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TRILL YANG Data Model
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Abstract

This document defines a YANG data model for TRILL protocol.

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Internet-Draft

TRILL YANG Data Model

December 2015

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[1.](#) Introduction

YANG [[RFC6020](#)] is a data definition language that was introduced to define the contents of a conceptual data store that allows networked devices to be managed using NETCONF [[RFC6241](#)].

This document defines a YANG [[RFC6020](#)] data model for the operation of TRILL base protocol.

[2.](#) Conventions Used in This Document

This document uses the acronyms defined in [[RFC6325](#)], in addition to

the following:

CSNP: Complete Sequence Number Protocol Data Unit
DRB: Designated RBridge

IS-IS: Intermediate System to Intermediate System
LSDB: Link State Database
MAC: Media Access Control address
MTU: Maximum Transmission Unit
NETCONF: Network Configuration Protocol
PSNP: Partial Sequence Number Packet
RBridge: An alternative name for a TRILL Switch
RPF: Reverse Path Forward
SNP: Scalable Network Pack
SSH: Secure Shell
VLAN: Virtual Local-Area Network

[3.](#) Design of Data model

There is only one module for the TRILL base protocol. The module can be augmented for other TRILL extended features with their specific definitions, such as TRILL active-active connection, TRILL Fine Grained Label, etc.

The TRILL Yang module includes one container of `trillSites` which contains a list of instances as many implementations are currently supporting multiple ISIS instances within a single RBridge. The configuration data is divided into four categories which include per RBridge, per nickname per RBridge, per port per RBridge, and per VLAN per RBridge. The operating status includes the information of LSDB, unicast and multicast routing table, RPF check, nickname, peer and some statistics.

The figure below describes the overall structure of the TRILL Yang model:

```
module: ietf-trill
  +--rw trill-site
    +--rw max-loadbalance-num?      uint8
    +--rw bandwidth-reference?     uint32
    +--rw native-confidence?        uint8
    +--rw remote-confidence?        uint8
    +--rw min-link-mtu?             uint16
    +--rw mtu-probes?               uint8
    +--rw lsp-timer
      | +--rw lspLife?              uint16
      | +--rw lsp-refresh?          uint16
      | +--rw lsp-generation?      uint8
    +--rw lsp-snp-authen
      | +--rw authen-mode?          authen-mode
      | +--rw cipher-or-plain?     boolean
      | +--rw password-key?        string
      | +--rw password?            string
      | +--rw keychain?            string
    +--rw tree-para
      | +--rw nick-number?         uint16
      | +--rw tree-number?         uint16
    +--rw net-entity*              string
    +--rw nicknames
      | +--rw nickname* [nickName]
      |   +--rw nickName          uint16
      |   +--rw priority?         uint8
      |   +--rw root-priority?    uint16
    +--rw trill-ports
      | +--rw trill-port* [ifName]
      |   +--rw ifName            string
      |   +--rw port-mode?        port-mode
      |   +--rw hello-authen
      |     | +--rw authen-mode?  authen-mode
```

```

|   |   +---rw cipher-or-plain?    boolean
|   |   +---rw password-key?      string
|   |   +---rw password?          string
|   |   +---rw keychain?          string
|   +---rw csnp-timer?            uint16
|   +---rw hello?                 uint8
|   +---rw holding-multiplier?    uint16
|   +---rw lsp-retransmit?        uint16
|   +---rw lsp-throttle
|   |   +---rw throttleInterval?  uint16
|   |   +---rw count-number?      uint16
|   +---rw inhibition-timer?      uint8
|   +---rw drb-config

```

```

|   |   +---rw drb-priority?    uint8
|   |   +---rw holding-timer?  uint8
|   +---rw mac-learning-flag?  boolean
|   +---rw trill-frame-receive-flag?  boolean
|   +---rw cost?               uint32
|   +---rw enabled-vlans?      binary
|   +---rw announcing-vlans?   binary
|   +---rw forwarding-vlans?   binary
|   +---rw designated-vlan?    uint16
+---rw vlan-para
|   +---rw vlan-config* [vlan-id]
|   |   +---rw vlan-id          uint16
|   |   +---rw participation-flag?  boolean
|   |   +---rw priority?        uint8
|   |   +---rw holdingTimer?    uint8
+---rw trill-route-infos
|   +---ro trill-route-info* [nickname nexthop]
|   |   +---ro nickname          uint32
|   |   +---ro cost?             uint32
|   |   +---ro out-interface?    string
|   |   +---ro out-vlan?         uint32
|   |   +---ro nexthop           string
|   |   +---ro hop-count?        uint32
+---rw trill-mroute-infos
|   +---ro trill-mroute-info* [vlan root-nickname]
|   |   +---ro vlan              uint16
|   |   +---ro root-nickname     uint16
|   |   +---ro hop-count?        uint16
|   +---ro trill-mroute-outinterface-info*

