

IEEE P802f Open Issues (v4)

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IEEE Ethertypes YANG Design Requirements

- IEEE ethertypes YANG has ONLY information from the public information in the IEEE ethertypes registry
- Other SDOs have requested the ability to support a subset of ethertypes (so they don't have to load the entire IEEE registry to use a few ethertypes)
- Result:
 - The IEEE ethertypes registry needs to be modified to include some new fields
 - A process for validating and approving additions/changes to ethertype information needs to be agreed
 - A mechanism to allow subsets needs to be agreed

Pre-conditions

- IEEE RA would be requested to add new fields and collect the information from applicants
 - Short name and description for ethertypes
- IEEE RA would be requested to provide a way for interested parties to know when the ethertypes registry file changes
 - Currently there is no revision number or notification
- IEEE RA would be requested to accept changes to the ethertypes registry that are not from the owner of the ethertype
 - A ballot-group or .1 motion depending on option chosen
- The IETF would be requested to apply for the ethertypes they haven't registered and ask for an exemption because they want a specific number.

Suggestion for Ethertype Registry Modification

- Existing Information
 - Ethertype (in hex)
 - Organization / Address (string)
 - Protocol (string)
- New Information needed
 - Short Name (string)
 - How short name was assigned (enum)
 - applicant, owner, sdo-doc, IEEE Ballot
 - Description (string)
 - How description was assigned (enum)
 - applicant, owner, sdo-doc, IEEE Ballot

Validation and Approval Process Options

1. Put YANG in the 802f document
 - Need a new revision/amendment to add/change ethertype YANG
 - Ballot Group
2. No YANG in 802f document
 - Updated Ethertypes Registry is reviewed by 802.1
 - 802.1 motion is made to approve the updated values in the ethertypes registry
3. No YANG in 802f document
 - Initial version of 802f uses Ballot Group to approve the IETF entries
 - Subsequent updates to the Ethertype Registry is reviewed by 802.1
 - 802.1 motion is made to approve the updated values in the ethertypes registry
4. Do Nothing

Subsetting

- The IEEE manages the subsets
 - In this case, the IEEE would need to keep a list of interested parties per ethertype
 - Then multiple ethertypes modules could be generated when the IEEE ethertypes registry is changed (one for each interested party)
- The IEEE does not manage the subsets
 - In this case the IEEE generates the ethertypes YANG (all entries)
 - The YANG is created in a way that allows other SDOs/Enterprises/Individuals to restrict the ethertypes that are used

Backup

802f Fundamentals

- IEEE controls ethertypes registry (public information appears in eth.txt)
- P802f is a project to specify YANG modules containing the IEEE ethertypes information from the official IEEE ethertypes registry
- The resulting 802f standards document may or may not contain the YANG modules, it may contain a description of the process to create YANG modules
- Important Discussions
 1. Updates to official IEEE ethertypes registry to capture information that is needed in the YANG modules (friendly name, short description, etc.)
 2. Since the community that will be using the IEEE ethertypes YANG have expressed that they do not want to be required to load all the ethertypes information, how best to create/indicate subsets of the IEEE ethertypes information (subsetting)?
 3. Process to initiate the generation of the YANG modules and where to store the output

Registry Structure

- IEEE SA Registration Authority for Ethertype
 - <https://standards.ieee.org/products-services/regauth/ethertype/index.html>
 - <http://standards-oui.ieee.org/ethertype/eth.txt>
- Contains the following information
 - Ethertype (as hex)
 - Organization / Address (as string)
 - Protocol Description (as string)
- IETF RFC 8519 contains a YANG module for Ethertypes with the following structure
 - Ethertype Name (as an enum literal string)
 - Ethertype Value (as decimal number)
 - Short Description (as string)

Current Examples

6003

DEC
1925 Andover St.
Tewksbury MA 01876
US

Protocol unavailable.

