

BGP Community JSON schema

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What and why?

- JSON structure for defining BGP Communities
- Use cases:
 - Publication (PeeringDB? RPKI?)
 - Parsing (e.g. by looking glasses)

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9 COLOCLUE1-v4	
AS-Path	8283 25152 via next-hop 94.142.247.3
Validation state	valid
Origin	IGP
MED	0
Last update	2022-11-09 22:55:59 UTC (11:19:47 ago)
Communities	8283:1 (peering routes) 8283:101 (Valid IRR entry) 8283:102 (Valid ROA) 25152:1 (K-ROOT core site nl-ams)
Large communities	8283:0:1 (peering routes) 8283:5:1 (Valid IRR entry) 8283:5:2 (Valid ROA) 25152:1:6777 (K-ROOT:nl-ams:AS6777)

Example - NLNOG looking glass

Example - RFC8195

(Use of BGP Large Communities)

RFC 8092	this document
Global Administrator	ASN
Local Data Part 1	Function
Local Data Part 2	Parameter

Table 1: Field Mapping

BGP Large Community	Description
64497:4:64498	Do not export route to AS 64498
64497:4:64499	Do not export route to AS 64499
64497:4:65551	Do not export route to AS 65551

Table 5: Action: ASN NO_EXPORT

Example - RFC8195

```
large_bgp_community_template [  
  {  
    "name": "RFC8195",  
    "description": "RFC8195 large community",  
    "fields": [  
      {  
        "name": "Function",  
        "start": 32,  
        "length": 32  
      },  
      {  
        "name": "Parameter",  
        "start": 64,  
        "length": 32  
      }  
    ]  
  }  
]
```

Example - RFC8195

```
large_bgp_community_template [  
  {  
    "name": "RFC8195",  
    "description": "RFC8195 large community",  
    "fields": [  
      {  
        "name": "Function",  
        "start": 32,  
        "length": 32  
      },  
      {  
        "name": "Parameter",  
        "start": 64,  
        "length": 32  
      }  
    ]  
  }  
]
```

```
large_bgp_community [  
  {  
    "name": "AS64497 no export to AS65551",  
    "template": "RFC8195",  
    "asn": 64497,  
    "fields": [  
      {  
        "name": "Function",  
        "value": 4  
      },  
      {  
        "name": "Parameter",  
        "value": 65551  
      }  
    ]  
  }  
]
```

Example - RFC4384

(BGP Communities for Data Collection)

Category	Value	Where
Reserved	<AS>:0000000000000000	<AS> is the 16-bit AS
Customer Routes	<AS>:0000000000000001	<R> is the 5-bit Region Identifier
Peer Routes	<AS>:0000000000000010	<X> is the 1-bit satellite link indication
Internal Routes	<AS>:0000000000000011	X = 1 for satellite links, 0 otherwise
Internal More Specific Routes	<AS>:0000000000000100	<CC> is the 10-bit ISO-3166-2 country code [ISO3166]
Special Purpose Routes	<AS>:0000000000000101	
Upstream Routes	<AS>:0000000000000110	and <R> takes the values:
Reserved	<AS>:0000000000000111-	
	<AS>:0000011111111111	Africa (AF) 00001
	<AS>:0000100000000000-	Oceania (OC) 00010
National and Regional Routes	<AS>:1111111111111111	Asia (AS) 00011
	<AS>:<R><X><CC>	Antarctica (AQ) 00100
Encoded as	<AS>:0100000000000000-	Europe (EU) 00101
Reserved National and Regional values	<AS>:1111111111111111	Latin America/Caribbean Islands (LAC) 00110
		North America (NA) 00111
		Reserved 01000-11111

Example - RFC4384

```
bgp_community_template [  
  {  
    "name": "Route Origin",  
    "description": "RFC4384 route origin community",  
    "fields": [  
      {  
        "name": "Region",  
        "start": 16,  
        "length": 5,  
      },  
      {  
        "name": "Satellite",  
        "start": 21,  
        "length": 1  
      },  
      {  
        "name": "Country",  
        "start": 22,  
        "length": 10  
      }  
    ]  
  }  
]
```


Example - RFC4384

```
bgp_community_template [  
  {  
    "name": "Route Origin",  
    "description": "RFC4384 route origin community",  
    "fields": [  
      {  
        "name": "Region",  
        "start": 16,  
        "length": 5,  
      },  
      {  
        "name": "Satellite",  
        "start": 21,  
        "length": 1  
      },  
      {  
        "name": "Country",  
        "start": 22,  
        "length": 10  
      }  
    ]  
  }  
]
```

```
bgp_community [  
  {  
    "name": "AS65001 Originated in NL",  
    "template": "Route Origin",  
    "asn": 65001,  
    "fields": [  
      {  
        "name": "Region",  
        "bvalue": 0b00101  
      },  
      {  
        "name": "Satellite",  
        "bvalue": 0b0  
      },  
      {  
        "name": "Country",  
        "bvalue": 0b1000010000  
      }  
    ]  
  }  
]
```

Questions/comments?

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