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Yang Data Model for PPP Protocol
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Abstract

This document defines a YANG data model that can be used to configure and manage PPP.

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1. Introduction

This document defines a YANG [RFC6020] data model for the management of PPP protocol.

This data model includes configuration data and state data (status information and counters for the collection of statistics).

1.1. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 [RFC2119].

The following terms are used within this document:

The following terms are defined in [RFC6241] and are not redefined here:

o client

o configuration data

o server

o state data

The following terms are defined in [RFC6020] and are not redefined here:

o augment

o data model

o data node

o presence container

1.2. Tree Diagrams

A simplified graphical representation of the data model is used in this document. The meaning of the symbols in these diagrams is as follows:

o Brackets "[" and "]" enclose list keys.

o Abbreviations before data node names: "rw" means configuration (read-write), and "ro" means state data (read-only).

o Symbols after data node names: "?" means an optional node, "!" means a presence container, and "*" denotes a list and leaf-list.

o Parentheses enclose choice and case nodes, and case nodes are also marked with a colon (":").

o Ellipsis ("...") stands for contents of subtrees that are not shown.

2. Design of Data Model

The goal of this document is to define a data model that provides a common user interface to the PPP protocol. There is very information that is designated as "mandatory", providing freedom for vendors to adapt this data model to their respective product implementations.

2.1. Overview

The PPP YANG module defined in this document has all the common building blocks for the PPP protocol.

```
module: itef-if-ex-ppp
augment /if:interfaces/if:interface:
   +--rw ppp
      +--rw enabled?          boolean
```

```
         +--rw authentication! {ppp-authentication}?
            +--rw (authentication-mode)
            |  +--:(pap)
            |  |  +--rw pap         empty
            |  +--:(chap)
            |     +--rw chap        empty
            +--rw user?       string
            +--rw password!
               +--rw (chap-mode)
                  +--:(cipher)
                  |  +--rw cipher?   string
                  +--:(simple)
                     +--rw simple?   string
```

3. PPP YANG Module

```
   <CODE BEGINS> file "intf-if-ext-ppp@2016-11-19.yang"
   module ietf-if-ext-ppp {
        namespace "urn:ietf:params:xml:ns:yang:ietf-if-ext-ppp";
        prefix "ppp";

        import ietf-interfaces {
          prefix if;
        }

       import iana-crypt-hash {
         prefix ianach;
       }


        organization
          "IETF NETMOD (NETCONF Data Modeling Language) Working Group";

        contact
          "Editor:   Hansance Han
                     <mailto:hansance.han@ericsson.com>
           Editor:   Hua Lv
                     <mailto:hua.lv@ericsson.com>
           Editor:   James Zhang
                     <mailto:james.q.zhang@ericsson.com>";

         description
                "This module contains a collection of YANG definitions
   for managing ppp network interfaces.";

         revision 2016-11-24 {
           description
             "Latest revision.";
           reference
```

```
              "RFC 7223: A YANG Data Model for Interface Management";
          }

          feature ppp-authentication {
            description
              "Indicates that the interface supports configuration of
               ppp authentication.";
          }

          augment "/if:interfaces/if:interface" {
           when "if:type = 'ppp'";

           description
           "PPP link protocol is extension under interface.";

           container ppp {
             description
               "A ppp interface must specify the global parameters.";

             leaf enabled {
               type boolean;
               default "true";
               description
                 "This leaf contains the configured, desired state of the
                  ppp link-protocol.";
             }

             container authentication {
               if-feature ppp-authentication;
               presence "";
               description
               "The authentication configuration subtree.";

               choice authentication-mode {
                 mandatory true;
                 description
                 "The authentication sub-mode pap and chap.";
                 case pap {
                   leaf pap {
                     type empty;
                     description
                     "Authentication pap for PPP.";
                   }
                 }
                 case chap {
                   leaf chap {
                     type empty;
                     description
```

```
                    "Authentication pap for PPP.";
```

```
                }
              }
            }
            leaf user {
                type string;
                description "the user name string identifying ppp";
            }
            container password {
              presence "";
              description
              "The password configuraiton sub-tree.";
              choice chap-mode {
                mandatory true;
                description
                "The chap mode configuration for cipher and simple.";
                case cipher {
                  leaf cipher {
                    type ianach:crypt-hash;
                    description
                    "The password for cipher type.";
                  }
                }
                case simple {
                  leaf simple {
                    type ianach:crypt-hash;
                    description
                    "The password for simple type.";
                   }
                 }
               }
              }
             }
            // other ppp specific params...
           }
         }
       }
   <CODE ENDS>
```

4. Security Considerations

The data model defined does not create any security implications.

5. IANA Considerations

This draft does not request any IANA action.

6. Normative References

[RFC7224] M. Bjorklund, "IANA Interface Type YANG model", RFC 7224 May 2014, <https://tools.ietf.org/html/rfc7224>.

[RFC1661] Simpson, W., "The Point-to-Point Protocol(PPP)", STD 51, RFC 1661, July 1999, <https://tools.ietf.org/html/rfc1661>.

[RFC6020] Bjorklund, M., Ed., "YANG - A Data Modeling Language for the Network Configuration Protocol (NETCONF)", RFC 6020, DOI 10.17487/RFC6020, October 2010, <http://www.rfc-editor.org/info/rfc6020>.

[RFC6021] Schoenwaelder, J., Ed., "Common YANG Data Types", RFC 6021, DOI 10.17487/RFC6021, October 2010, <http://www.rfc-editor.org/info/rfc6021>.

7. Appendix A. Change Log

A.1. Changes from 00 to 01

- o Changed namespace with "intf-if-ext-ppp".
- o Updated file name "intf-if-ext-ppp".

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