is helpful to map the P2P interface over LAN type in the interface management stack table. And if no entry specifies the P2P interface lower layer, the management suffers loses the ability to get to the lower layer specific management properties via many tools.

The purpose of this document is to suggest how to use ifStackTable for the P2P interface over LAN type, and provide examples.

2. Requirements Language

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] [RFC8174].

3. Interface Stack Table for P2P Interface Type

If a device implements the IF-MIB [RFC2863], each entry in the "/interfaces/interface" list (in "Interface Management YANG") in the operational state is typically mapped to one ifEntry as required in [RFC8343], therefore the P2P interface over LAN type should also be fully mapped to one ifEntry by defining the "ifStackTable" ("higher-layer-if" and "lower-layer-if").

The P2P interface higher layer should be network layer "ipForward" (defined in IANA) to run routing protocol, the P2P interface lower layer is link data layer "ethernetCsmacd" (defined in IANA).

The P2P interface type ifStackTable can be defined along the lines of following example which complies with [RFC8343] [RFC6991] [RFC8340]:

```
<interface>
  <name>isis_int</name>
  <type>ianaift:ipForward</type>
</interface>

<interface>
  <name>eth1</name>
  <type>ianaift:ethernetCsmacd</type>
</interface>

<interface>
  <name>p2p</name>
  <type>ianaift:p2pOverLan</type>
  <higher-layer-if>isis_int</higher-layer-if>
  <lower-layer-if>eth1</lower-layer-if>
  <enabled>false</enabled>
  <admin-status>down</admin-status>
  <oper-status>down</oper-status>
  <statistics>
    <discontinuity-time>
      2021-04-01T03:00:00+00:00
    </discontinuity-time>
    <!-- counters now shown here -->
  </statistics>
</interface>
```

Figure 1

4. Security Considerations

The interface stack table specified in this document is read-only. Read operation to this table should not have a negative effect on network operations.

5. IANA Considerations

In the Interface Types registry, IANA has been assigned a value of 303 for p2pOverLan [Assignment] with a reference of [RFC5309]. IANA is requested to amend the reference for that code point to be to this document and to make a similar amendment in the YANG iana-if-type module [RFC7224] which currently points to [RFC8561], as this document explains how the ifType is to be used.

6. References

6.1. Normative references

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997, <https://www.rfc-editor.org/info/rfc2119>.

[RFC2863] McCloghrie, K. and F. Kastenholz, "The Interfaces Group MIB", RFC 2863, DOI 10.17487/RFC2863, June 2000, <https://www.rfc-editor.org/info/rfc2863>.

[RFC5309] Shen, N., Ed. and A. Zinin, Ed., "Point-to-Point Operation over LAN in Link State Routing Protocols", RFC 5309, DOI 10.17487/RFC5309, October 2008, <https://www.rfc-editor.org/info/rfc5309>.

[RFC7224] Bjorklund, M., "IANA Interface Type YANG Module", RFC 7224, DOI 10.17487/RFC7224, May 2014, <https://www.rfc-editor.org/info/rfc7224>.

[RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174, May 2017, <https://www.rfc-editor.org/info/rfc8174>.

[RFC8343] Bjorklund, M., "A YANG Data Model for Interface Management", RFC 8343, DOI 10.17487/RFC8343, March 2018, <https://www.rfc-editor.org/info/rfc8343>.

[RFC8561] Ahlberg, J., Ye, M., Li, X., Spreafico, D., and M. Vaupotic, "A YANG Data Model for Microwave Radio Link", RFC 8561, DOI 10.17487/RFC8561, June 2019, <https://www.rfc-editor.org/info/rfc8561>.

6.2. Informative References

[Assignment] "Interface Types (ifType)", <https://www.iana.org/assignments/smi-numbers/smi-numbers.xhtml#smi-numbers-5>.

[RFC6991] Schoenwaelder, J., Ed., "Common YANG Data Types", RFC 6991, DOI 10.17487/RFC6991, July 2013, <https://www.rfc-editor.org/info/rfc6991>.

[RFC8340] Bjorklund, M. and L. Berger, Ed., "YANG Tree Diagrams", BCP 215, RFC 8340, DOI 10.17487/RFC8340, March 2018, <https://www.rfc-editor.org/info/rfc8340>.

Authors' Addresses

Daiying Liu
Ericsson
No.5 Lize East street
Beijing
100102
China

Email: harold.liu@ericsson.com

Joel Halpern
Ericsson

Email: joel.halpern@ericsson.com

Congjie Zhang
Ericsson

Email: congjie.zhang@ericsson.com