

A YANG Data Model for BGP Communities

draft-ietf-grow-yang-bgp-communities-06

Martin Pels <mpels@ripe.net>

2025-07-22

Summary

- YANG Data Model for BGP communities
- Publication in XML/JSON/CBOR
- Goals:
 - Publishing locally defined communities
 - Derive meaning of communities seen on the wire



Latest changes

- Stripped Data elements section (6 pages)
- Expanded Security considerations based on draft-ietf-netmod-rfc8407bis
- Model changes based on early Yangdoctors review
- Support for hidden fields

YANG tree (subset)

```
module: draft-ietf-grow-yang-bgp-communities
```

```
+--rw bgp-communities
  +--rw serial          uint32
  +--rw uri?            string
  +--rw description?   string
  +--rw contacturl?    string
  +--rw contacts* [emailaddress]
    | +--rw emailaddress      string
    | +--rw name?            string
    | +--rw role?            string
    | +--rw organization?    string
    | +--rw organizationalunit? string
  +--rw regular* [name]
    | +--rw name              string
    | +--rw description?     string
    | +--rw globaladmin      uint16
    | +--rw localadmin
      | +--rw format?        string
      | +--rw fields* [name]
        | +--rw name          string
        | +--rw length?      uint8
        | +--rw pattern       string
        | +--rw description? string
  +--rw extended* [name]
```

```
module: ietf-bgp-communities
```

```
+--ro bgp-communities
  +--ro serial?          uint32
  +--ro uri?             inet:uri
  +--ro description?    string
  +--ro contact-url?    inet:uri
  +--ro contact* [email-address]
    | +--ro email-address      inet:email-address
    | +--ro name?              string
    | +--ro role?              string
    | +--ro organization?      string
    | +--ro organizational-unit? string
  +--ro regular* [name]
    | +--ro name                community-name
    | +--ro category?           community-category
    | +--ro description?        community-description
    | +--ro global-admin        two-octet-as-number
    | +--ro local-admin
      | +--ro format?           local-admin-format
      | +--ro field* [name]
        | +--ro name            field-name
        | +--ro length?         uint8
        | +--ro pattern         field-pattern
        | +--ro description?    field-description
  +--ro extended* [name]
```

Example (RFC8195)

```
"global-admin": 64497,  
"local-data-part-1": {  
  "field": [  
    {  
      "name": "Function",  
      "pattern": "4",  
      "description": "ASN-No-Export"  
    }  
  ]  
},  
"local-data-part-2": {  
  "field": [  
    {  
      "name": "ASN",  
      "pattern": ".*",  
      "description": "*"  
    }  
  ]  
}
```

Input:

64497:4:64498

Output:

ASN=64497

Function=ASN-No-Export

ASN=64498

Example (RFC4384)

```
"asn": 10876,  
"local-admin": {  
  "format": "binary",  
  "field": [  
    {  
      "name": "Reserved",  
      "length": 16,  
      "pattern": "0000000000000000"  
    },  
    {  
      "name": "Region",  
      "length": 5,  
      "pattern": "00010",  
      "description": "OC"  
    },  
    {  
      "name": "Satellite",  
      "length": 1,  
      "pattern": "0",  
      "description": "*"   
    },  
    {  
      "name": "Country",  
      "length": 10,  
      "pattern": "0011110010",  
      "description": "FJ"  
    }  
  ]  
}
```

Input:

0x00:0x08:10876:4338

Output:

ASN=10876

Region=OC

Satellite=0

Country=FJ

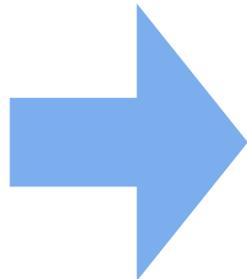
Implementations

Publisher

```
{
  "ietf-bgp-communities:bgp-communities": {
    "description": "BGP Communities for AS197000",
    "contact": [
      {
        "email-address": "dns@ripe.net",
        "name": "RIPE NCC Authoritative DNS operations",
        "role": "NOC",
        "organization": "RIPE NCC",
        "organizational-unit": "DNS"
      }
    ],
    "contact-url": "https://www.ripe.net/",
    "uri": "https://www-static.ripe.net/dynamic/draft-ietf-grow-yang-bgp-communities/as197000.json",
    "serial": 2025070700,
    "regular": [],
    "extended": [
      {
        "name": "authdns:ph-mkc[1400]",
        "category": "informational",
        "description": "authdns hosted instance, site ph-mkc",
        ...
      }
    ]
  }
}
```

Parser

AS-Path	<code>199471</code> <code>197000</code> via next-hop <code>2a13:fc80:fffe::1</code>
Origin validation state	<code>valid</code>
ASPA validation state	<code>unknown</code>
Only To Customer (OTC)	yes, ASN: <code>199471</code>
Origin	IGP
MED	0
Last update	2025-07-01 13:33:21 UTC (01w0d00h ago)
Communities	<code>65000:50223</code> <code>65000:65031</code> <code>65000:65101</code> <code>65000:65151</code>
Extended communities	<code>soo 197000:1 (site=nl-ams)</code>
Large communities	<code>197000:1:34307 (site=nl-ams:peer_as=34307)</code> <code>199471:2002:34307</code> <code>199471:2100:10000000</code>



draft

<https://datatracker.ietf.org/doc/draft-ietf-grow-yang-bgp-communities/>

code

<https://tinyurl.com/yang-bgp-communities>