

P802f YANG Data Model for Ethertypes

Updates

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Version 0.3

January 2021

Background

- IETF has requested IEEE to create a YANG module of Ethertypes (2017), which contain a short list of “relevant” (or favorite) Ethertypes
- IETF has published a YANG module of IETF “relevant” Ethertype in RFC8519 (2019). However, they have agreed to deprecate this module, when/if an IEEE module is available.
- IETF is the initial driver for an Ethertype list that is a subset of the public listing master list.
- As a result, some way to identify Ethertype records within the master list that an entity (e.g., IETF) is interested, is needed.



ietf-ethertypes.yang

```
typedef ethertype {
  type union {
    type uint16;
    type enumeration {
      enum ipv4 {
        value 2048;
        description
          "Internet Protocol version 4 (IPv4) with a
           hex value of 0x0800.";
        reference
          "RFC 791: Internet Protocol.";
      }
      enum arp {
        value 2054;
        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 wlan {
        value 2114;
        description
          "Wake-on-LAN. Hex value of 0x0842.";
      }
      enum trill {
        value 8947;
        description
          "Transparent Interconnection of Lots of Links.
           Hex value of 0x22F3.";
        reference
          "RFC 6325: Routing Bridges (RBridges): Base Protocol
           Specification.";
      }
      enum srp {
        value 8938;
        description
          "Stream Reservation Protocol. Hex value of
           0x22EA.";
        reference
          "IEEE 801.1Q-2011.";
      }
    }
  }
  :
  :
```

Public Listing

- The IEEE SA Registration Authority for EtherType (<https://standards.ieee.org/products-services/regauth/ethertype/index.html>) provide access to the public listing of the EtherType registry
 - <http://standards-oui.ieee.org/ethertype/eth.txt>
 - <http://standards-oui.ieee.org/ethertype/eth.csv>
- Being able to generate a short list of “relevant” Ethernets for an entity is required
- This can be achieved by enhancing the search mechanism provided by the EtherType Search tool

SEARCH RESULTS

Filter results by search text


View 10 rows 1 2 3 ... 355 356 357 Showing 1 - 10 of 3566

ETHERTYPE SEARCH RESULTS

Assignment	Assignment Type	Company Name	Company Address	Protocol
22F0 (hex)	EtherType	IEEE 1722 Working Group	1722 Chair c/o IEEE Piscataway NJ 08854 US	IEEE Std. 1722-2016 Transport Protocol f...More
88f0 (hex)	EtherType	International Electrotechnical Commission	3, rue de Varembe GENEVA 20 CH - 1211 CH	The IEC 62439 PRP protocol operates by s...More

RAC Meetings

- Period (bi-weekly to weekly) meetings held with RAC (over the past 6 months) to resolve (i.e., work through) outstanding issues

Clarification	Design Consideration	Implementation
✓ 1) Entries in the Ethernets Public list have a range indication (e.g., 86BB = 86DA, etc.)	5) How is the Ethernets registry master list subset delineator governed and managed?	6) How should the Ethernets Order form be updated to reflect the newly introduced fields (e.g., friendly name, short description, etc.)?
✓ 2) Entries in the Ethernets Public list have missing entries (e.g., 0800 – IPv4)	 NOTE: The current Ethernets public listing currently has 3,568 entries.	7) When there is a request to update/modify an existing Ethernets in the registry, how should the Order form be updated to reflect these new fields (i.e., short name and short description)?
✓ 3) Need to fix the format in the export files of the Ethernets. For example, 84000 and 8400000 are displayed when exported instead of 84E3 and 84E5	NOTE: The current short list of Ethernets deemed “relevant” to IETF is 46 .	8) YANG representation generation
✓ 4) There are Ethernets referenced by other SDOs (e.g., wlan – 0842) that do not appear in the EtherType Public listing.		9) The Ethernets Tutorial document (https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/tutorials/ethertype.pdf) is outdated and needs a refresh

P802f Proposal

— Design Consideration



Ethertypes Listing Extensions

- Introduce additional fields in the Ethertype **Public Listing**
 - Proposed **new** fields are shown in orange