From IEEE SA Registry

```
enum decnet {  
    value 24579;  
    description  
        "DECnet Phase IV. Hex value of 0x6003."  
}
```

From IETF Ethertypes

```
enum ipv4 {  
    value 2048;  
    description  
        "Internet Protocol version 4 (IPv4) with a  
        hex value of 0x0800."  
    reference  
        "RFC 791: Internet Protocol."  
}
```

From IETF Ethertypes
example of
something in IETF
and not in IEEE
registry

Proposed Columns

Example

- Ethertype (in hex)
 - Currently exists in registry
 - Decimal conversion for YANG
- Organization / Address (string)
 - Currently exists in registry
- Protocol (string)
 - Currently exists in registry
- Short Name (string)
 - Definitely need this one because the this is used as the enumeration literal for the ethertype
- Description (string)
 - This could be added as an augment or supplied in the IEEE registry

Ethertype (in hex)	Organization / Address	Protocol	Short Name	Description
6003	DEC 1925 Andover St. Tewksbury MA 01876 US	Protocol Unavailable	decnet	DECnet Phase VI. Hex value of 0x6003.

```

module ieeetest {
  yang-version 1.1;
  namespace 'urn:example:ieeetest';
  prefix ieeetest;

  revision 2020-04-10 {
    description "Initial Version.";
  }

  typedef ieee-ethertypes {
    type enumeration {
      enum ipv4 { //example that exists in RFC8519 and not in eth.txt
        value 2048;
      }
      enum arp {
        value 2054;
        description
          "Symbolics, Inc.
           243 Vassar Street
           Cambridge 02139 US
           Address Resolution Protocol - A. R. P.";
        reference
          "http://standards-oui.ieee.org/ethertype/eth.txt (0806)";
      }
      enum trill {
        value 8947;
        description
          "IETF TRILL Working Group
           c/o Internet Society
           Reston VA 20190-5108 US
           TRILL combine the advantages of bridges and routers and is
           the application of link state routing to the VLAN aware
           customer bridging problem. The TRILL protocol is described
           in the base protocol document at
           http://tools.ietf.org/id/draft-ietf-trill-rbridge-protocol-15.txt
           The final document can be found here:
           http://www.ietf.org/rfc/rfc6325.txt";
        reference
          "http://standards-oui.ieee.org/ethertype/eth.txt (22F3)";
      }
    }
  }
}

```

```

enum decnet {
  value 24579;
  description
    "DEC
     1925 Andover St.
     Tewksbury MA 01876 US
     Protocol unavailable";
  reference
    "http://standards-oui.ieee.org/ethertype/eth.txt (6003)";
}
enum 893C { //example that exists in eth.txt not in RFC8519
  value 35132;
  description
    "Coraid Inc.
     244 Shoreline Drive, Suite 650
     Redwood City CA - California 94065 US
     The Coraid Ethernet Console (CEC) protocol defines and
     implements a bidirectional conversation over raw ethernet
     frames with provisions for retransmission and discovery. The
     CEC protocol is integrated with a console server and CEC
     clients in its first implementation, providing a central
     management solution for Coraid's appliances.
     http://sources.coraid.com/magic/man2html/8/cec";
  reference
    "http://standards-oui.ieee.org/ethertype/eth.txt (893C)";
}
}
}
}

```

```

module ietftest {
  yang-version 1.1;
  namespace 'urn:example:ietftest';
  prefix ietftest;

  import ieeetest { prefix "ieeetest"; }

  revision 2020-04-10 {
    description "Initial Version.";
  }

  typedef ietf-ethertypes {
    type ieeetest:ieeee-ethertypes {
      // restrictions
      enum ipv4 {
        description
          "Internet Protocol version 4 (IPv4) with a
           hex value of 0x0800.";
        reference
          "RFC 791: Internet Protocol.";
      }
      enum arp {
        description
          "Address Resolution Protocol (ARP) with a
           hex value of 0x0806.";
        reference
          "RFC 826: An Ethernet Address Resolution
           Protocol: Or
           Converting Network Protocol Addresses to 48.bit
           Ethernet Address for Transmission on Ethernet
           Hardware.";
      }
      enum trill {
        description
          "Transparent Interconnection of Lots of Links.
           Hex value of 0x22F3.";
        reference
          "RFC 6325: Routing Bridges (RBridges): Base
           Protocol
           Specification.";
      }
      enum decnet {
        description
          "DECnet Phase IV. Hex value of 0x6003.";
      }
    }
  }
}

```

```

container Foo {
  list Bar {
    key name;

    leaf name {
      type string;
    }
    leaf ethertype {
      type ietf-
      ethertypes {
      }
    }
  }
}

```

Process

- When the ethertypes registry changes
- Generate the IEEE ethertypes YANG file and provide the latest in the YANG repository github and on the IEEE YANG site
 - <https://github.com/YangModels/yang/tree/master/standard/ieee/published>
 - <https://1.ieee802.org/yang-modules/>