```

```

        [out-interface out-vlan]
    |         +---ro out-interface      string
    |         +---ro out-vlan          uint32
+--rw trill-rpf-check-infos
    |   +---ro trill-rpf-check-info* [ingress-nickname tree-nickname]
    |   +---ro ingress-nickname      uint16
    |   +---ro tree-nickname          uint16
    |   +---ro interface-name?       string
    |   +---ro neighbor-mac?         string
    |   +---ro out-vlan?              uint16
+--rw trill-peer-infos
    |   +---ro trill-peer-info* [host-name circuit-id]
    |   +---ro host-name              string
    |   +---ro interface-name?       string
    |   +---ro circuit-id             string
    |   +---ro status?                peer-state
    |   +---ro holdTime?              uint32
    |   +---ro priority?              string

```

```

+--rw trill-lsdb-infos
    |   +---ro trill-lsdb-info* [lspid]
    |   +---ro lspid                  string
    |   +---ro sequence-number?      string
    |   +---ro checksum?              string
    |   +---ro lsp-length?            uint32
    |   +---ro lsp-flags?             bits
    |   +---ro holdtime?              string
    |   +---ro local-lsp?             boolean
+--rw trill-nickname-infos
    |   +---ro trill-nickname-info* [nickname systemid]
    |   +---ro nickname                uint32
    |   +---ro priority?               uint32
    |   +---ro root-priority?          uint32
    |   +---ro systemid                string
    |   +---ro conflict-state?         conflict-state
    |   +---ro static-flag?            static-flag
    |   +---ro is-local?               boolean
+--ro trill-statistics
    |   +---ro interface-stat
    |   |   +---ro up-num?            uint32
    |   |   +---ro down-num?          uint32
    |   +---ro pktstatistics
    |   |   +---ro report-num?        uint32

```

```

| | +---ro detect-num?      uint32
| | +---ro twoway-num?     uint32
| +---ro unicast-routes-num?    uint32
| +---ro multicast-routes-num?  uint32
| +---ro rpf-entrys-num?       uint32
| +---ro remote-nicknames-num?  uint32
| +---ro lsdb-lsps-num?       uint32
| +---ro self-lsps-num?       uint32
| +---ro multicast-trees-num?   uint32
| +---ro unicast-nodes-num?     uint32
| +---ro multicast-nodes-num?   uint32
+---rw pkt-statistics
    +---ro pkt-statistic* [interface-name]
        +---ro interface-name      string
        +---ro sent-hellos-num?     uint32
        +---ro recved-hellos-num?   uint32
        +---ro sent-lsps-num?       uint32
        +---ro recved-lsps-num?     uint32
        +---ro sent-csnps-num?      uint32
        +---ro recved-csnps-num?    uint32
        +---ro sent-psnps-num?      uint32
        +---ro recved-psnps-num?    uint32
        +---ro lsp-retransmissions-num?  uint32

```

```

+---ro drb-elections-num?      uint32

```

[4.](#) TRILL YANG Data model

```

<CODE BEGINS> file "ietf-trill@2015-12-21.yang"

```

```

module ietf-trill {
  yang-version 1;
  namespace "urn:ietf:params:xml:ns:yang:ietf-trill";
  //namespace need to be assigned by IANA
  prefix trill;

  organization "IETF TRILL Working Group";
  contact
    "WG Web: <http://tools.ietf.org/wg/TRILL/>
    WG List: <mailto:trill@ietf.org>

    WG Chair: Susan Hares