Assignment Type	Assignment (hex)	Friendly Name	Short Description	Company Name	Protocol Description	Assignment Date	Last Updated	Entity Tag (SDO/SIG)
Ethertype	0800	ipv4	Internet Protocol Version 4	Xerox	IPv4 Internet Protocol Version Hornig, C., "A Standard for the Transmission of IP Datagrams over Ethernet Networks," RFC-Internet Society, Apr. 1984. http://www.ietf.org/rfc/rfc894.txt			{ieee-sa, ietf}
Ethertype	8946	trill	RBridge	IETF TRILL Working Group	The RBridge Channel protocol is specified in http://www.ietf.org/id/draft-ietf-trill-rbridge-channel-05.txt . Most of the document is about communication between RBridges. Section 4 describes the differences for transmission between and end station and an RBridge.			{ietf}
Ethertype	88CC	lldp	Link Layer Discovery Protocol	IEEE 802.1 Working Group	Link Layer Discovery Protocol (LLDP)			{ieee-sa, ietf}
Ethertype	22EA	srp	Stream Reservation Protocol	IEEE 802.1 Working Group	Stream Reservation Protocol			{ieee-sa, ietf}
Ethertype	8902	cfm	Connectivity Fault Management	IEEE 802.1 Working Group	11a Poplar Grove Sale Cheshire M33 3AX GB			{ieee-sa, ietf}
Ethertype	88E5	mac-sec	MAC Security	IEEE 802 LAN/MAN Standards Committee	IEEE Std 802 - OUI Extended EtherType. This EtherType value is available for public use and for prototype and vendor-specific protocol development, as defined in Amendment 802a to IEEE Std 802.			{ieee-sa}

Enhancements to Ethernets Public Listing Search

❖ Generation of a short list of “relevant” Ethernets

Background

- There is one search engine for all products (e.g., Ethernets, MAC, etc.)
- Currently, only searches on “Assignment” and “Company Name”, where the value is first searched on “Assignment” record, then on “Company Name”

Assignment	Assignment Type	Company Name	Company Address	Protocol
22FD (hex)	Ethernets	IEEE 1722 Working Group	1722 Chair c/o IEEE Piscataway NJ 08854 US	IEEE Std. 1722-2016 Transport Protocol f...More
88fd (hex)	Ethernets	International Electrotechnical Commission	3, rue de Varembe GENEVA 20 CH - 1211 CH	The IEC 62439 PRP protocol operates by s...More

Proposal

- Enhance the search engine provided by the Ethernets Search tool
 - Support searching on combination of specified fields found in the master dBase
 - For example {field1: value/mask **AND** field3:value/mask **OR** field10: value/mask}
- ```
{entity: <ietf, ieee-sa> AND assignment: 81**}
```
- Support the export of the refined listing in TXT, CSV, or YANG format

# Management of **NEW** Field(s)

## ❖ Management of Entity Tag

- RAC defines and maintains the Entity Tag values
  - For example, {ietf, ieee-sa, bbf, mef, foobar, open-config, etc.}
- The Ethertype Order Forms updated to include the new fields (i.e., entity-tag)

Tracking #: RA5336  
Requested on: 5/15/2014, 8:00:00 PM

**COMPANY INFORMATION**  
IEEE 802.1 Working Group  
445 Hoes Lane  
Piscataway, NJ 08854  
US  
Alt E-Mail:  
Alt Phone: 613-963-0141

**PAYMENT INFORMATION**  
No payment type selected

**ORDER DETAILS**  
Selected Registry: Ethertype  
Public Listing Address:  
349 Terry Fox Drive  
Ottawa, ON V2V 2V6  
CA

**Number of Assignments: 1**  
**Public Listing Description:**  
Currently, IEEE Std 802.1AV uses a subtype of the 802.3 slow protocols Ethertype for LACP frames. For the revision currently in sponsor ballot (<http://www.ieee802.org/11/files/private/lx-rev-drafts-04-802-1AV-REV-04-0.pdf>), new functionality has been added to Link Aggregation to support Distributed Resilient Network Interconnect (DRNI). DRNI describes two new protocols to allow communication between portal systems on the same side of the LAG. It is proposed to use one Ethertype with subtypes to identify these protocols and allow future protocols. The Distributed Relay Control Protocol (DRCP) exchanges information to ensure that the Portal Systems can work together. The address Synchronization Protocol Data Units (ASPDUs) ensures MAC address synchronization between the Portal Systems.

