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

Abstract

In [RFC5309] defines the P2P circuit type is one of the mainly used circuit types in link state routing protocol, and highlights it is important to identify the correct circuit type when forming adjacencies, flooding link state database packets, and monitor the link state.

P2P Interface over LAN ifType value is assigned by IANA experts review. This document provides an example of the ifStack for P2P Interface over LAN ifType to facilitate operational control, maintenance and statistics.

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1. Introduction

The assignment of a value (303, available at https://www.iana.org/assignments/smi-numbers/smi-numbers.xhtml#smi-numbers-5) to p2pOverLan ifType was made by expert review. 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 interface stack without further configuration(Not need to explicitly configure P2P Interface in routing protocols).

So it is helpful to map P2P Interface over LAN type in interface management stack table. And if no entry specify P2P Interface lower layer, the management will suffer since lose the ability to get to the lower layer specific management properties via many tools.

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 the 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 is required in [RFC8343], therefore P2P Interface over LAN type should also fully map to one ifEntry by defining the "ifStackTable" ("higher-layer-if" and "lower-layer-if").

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

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

```
<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 without complete protection shouldn't have a negative effect on network operations.

5. IANA Considerations

In the Interface Types registry, IANA has previously assigned a value of 303 for p2pOverLan with a reference of [RFC5309], as shown in following table (available at https://www.iana.org/assignments/smi-numbers/smi-numbers.xhtml#smi-numbers-5). IANA is requested to amend the reference to point 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.

Decimal	Name	references
303	p2pOverLan	RFC5309

Figure 2

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>.

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[RFC5309] Zinin, A. and N. Shen, "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", RFC 8174, IETF 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. Ahlberg, "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

[RFC6991]

Schoenwaelder, J., "Common YANG Data Types", RFC 6991, DOI 10.17487/RFC6991, June 2011, <https://www.rfc-editor.org/info/rfc6991>.

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

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