```

<mailto:shares@ndzh.com>

Editor: Weiguo Hao

<mailto:haoweiguo@huawei.com>";

```
description "TRILL Yang Module";
revision 2015-12-21{
  description "04 version, as per RFC6325";
  reference "draft-ietf-trill-yang-04";
}
typedef port-mode {
  type enumeration {
    enum access {
      value "0";
      description "Access Port";
    }
    enum p2p {
      value "1";
      description "P2P Hello Link";
    }
    enum trunk {
      value "2";
      description "Trunk Port";
    }
    enum hybrid {
      value "3";
      description "Both Trunk and Access Port";
    }
  }
}
```

```
    }
  }
  description "TRILL port mode type";
}
typedef drb-state {
  type enumeration {
    enum non-drb {
      value "0";
      description "Non-DRB Port";
    }
    enum drb {
      value "1";
      description "DRB Port";
    }
  }
}
```



```

        enum down {
            value "2";
            description "Down Port";
        }
        enum suspended {
            value "3";
            description "Suspended Port";
        }
    }
    description "TRILL DRB port state type.";
}
typedef peer-state {
    type enumeration {
        enum report {
            value "0";
            description "report state";
        }
        enum detect {
            value "1";
            description "detect state";
        }
        enum down {
            value "2";
            description "down state";
        }
        enum 2way {
            value "3";
            description "2way state";
        }
    }
    description "TRILL neighbour state type.";
}
typedef authen-mode {

```

```

    type enumeration {
        enum "simple" {
            value "0";
            description "Indicates that the password is transmitted
            in plaintext";
        }
        enum "md5" {
            value "1";
            description "Indicates that the password is transmitted

```

```

        after encryption by MD5.";
    }
    enum "keychain" {
        value "2";
        description "Indicates that the password is a keychain
        which varies with time.";
    }
}
description "TRILL authentication mode.";
}
grouping authen-para {
    leaf authen-mode {
        type authen-mode;
        description "authentication-mode ";
    }
    leaf cipher-or-plain {
        type boolean;
        description "0 indicates that the password is in ciphertext,
        1 indicates that the password is in plaintext";
    }
    leaf password-key {
        type string;
        description "The value is a string of case-sensitive
        characters, spaces not supported. The password range varies
        with the authentication mode. When the authentication mode
        is simple, the value is a string of 1 to 16 characters
        in simple text, or a string of 32 characters in ciphertext.
        When the authentication mode is md5, the value is a string
        of 1 to 255 characters in simple text, or a string of 32 to
392     characters in ciphertext.";
    }
    leaf password {
        type string;
        description "The value is a string of case-sensitive
characters,
        spaces not supported. The password range varies with the
        authentication mode. When the authentication mode is simple,

```

```

        the password ranges from 1 to 16 characters. When the
        authentication mode is md5, the password ranges
        from 1 to 255 characters.";
    }

```

```

    leaf keychain {
        type string;
        description "The name is keychain name which is a string
            of 1 to 47 case-insensitive characters, spaces not supported.";
    }
    description "TRILL protocol authentication configurations.";
}
typedef conflict-state {
    type enumeration {
        enum "S" {
            value "0";
            description "Nickname suspended";
        }
        enum "A" {
            value "1";
            description "Nickname advertised";
        }
    }
    description "Nickname conflict state.";
}
typedef static-flag{
    type enumeration {
        enum "S" {
            value "0";
            description "Manually configured";
        }
        enum "D" {
            value "1";
            description "Dynamic generated";
        }
    }
    description "Static or dynamic nickname flag.";
}

container trill-site {
    description "Trill all configuration and display information";
    leaf max-loadbalance-num {
        type uint8 {
            range "1..max";
        }
        default "32";
        description "The maximum number of equal-cost
            routes for load-balancing.";
    }
}

```

```

}
leaf bandwidth-reference {
    type uint32 {
        range "1..2147483648";
    }
    default "200000000";
    description "Sets the bandwidth reference value
    for a TRILL interface. Unit:M bit/s.
    Cost of the interface = Bandwidth reference
    value/Interface bandwidth";
}
leaf native-confidence {
    type uint8;
    default "32";
    description "The confidence in { MAC, VLAN, local port }
    triples learned from locally received native frames";
}
leaf remote-confidence {
    type uint8;
    default "32";
    description "The confidence in { MAC, VLAN, remote RBridge}
    triples learned from decapsulating frames";
}
leaf min-link-mtu {
    type uint16 {
        range "1..max";
    }
    default "1470";
    description "Minimum link MTU";
}
leaf mtu-probes {
    type uint8 {
        range "1..max";
    }
    default "3";
    description "The number of failed MTU-probes";
}
container lsp-timer {
    leaf lspLife {
        type uint16 {
            range "2..max";
        }
        default "1200";
        description "LSP aging timer.Unit:Second";
    }
    leaf lsp-refresh {
        type uint16 {