**Protocol Description:**  
IEEE Std 802.1AV - Distributed Relay Control Protocol (DRCP) Ethertype

| Service           | Quantity | Unit Price | Cost |
|-------------------|----------|------------|------|
| Ethertype         | 1        |            |      |
| <b>Total Cost</b> |          |            |      |

**Additional Comments**  
Consideration  
*Angela N. Thomas*  
Angela N. Thomas  
IEEE Registration Authority

Organization Information | Select Registry | Enter Payment Preference | Review & Submit Request | Cancel

Please supply and review the information below in order to submit your request. Please note that IEEE does not honor requests for applicant-specified identifiers. Assignments are public, unless specifically requested otherwise. For assistance with your application, please contact us @ [ieee-registration-authority@ieee.org](mailto:ieee-registration-authority@ieee.org)

**REGISTRIES**

Select Registry\*  
Ethertype

**Detailed Description\***  
Enter Detailed Description

**Protocol Description\***  
Enter Protocol Description

Assignment Quantity\*  
1

This organization is authorized to request for a maximum of (1) assignments at a time.

**Assignment Justification\***  
Confidentiality Renewal


**Public Listing Justification\***  
Enter justification for public listing

**ADDITIONAL COMMENTS**  
Justification for additional assignments, Notes to Approver, etc.

Back Next

**COST OF SERVICE**

| Service           | Qty | Cost |
|-------------------|-----|------|
| Confidentiality   | 1   |      |
| <b>Total Cost</b> |     |      |

 Should we allow the “Assignee” to also define an “Entity Tag” value to be associated with a given Ethertype? Or perhaps we should simply allow each Entity (e.g., SDO) to be able to assign which entity-tag value is associated with each Ethertype record in the data base.



# Management of **NEW** Field(s)

## ❖ Management of Friendly Name & Short Description

- Ethertype assignee (i.e., entity that “registers” Ethertype) is responsible for providing the friendly name and short description
- The Ethertype Order Forms updated to include the new fields (i.e., friendly name, short description)



Not sure how to manage/define the specification of “friendly-name” and “short-description” for existing Ethertypes. Perhaps this could be done as part of P802f specification.

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Requested on: 5/15/2014, 8:00:00 PM

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Ottawa, ON V2V 2V6  
CA

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Detailed Description:  
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Protocol Description:  
IEEE Std 802.1AV - Distributed Relay Control Protocol (DRCP) Ethertype

| Service    | Quantity | Unit Price | Cost |
|------------|----------|------------|------|
| Ethertype  | 1        |            |      |
| Total Cost |          |            |      |

Additional Comments  
Consideration  
*Angela N. Thomas*  
Angela N. Thomas  
IEEE Registration Authority

Organization Information | Select Registry | Enter Payment Preference | Review & Submit Request | Cancel

Please supply and review the information below in order to submit your request. Please note that IEEE does not honor requests for applicant-specified identifiers. Assignments are public, unless specifically requested otherwise. For assistance with your application, please contact us @ [ieee-registration-authority@ieee.org](mailto:ieee-registration-authority@ieee.org)

**REGISTRIES**

Select Registry\*  
Ethertype

Detailed Description\*  
Enter Detailed Description

Protocol Description\*  
Enter Protocol Description

Assignment Quantity\*  
1

This organization is authorized to request for a maximum of (1) assignments at a time.

Assignment Justification\*  
Confidentiality Renewal

Public Listing Justification\*  
Enter justification for public listing

**ADDITIONAL COMMENTS**  
Justification for additional assignments, Notes to Approver, etc.

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**REGISTRATION FEES**  
Product: IEEE  
Publicly Registered: [Redacted]

**COST OF SERVICE**

| Service         | Qty | Cost |
|-----------------|-----|------|
| Confidentiality | 1   |      |
| Total Cost      |     |      |

