

IEEE YANG Modeling of EtherTypes

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Introduction

- There is a need to lay the groundwork for a YANG model ethertype definition
- The definition of all the ethertypes is needed, as they are registered with RAC
- A consensus/direction on this would unblock drafts both in IETF and MEF that are dependent on this module and definition

The RAC and ethertypes

- It is an imperative that the YANG model definitions be consistent (or up to date) with the RAC database of ethertypes
 - <https://regauth.standards.ieee.org/standards-ra-web/pub/view.html#registries>
- It is an objective to have a process (and mechanism) where we could auto-generate the YANG module based the RAC maintained ethertypes (found in the data base)



The screenshot shows a 'DOWNLOAD' section on a website. It contains a yellow box with instructions: 'In order to download the entire public listing for a registry, please select either the text or CSV file below.' Below this is a list of eight registry entries, each with download icons for text and CSV files. The fifth entry, '5. EtherType', is circled in red.

Registry Name	Text File	CSV File
1. MAC Address Block Large (MA-L)	Yes	Yes
2. MAC Address Block Medium (MA-M)	Yes	Yes
3. MAC Address Block Small (MA-S)	Yes	Yes
4. Company ID	Yes	Yes
5. EtherType	Yes	Yes
6. ManufacturerID	Yes	Yes XDL
7. IEEE 802.16 Operator ID	Yes	Yes
8. IAB	Yes	Yes

Proposed solution



- A script (written in Excel) has been created to auto-generate the YANG module based upon imported ethertypes from the RAC data base
 - All you need to do is hit the “**Generate YANG**” button, and a file called `ieee802-rac-ethertype.yang` will be created right in the directory where the spreadsheet is located
- The format of the ethertype is important to IEEE 802
 - Decimal value representations are not deemed to be acceptable
 - The enum in the YANG module generated was of a form resembling an alphanumeric string with a pattern of `'[0-9a-fA-F]{2}-[0-9a-fA-F]{2}'`
 - The specification reference is IEEE 802-2014, clause 9.2



The ethertype type

- In the auto-generated YANG module, you'll notice that the type definition of the ethertype is as shown below:

```
typedef ethertype {  
    type union {  
        type ethertype-enum;  
        type dot1qtypes:ethertype-type;  
    }  
    description  
        "IEEE ethertype definition."  
}
```

where ethertype-type is defined as shown below:

```
typedef ethertype-type {  
    type string {  
        pattern '[0-9a-fA-F]{2}-[0-9a-fA-F]{2}';  
    }  
    description  
        "The EtherType value represented in the  
        canonical order defined by IEEE 802. The  
        canonical representation uses uppercase  
        characters."  
    reference  
        "IEEE 802-2014 Clause 9.2";  
}
```

This is slightly different from how ethertypes are defined by that IETF draft (draft-ietf-netmod-acl-model). In that draft, ethertype are essentially defined as decimal values.