```

```
        range "1..65534";
    }
    default "900";
    description "LSP refresh timer.Unit:Second";
}
leaf lsp-generation {
    type uint8 {
        range "1..120";
    }
    default "2";
    description "LSP generate timer.Unit:Second";
}
description "LSP timer configuration";
}
container lsp-snp-authen {
    uses authen-para;
    description "Authentication information for LSPs and SNPs";
}
container tree-para {
    leaf nick-number {
        type uint16 {
            range "1..256";
        }
        default "1";
        description "Nickname number";
    }
    leaf tree-number {
        type uint16 {
            range "1..max";
        }
        default "1";
        description "Distribution tree number";
    }
    description "Distribution tree configuration";
}

leaf-list net-entity {
    type string;
    description "TRILL network entity";
}

container nicknames {
    description "All Nicknames and the associated properties";
    list nickname {
        key "nickName";
        description "Each nickname and the associated property";
    }
}
```

leaf nickName {

```
    type uint16 {
      range "1..65471";
    }
    description "Nickname value";
  }
  leaf priority {
    type uint8 {
      range "128..max";
    }
    default "192";
    description "Nickname priority";
  }
  leaf root-priority {
    type uint16 {
      range "1..max";
    }
    default "32768";
    description "Nickname root priority";
  }
}

container trill-ports {
  description "All TRILL port configurations";
  list trill-port {
    key "ifName";
    description "Each TRILL port configuration";
    leaf ifName {
      type string;
      description "trill interface";
    }
    leaf port-mode {
      type port-mode;
      default "p2p";
      description "TRILL port mode";
    }
    container hello-authen {
      uses authen-para;
      description "Authentication information for Hellos";
    }
    leaf csnp-timer {
      type uint16 {
```

```

        range "1..max";
    }
    default "10";
    description "Csnp-timer value";
}
leaf hello {

```

```

    type uint8 {
        range "3..max";
    }
    default "10";
    description "Hello timer value";
}
leaf holding-multiplier {
    type uint16 {
        range "3..1000";
    }
    default "3";
    description "Holding-multiplier timer value";
}
leaf lsp-retransmit {
    type uint16 {
        range "1..300";
    }
    default "5";
    description "Lsp retransmit timers";
}
container lsp-throttle {
    description "TRILL LSP throttle configuration.";
    leaf throttleInterval {
        type uint16 {
            range "1..10000";
        }
        default "50";
        description "The interval timer between
two LSP messages.Unit:ms";
    }
    leaf count-number {
        type uint16 {
            range "1..1000";
        }
        default "10";
        description "The max messages number being

```

```

        sent each time.Unit:ms";
    }
}
leaf inhibition-timer {
    type uint8 {
        range "0..30";
    }
    default "30";
    description "The inhibition time for the port
when root bridge changes.Unit:Second";
}

```

```

container drb-config {
    description "TRILL DRB negotiation parameter";
    leaf drb-priority {
        type uint8 {
            range "0..127";
        }
        default "64";
        description "Drb priority";
    }
    leaf holding-timer {
        type uint8 {
            range "3..255";
        }
        default "10";
        description "Holding timer";
    }
}
leaf mac-learning-flag {
    type boolean;
    default "true";
    description "if learning MAC address from locally
received native frames";
}
leaf trill-frame-receive-flag {
    type boolean;
    default "false";
    description "if receiving of TRILL frames from
non IS-IS adjacency";
}
leaf cost {

```



```

    type uint32 {
        range "0..16777215";
    }
    default "0";
    description "link cost";
}
leaf enabled-vlans {
    type binary{
        length "1..512";
    }
    description "Enabled vlans";
}
leaf announcing-vlans {
    type binary{
        length "1..512";
    }
}

```

```

    description "Announcing vlans";
}
leaf forwarding-vlans {
    type binary{
        length "1..512";
    }
    description "Forwarding vlans";
}
leaf designated-vlan {
    type uint16{
        range "1..4096";
    }
    description "Designated vlans";
}
}
}

container vlan-para {
    description "All VLAN parameters";
    list vlan-config{
        key vlan-id;
        description "Each VLAN parameter";
        leaf vlan-id {
            type uint16 {
                range "1..4096";
            }
        }
    }
}