# Backup Material



# Proposed Friendly Names and Entity Tag

| Assignment Type | Assignment (Hex) | Friendly Name      | Entity Tag |
|-----------------|------------------|--------------------|------------|
| Ethertype       | 0800             | ipv4               | {ietf}     |
| Ethertype       | 0806             | arp                | {ietf}     |
| Ethertype       | 0842             | wlan               | {ietf}     |
| Ethertype       | 22F3             | trill              | {ietf}     |
| Ethertype       | 22EA             | srp                | {ietf}     |
| Ethertype       | 6003             | decnet             | {ietf}     |
| Ethertype       | 8040             | rarp               | {ietf}     |
| Ethertype       | 809B             | appletalk          | {ietf}     |
| Ethertype       | 80F3             | aarp               | {ietf}     |
| Ethertype       | 8100             | vlan               | {ietf}     |
| Ethertype       | 8137             | ipx                | {ietf}     |
| Ethertype       | 8204             | qnx                | {ietf}     |
| Ethertype       | 86DD             | ipv6               | {ietf}     |
| Ethertype       | 8808             | efc                | {ietf}     |
| Ethertype       | 8809             | esp                | {ietf}     |
| Ethertype       | 8819             | cobranet           | {ietf}     |
| Ethertype       | 8847             | mpls-unicast       | {ietf}     |
| Ethertype       | 8848             | mpls-multi-cast    | {ietf}     |
| Ethertype       | 8863             | pppoe-discovery    | {ietf}     |
| Ethertype       | 8864             | pppoe-session      | {ietf}     |
| Ethertype       | 886D             | intel-ans          | {ietf}     |
| Ethertype       | 8870             | jumbo-frames       | {ietf}     |
| Ethertype       | 887B             | homeplug           | {ietf}     |
| Ethertype       | 888E             | eap                | {ietf}     |
| Ethertype       | 8892             | profinet           | {ietf}     |
| Ethertype       | 889A             | hyperscsi          | {ietf}     |
| Ethertype       | 88A2             | aoe                | {ietf}     |
| Ethertype       | 88A4             | ethercat           | {ietf}     |
| Ethertype       | 88A8             | provider-bridging  | {ietf}     |
| Ethertype       | 88AB             | ethernet-powerlink | {ietf}     |
| Ethertype       | 88B8             | goose              | {ietf}     |
| Ethertype       | 88B9             | gse                | {ietf}     |
| Ethertype       | 88BA             | sv                 | {ietf}     |
| Ethertype       | 88CC             | lldp               | {ietf}     |
| Ethertype       | 88CD             | servoc             | {ietf}     |
| Ethertype       | 88DC             | wsmpp              | {ietf}     |
| Ethertype       | 88E1             | homeplug-av-mme    | {ietf}     |
| Ethertype       | 88E3             | mrp                | {ietf}     |
| Ethertype       | 88E5             | macsec             | {ietf}     |
| Ethertype       | 88E7             | pbb                | {ietf}     |
| Ethertype       | 8902             | cfm                | {ietf}     |
| Ethertype       | 8906             | fcoe               | {ietf}     |
| Ethertype       | 8914             | fcoe-ip            | {ietf}     |
| Ethertype       | 8915             | roce               | {ietf}     |
| Ethertype       | 891D             | tte                | {ietf}     |
| Ethertype       | 892F             | hsr                | {ietf}     |

| Assignment Type | Assignment (HEX) | Friendly Name | Company Name                                                | Entity Tag |
|-----------------|------------------|---------------|-------------------------------------------------------------|------------|
| Ethertype       | 8808             |               | IEEE 802.3                                                  | {ieee-sa}  |
| Ethertype       | 22EA             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 88cc             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 8940             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 88f5             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 88b6             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 22F0             |               | IEEE 1722 Working Group                                     | {ieee-sa}  |
| Ethertype       | 88dc             |               | IEEE P1609 WG                                               | {ieee-sa}  |
| Ethertype       | 880A             |               | IEEE 802.3                                                  | {ieee-sa}  |
| Ethertype       | 8870             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 8929             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 894B             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 88b5             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 890d             |               | IEEE 802.11                                                 | {ieee-sa}  |
| Ethertype       | 88f7             |               | IEEE I&M Society TC9                                        | {ieee-sa}  |
| Ethertype       | 88f0             |               | IEEE P1451.0                                                | {ieee-sa}  |
| Ethertype       | 8952             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 88a8             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 888e             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | FC3D             |               | IEEE 1914 Next Generation Fronthaul Interface Working Group | {ieee-sa}  |
| Ethertype       | 22e9             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 22e7             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | F1C1             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 88c7             |               | IEEE 802.11                                                 | {ieee-sa}  |
| Ethertype       | 88e5             |               | IEEE 802 LAN/MAN Standards Committee                        | {ieee-sa}  |
| Ethertype       | 88b7             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | A8C8             |               | IEEE 1904 Access Networks Working Group                     | {ieee-sa}  |
| Ethertype       | 0A00             |               | Xerox IEEE 802.3 PUP                                        | {ieee-sa}  |
| Ethertype       | 893A             |               | IEEE 1905.1                                                 | {ieee-sa}  |
| Ethertype       | 8917             |               | IEEE 802.21                                                 | {ieee-sa}  |
| Ethertype       | 0B02             |               | IEEE 802.3 compatible Sprite RPC                            | {ieee-sa}  |
| Ethertype       | 8809             |               | IEEE 802.3                                                  | {ieee-sa}  |
| Ethertype       | 8100             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 88f6             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 22e2             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 893F             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | C9D1             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 8902             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |
| Ethertype       | 89A2             |               | IEEE 802.1 Working Group                                    | {ieee-sa}  |