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YANG Data Model for Bidirectional Forwarding Detection (BFD) Hardware
```

Offloaded Session

Abstract

This document defines a extension YANG data model that can be used to manage Hardware Offloaded Bidirectional Forwarding Detection (BFD).

This document specially talks about BFD sessions that are offloaded to hardware.

The YANG modules in this document conform to the Network Management Datastore Architecture (NMDA).

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Author's Address

1. Introduction

This document defines an extension YANG data model to base model [<u>I-D.ietf-bfd-yang</u>] that can be used to manage BFD sessions that are offloaded to hardware. BFD is a network protocol which is used for liveness detection of arbitrary paths between systems.

1.1. 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 BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

1.2. Tree Diagrams

This document uses the graphical representation of data models defined in [<u>RFC8340</u>].

2. Design of the Data Model

This yang model which is extension to base BFD yang mode been designed to manage BFD HW offloaded sessions. This new "bfd" container is augmented by all the YANG modules for their respective specific information:

1. ietf-bfd-ip-sh-ext.yang augments "/routing/control-planeprotocols/control-plane-protocol/bfd/ip-sh/sessions/session" with the "ip-sh-ext" container for BFD sessions over IP singlehop extension.

3. BFD IP single-hop-ext hierarchy

An "ip-sh-ext" node is added under "bfd" node in control-planeprotocol. The operational state data for each BFD IP single-hop session is under this "ip-sh-ext" node.

4. BFD IP single-hop ext YANG Module

This YANG module imports "ietf-bfd-ip-sh" from RFCXXX and augments.

```
<CODE BEGINS> file "ietf-bfd-ip-sh-ext@2021-07-27.yang"
module ietf-bfd-ip-sh-ext {
    yang-version 1.1;
    namespace "urn:ietf:params:xml:ns:yang:ietf-bfd-ip-sh-ext";
    prefix "bfd-ip-sh-ext";
    // RFC Ed.: replace occurences of XXXX with actual RFC number and
    // remove this note
    import ietf-bfd {
       prefix "bfd";
       reference "RFC XXXX: YANG Data Model for BFD";
    }
    import ietf-routing {
       prefix "rt";
       reference
        "RFC 8349: A YANG Data Model for Routing Management
          (NMDA version)";
    }
    import ietf-bfd-ip-sh {
       prefix "bfd-ip-sh";
       reference
         "RFC XXXX: A YANG data model for BFD IP single-hop";
    }
    organization "IETF BFD Working Group";
    contact
       "WG Web: <http://tools.ietf.org/wg/bfd>
       WG List: <rtg-bfd@ietf.org>
       Editors: Rajaguru Veluchamy (rvelucha@cisco.com)";
    description
       "This module contains the YANG definition for BFD IP single-hop
       as per RFC 5881 with some extended info.
        Copyright (c) 2018 IETF Trust and the persons
        identified as authors of the code. All rights reserved.
       Redistribution and use in source and binary forms, with or
       without modification, is permitted pursuant to, and subject
        to the license terms contained in, the Simplified BSD License
```

set forth in Section 4.c of the IETF Trust's Legal Provisions

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Relating to IETF Documents
        (http://trustee.ietf.org/license-info).
        This version of this YANG module is part of RFC XXXX; see
        the RFC itself for full legal notices.";
     reference "RFC XXXX";
     revision 2021-07-26 {
       description "Initial revision.";
       reference "RFC XXXX: A YANG data model for BFD IP single-hop
       extension";
     }
     /*
      * Augments
      */
     augment "/rt:routing/rt:control-plane-protocols/"
           + "rt:control-plane-protocol/bfd:bfd/bfd-ip-sh:ip-sh/"
           + "bfd-ip-sh:sessions/bfd-ip-sh:session" {
       description "BFD augmentation for IP single-hop-ext";
       container ip-sh-ext {
       description "BFD IP single-hop top level container with
       extension";
         container session-running-ext {
             config "false";
             description "BFD IP single-hop extension details";
             leaf session-offloaded {
               type boolean;
               description "Indicates whether BFD session is running
               in HW.";
             }
         }
       }
    }
   }
<CODE ENDS>
5. Security Considerations
   TBD.
6. IANA Considerations
```

None.

7. Acknowledgements

I would like to thank Vengada Prasad Govindan for his support and guidance on this work.

8. Normative References

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

[RFC8340]

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

Appendix A. Change log

RFC Editor: Remove this section upon publication as an RFC.

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