```

```

description "Vlan Id";
}
leaf participation-flag {
type boolean;
default "false";
description "Participation flag";
}
leaf priority {
type uint8 {
range "0..127";
}
default "64";
description "Vlan priority";
}
leaf holdingTimer {
type uint8 {
range "3..max";
}
default "10";
description "Holding timer";
}

```

```

}
}

container trill-route-infos {
description "All TRILL unicast route informations";
list trill-route-info {
key "nickname nexthop";
config "false";
description "Each TRILL unicast route information";

leaf nickname {
type uint32;
config "false";
description "Dest nickname for the route";
}
leaf cost {
type uint32;
config "false";
description "The link cost to the nickname";
}
leaf out-interface {

```

```

        type string;
        config "false";
description "Out interface to the nickname";
    }
    leaf out-vlan {
        type uint32;
        config "false";
description "Out vlan on the out interface";
    }
    leaf nexthop {
        type string;
        config "false";
description "Next hop to the nickname";
    }
    leaf hop-count {
        type uint32;
        config "false";
description "Hop count to the nickname";
    }
}
}

```

```

container trill-mroute-infos {
    list trill-mroute-info {
        key "vlan root-nickname";
        config "false";
    }
}

```

```

description "Distribution pruning tree route table;
For non-pruning tree, VLAN is set to be 0xFFFF";

    leaf vlan {
        type uint16;
description "CE vlan";
    }
    leaf root-nickname {
        type uint16;
        description "Root nickname";
    }
    leaf hop-count {
        type uint16;
        description "Hop count";
    }
    list trill-mroute-outinterface-info {

```

```

        key "out-interface out-vlan";
        description "The out interface and out vlan for a multicast
route";

        leaf out-interface {
            type "string";
            description "Out interface";
        }
        leaf out-vlan {
            type "uint32";
            description "Out vlan";
        }
    }
    description "TRILL multicast route information";
}

container trill-rpf-check-infos {
    list trill-rpf-check-info {
        key "ingress-nickname tree-nickname";
        config "false";
        description "Each TRILL RPF check information";

        leaf ingress-nickname {
            type "uint16";
            description "Ingress nickname";
        }
        leaf tree-nickname {
            type "uint16";
            description "Tree nickname";
        }
    }
}

```

```

    leaf interface-name {
        type "string";
        description "Interface name";
    }
    leaf neighbor-mac {
        type "string";
        description "Neighbour Mac";
    }
    leaf out-vlan {
        type "uint16";
        description "Out vlan";
    }
}

```

```

    }
  }
  description "All TRILL RPF check information";
}

container trill-peer-infos {
  list trill-peer-info {
    key "host-name circuit-id";
    config "false";
    description "Each TRILL peer information";

    leaf host-name {
      type "string";
      description "Peer RBridge name";
    }
    leaf interface-name {
      type "string";
      description "Interface name";
    }
    leaf circuit-id {
      type "string";
      description "Circuit Id";
    }
    leaf status {
      type peer-state;
      description "Peer status";
    }
    leaf holdTime {
      type "uint32";
      description "Hold time";
    }
    leaf priority {
      type "string";
      description "Priority";
    }
  }
}

```

```

  description "All TRILL peer informations";
}

container trill-lsdb-infos{
  description "All TRILL LSDB information";
  list trill-lsdb-info{

```

```

key "lspid";
config "false";
description "Each TRILL LSDB information";

leaf lspid {
    type string;
    description "Lspid";
}
leaf sequence-number {
    type string;
    description "Sequence number";
}
leaf checksum {
    type string;
    description "Checksum";
}
leaf lsp-length {
    type uint32 {
        range "0..2000";
    }
    description "Lsp length";
}

leaf lsp-flags {
    type bits {
        bit attbit {
            position 0;
            description "TRILL lsp attribute flag";
        }
        bit partition-bit {
            position 1;
            description "TRILL lsp partition flag";
        }
        bit overload-bit {
            position 2;
            description "TRILL lsp position flag";
        }
    }
    default "attbit";
    description "TRILL lsp flags";
}

