Draft YANG for IEEE 802.3.2a LLDP

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The following is draft YANG that can serve as input to IEEE 802.3.2a to provide a YANG version of the functionality found in the SNMP MIB (802dot3dot1C5mib.txt) related to LLDP TLV extensions. The purpose of this contribution is to validate the structure of the draft YANG and find interested parties to help review and validate the YANG follows the IEEE 802.3 working group guidelines for YANG.

The 802dot3dot1C5mib.txt has a MIB Configuration Group called lldpV2Xdot3PortConfigTable that has an object that augments the IEEE 802.1AB defined lldpV2PortConfigEntry. In the IEEE Std 802.1ASdn, the YANG for LLDP models ports, and since the 802.1ABcu work leveraged the SNMP work, it is suggested that the 802.3.2a work leverage the port model found in 802.1ABcu. That will provide a simple augment to be used by the 802.3.2a lldp model to add the 802.3 LLDP TLVs to a port.

Below (and attached to the PDF) is a draft of a YANG model to show what the tlvs-port-config-enable capability described in 30.12.1.1.1 of IEEE Std 802.3-2022 would look like.

```
module ieee802-ethernet-lldp {
 yang-version 1.1;
 namespace
  "urn:ieee:std:802.3:yang:ieee802-ethernet-lldp";
 prefix ieee802-eth-lldp;
 import ieee802-dot1ab-lldp {
  prefix lldp;
  reference "IEEE Std 802.1ABcu-2021";
 }
 organization
  "IEEE Std 802.3 Ethernet Working Group
   Web URL: http://www.ieee802.org/3/";
 contact
  "Web URL: http://www.ieee802.org/3/";
 description
  "This module contains YANG definitions for configuring LLDP for
   802.3 Ethernet Interfaces.
```

```
   In this YANG module, 'Ethernet interface' can be interpreted
   as referring to 'IEEE Std 802.3 compliant Ethernet
   interfaces'.";
 revision 2023-07-01 {
  description "Initial revision.";
  reference "IEEE Std 802.3.2a, unless dated explicitly";
 }

 augment "/lldp:lldp/lldp:port" {
  description
    "Augments port with 802.3 port config tlvs";
  leaf tlvs-port-config-enable {
    type bits {
      bit mac-phy-config-status {
        position 0;
        description
          "30.12.1.1.1 of IEEE Std 802.3-2022";
      }
      bit power-via-mdi {
        position 1;
        description
          "30.12.1.1.1 of IEEE Std 802.3-2022";
      }
      bit unused {
        position 2;
        description
          "30.12.1.1.1 of IEEE Std 802.3-2022";
      }
      bit max-frame-size {
        position 3;
```

```
      description
        "30.12.1.1.1 of IEEE Std 802.3-2022";
     }
    }
    description
     "Bitmap that corresponds to an IEEE 802.3 subtype associated
      with a specific IEEE 802.3 port config TLV";
    reference
     "30.12.1.1.1 of IEEE Std 802.3-2022";
   }
  }
}
```

This produces a tree that looks like this (some unnecessary detail removed for readability)

The 802.2.3a leaf is highlighted in gray.

```
module: ieee802-dot1ab-lldp
  +--rw lldp
     +--rw port* [name dest-mac-address]
     |  +--rw name                                              if:interface-ref
     |  +--rw dest-mac-address                                  ieee:mac-address
     |  +--rw admin-status?                                     enumeration
     |  +--rw notification-enable?                              boolean
     |  +--rw tlvs-tx-enable?                                   bits
     |  +--rw message-fast-tx?                                  uint32
     |  +--rw message-tx-hold-multiplier?                       uint32
     |  +--rw message-tx-interval?                              uint32
     |  +--rw reinit-delay?                                     uint32
     |  +--rw tx-credit-max?                                    uint32
     |  +--rw tx-fast-init?                                     uint32
     |  +--rw notification-interval?                            uint32
     |  +--rw management-address-tx-port* [address-subtype man-address]
     |  |  +--rw address-subtype    identityref
     |  |  +--rw man-address        lldp-types:man-addr-type
     |  |  +--rw tx-enable?         boolean
     |  |  +--ro addr-len?          uint32
     |  |  +--ro if-subtype?        lldp-types:man-addr-if-subtype
     |  |  +--ro if-id?             uint32
     |  +--ro port-id-subtype?                                  ieee:port-id-subtype-type
     |  +--ro port-id?                                          ieee:port-id-type
     |  +--ro port-desc?                                        string
     |  +--rw lldp-basic-tlv:tlvs-tx-org-basic-enable?          bits
     |  +--rw lldp-basic-tlv:port-vlan-id-tlv-extension
     |  |  +--rw lldp-basic-tlv:port-vlan-id?   dot1qtypes:vlanid
     |  +--rw lldp-basic-tlv:port-and-protocol-vlan-id-extension
     |  |  +--rw lldp-basic-tlv:port-vlan-id?   dot1qtypes:vlanid
     |  |  +--rw lldp-basic-tlv:flags?          bits
     |  +--rw lldp-basic-tlv:port-vlan-name-tlv-extension
     |  |  +--rw lldp-basic-tlv:vlan-id?          dot1qtypes:vlanid
     |  |  +--rw lldp-basic-tlv:port-vlan-name?   string
     |  +--rw lldp-basic-tlv:protocol-identity-tlv-extension
     |  |  +--rw lldp-basic-tlv:protocol-identity?   string
     |  +--rw lldp-basic-tlv:link-aggregation-tlv-extension
     |  |  +--rw lldp-basic-tlv:aggregation-status?   bits
     |  |  +--rw lldp-basic-tlv:aggregated-port-id?   uint32
     |  +--rw ieee802-eth-lldp:tlvs-port-config-enable?          bits
     +--rw lldp-basic-tlv:vid-usage-digest-tlv-extension
     |  +--ro lldp-basic-tlv:vid-usage-digest?   uint32
     +--rw lldp-basic-tlv:management-vid-tlv-extension
        +--rw lldp-basic-tlv:management-vid?   dot1qtypes:vlanid
```

See the following for more information:

The mib for LLDP from 5.4 of IEEE 802.3.1-2013:
ieee802.org/3/1/public/mib_modules/20130411/802dot3dot1C5mib.txt

The mib for LLDP from IEEE 802.1AB (rolled up in IEEE Std 802.1-2022):
https://www.ieee802.org/1/files/public/MIBs/LLDP-V2-MIB-200906080000Z.mib

An example TLV Extension mib from IEEE 802.1:
https://www.ieee802.org/1/files/public/MIBs/LLDP-EXT-DOT1-V2-MIB-200906080000Z.mib

Contribution to YANGsters group on the topic:
https://www.ieee802.org/1/files/public/docs2023/yangsters-smansfield-lldp-802dot3-0523-v02.pdf

Summary

This contribution is an attempt to provide the YANG needed for LLDP support. Please provide comments, suggestions, guidance as you see fit to help keep the momentum on this action.