

BGP Route Capability

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Background

- BGP communicates the list of capabilities supported via OPEN message.
- BGP speaker determines the list capabilities supported by peer in capabilities received in optional capabilities.
- BGP Speaker uses this capability information before sending any information pertaining to that capability to the peer

Problem Statement

- BGP supports different Route Types for given address-family like EVPN, MVPN and so, on.
- Each route type possesses distinct key lengths that consist of several fields, which together form a BGP Route Key.
- BGP speaker MAY reset the BGP session if a given route type in an NLRI is not supported OR it can treat-as-withdraw.
- If session is not reset, BGP speaker remains unaware when a peer drops an UPDATE due to an unsupported route type.
- This document defines Route Type Capabilities supported via Optional Capabilities for a particular AFI and SAFI.

Route Type Capability

- **Capability code:** To be assigned by IANA
- **Capability length:** Variable
- **Capability value:** Consists of 0 to 63 of the tuples "AFI, SAFI, Route Type length and Route Type values for address family"

```
+-----+
| Address Family Identifier (2 octets) |
+-----+
| Subsequent Address Family Identifier (1 octet) |
+-----+
| Route Type length (1 octet) |
+-----+
| Route Types (variable length) |
+-----+
```

Route Type Capability

- **Route Type Length:** Total length in Octets ranging from 1 to 32.
- **Route Types:** bit-string

```

      0                1
    0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5
+-+--+--+--+--+--+--+--+--+--+--+
|0|1|1|1|1|1|1|1|1|1|1|1|1|1|1|
+-+--+--+--+--+--+--+--+--+--+--+
```

Bit 0 set to 0, while bits 1 through 15 are all set to 1, which indicates that the speaker supports route types 1 through 15.

Any bits that are not included in the encoded bit-string will be interpreted as if they were transmitted with a value of zero for the corresponding bit.

Route-Type Capability Handling

- BGP Speaker not received the Route Type Capability Bits MUST NOT originate any BGP Route Type encoded NLRI containing a route type that is absent from the received bit-string.
- BGP Speaker receives an AFI/SAFI without Route Type Capability, it MUST treat this as if it has received the Route Type Capability Bits from the relevant guidelines for that address family.

Next Step

- Any feedback is welcome.

Thank You!