```

```

    leaf holdtime {
        type string;
        description "Hold time";
    }
    leaf local-lsp {
        type boolean;
        description "Local lsp";
    }
}

container trill-nickname-infos {
    description "All Trill nickname information";
    list trill-nickname-info {
        key "nickname systemid";
        config "false";
        description "Each Trill nickname information";

        leaf nickname {
            type uint32;
            description "Nickname";
        }
        leaf priority {
            type uint32;
            description "Priority";
        }
        leaf root-priority {
            type uint32;
            description "Root priority";
        }
        leaf systemid {
            type string;
            description "SystemId";
        }
        leaf conflict-state {
            type conflict-state;
            description "Conflict state";
        }
        leaf static-flag {
            type static-flag;
            description "Static flag";
        }
        leaf is-local {
            type boolean;
            description "Is local flag";
        }
    }
}

```

```
    }  
  }  
  container trill-statistics {  
    config "false";  
    description "Trill statistics";  
  
    container interface-stat {  
      leaf up-num {  
        type uint32;  
        description "Trill up interface number";  
      }  
      leaf down-num {  
        type uint32;  
        description "Trill down interface number";  
      }  
      description "Trill up and down interface number";  
    }  
    container pktstatistics {  
      leaf report-num {  
        type uint32;  
        description "Trill interface number in report state";  
      }  
      leaf detect-num {  
        type uint32;  
        description "Trill interface number in detect state";  
      }  
      leaf twoway-num {  
        type uint32;  
        description "Trill interface number in two way state";  
      }  
      description "Trill packet statistics";  
    }  
    leaf unicast-routes-num {  
      type uint32;  
      description "Trill unicast route number";  
    }  
    leaf multicast-routes-num {  
      type uint32;  
      description "Trill multicast route number";  
    }  
    leaf rpf-entrys-num {  
      type uint32;  
      description "Trill RPF entry number";  
    }  
    leaf remote-nicknames-num {  
      type uint32;  
      description "Trill remote nickname number";  
    }  
  }  
}
```



```
    }
    leaf lsdb-lsps-num {
        type uint32;
        description "Trill LSP number";
    }
    leaf self-lsps-num {
        type uint32;
        description "Trill self generated LSP number";
    }
    leaf multicast-trees-num {
        type uint32;
        description "Trill distribution tree tree number";
    }
    leaf unicast-nodes-num {
        type uint32;
        description "Trill unicast node number";
    }
    leaf multicast-nodes-num {
        type uint32;
        description "Trill multicast node number";
    }
}

container pkt-statistics {
    list pkt-statistic {
        key "interface-name";
        config "false";

        description "Each packet statistic";
        leaf interface-name {
            type string;
            description "Interface name";
        }
        leaf sent-hellos-num {
            type uint32;
            description "The number of the sent TRILL hello";
        }
        leaf recved-hellos-num {
            type uint32;
            description "The number of the received TRILL hello";
        }
        leaf sent-lsps-num {
```

```

    type uint32;
    description "The number of the sent LSP number";
}
leaf recved-lsps-num {
    type uint32;

```

```

    description "The number of the received TRILL LSP";
}
leaf sent-csnps-num {
    type uint32;
    description "The number of the sent CSNP number";
}
leaf recved-csnps-num {
    type uint32;
    description "The number of the received CSNP number";
}
leaf sent-psnps-num {
    type uint32;
    description "The number of the sent PSNP number";
}
leaf recved-psnps-num {
    type uint32;
    description "The number of the received PSNP number";
}
leaf lsp-retransmissions-num {
    type uint32;
    description "The number of the retransmitted LSP number";
}
leaf drb-elections-num {
    type uint32;
    description "The number of the DRB election number";
}
}
description "All packet statistics";
}
}
}

```

<CODE ENDS>

[5. Security Considerations](#)

The YANG module defined in this memo is designed to be accessed via the NETCONF protocol [[RFC6241](#)] [[RFC6241](#)]. The lowest NETCONF layer is the secure transport layer and the mandatory-to-implement secure transport is SSH [[RFC6242](#)] [[RFC6242](#)]. The NETCONF access control model [[RFC6536](#)] [[RFC6536](#)] provides the means to restrict access for particular NETCONF users to a pre-configured subset of all available NETCONF protocol operations and content.

[6.](#) IANA Considerations

This document requires no IANA Actions. RFC Editor: Please remove this section before publication.

[7.](#) References

[7.1.](#) Normative References

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[8.](#) Acknowledgments

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