

IEEE P802f Open Issues (v6)

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Proposal

- In order to make some progress on the P802f work the following proposals are made (for discussion)
- The RAC will be asked to add new columns to the ethertypes registry
- The RAC will provide a mechanism to alert subscribers when the ethertypes registry changes
- The Validation and Approval of the entries in the ethertypes registry is up to the RAC to determine
 - Adding new entries is the same as in the past (with the addition of new fields that can be filled in).
 - Changing existing entries by ethertypes owners is the same as in the past (with the addition of ability to set the new fields)
 - Changing the existing ethertypes entries by individuals/organizations that do not own the ethertype needs a mechanism in place to support expert review. So that the RAC can publish the changes and then inform interested parties that the ethertypes registry has changed
- The P802f project will specify the process related to generating the ethertypes YANG file whenever notification is received that the RAC has updated the ethertypes registry
- The P802f project will define the YANG structure and provide guidance for creating subsets of the information.

Backup Information

P802f

- Ethertypes creation, maintenance, and modifications
- Ethertypes YANG module creation

- Need to separate the validation of the Ethertypes registry from the creation of the YANG module(s)

Ethertypes Validation Use-Cases

- New Ethertype request
- Change of Ethertype information by the owner
- Change of Ethertype information by someone other than the Ethertype owner

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
 - How to do this validation should be made independent of the generation of the YANG file
- 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

Process

- Validate Ethertypes File
- Generate the YANG
 - There are options here based on how subsetting is done, but that is details.
- Getting the new information in the Ethertypes file is the first hurdle

Validation Options

1. Work with the RAC to create a ballot group related to the updated information in the Ethertypes registry
2. Work with the RAC to create an 802.1 motion related to the updated information in the Ethertypes registry

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

YANG Details

- If we assume the Ethertypes file has all the information needed from the new fields and the data is validated and approved by some group of experts...
- How do we want the YANG to be structured.
- If the IEEE doesn't keep control of the subsets, it would be best to leverage YANG Identities because that is easy to augment. Enums can be constrained, but can not be augmented.
- Discussion with YANG Doctors is suggested

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 etherstype
- **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.

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/>