

BGP YANG Model

draft-ietf-idr-bgp-model-16

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Status (-16)

- Name change
 - YANG Model for Border Gateway Protocol (BGP-4)

Status (-16)

- Addition of two new modules
 - iana-bgp-notification
 - Better operational state
 - Includes NOTIFICATION message, Error Codes, and Error subcodes
 - iana-bgp-community-types
 - Definitions for BGP communities
- One sub-module
 - ietf-bgp-capabilities

Status (-16)

- AS_PATH
 - See proposal in appendix
 - Need to come up with RegEx
 - Discussion on following slides
- IPv6 extended communities (RFC 5701)
- More counters
 - neighbor counters
- add-path was missing at global AFI/SAFI level

Status (-16)

- Moved ttl security under transport
- Prefix limit feature rationalization
 - From threshold exceeded and teardown
 - To threshold exceeded, option to teardown or log

Status (-16)

- Moved out of the model

- TCP-AO

- MD5

They are in the TCP YANG Model

- Secure sessions

- BGP identifies key chain for TCP-AO/MD5

AS_PATH Problem Statement

- Different ways of rendering received AS_PATH
 - Left to right
 - Leftmost is neighbor AS; prepended AS
 - No consistent way to render white spaces between AS numbers
- AS_PATH regex used in BGP policy
 - Character based tokens
 - Integer based tokens
- Why not POSIX?
 - Integer based tokens are a problem
 - grep is not the solution
 - YANG by default does not use POSIX
- Segment Types are ignored

AS_PATH Regex

- Need to standardize the format of AS_PATH
- Inspiration from - Routing Policy Specification Language (RFC 2622)

AS_PATH Regex Examples

- 64496
 - Matches the AS_PATH that contains at least one instance of 64496, regardless of its position.
- ^64496\$
 - Matches the AS_PATH that is exactly one AS long, and that AS is 64496.
- ^64496
 - Matches the AS_PATH where the left-most (neighbor) AS is 64496.
- 64496\$
 - Matches the AS_PATH where the right-most (origin) AS is 64496.
- [64496 64500]
 - Matches the AS_PATH where at least one of the ASes is either 64496 or 64500.
- [^64496 64500]
 - Matches the AS_PATH where neither 64496 nor 64500 are present in the AS_PATH.
- [64496-64511]
 - Matches the AS_PATH where at least one AS number is in the range 64496..64511, inclusive. This matches the documentation AS numbers in [RFC5398].
- 64496 64500
 - Matches the AS_PATH where 64496 is present and immediately followed by 64500.
- 64496 | 64500
 - Matches the AS_PATH where 64496 or 64500 occur in the AS_PATH.
- ^ 64496 .{2} (64500 | [64505-64511])
 - Matches the AS_PATH where the left-most (neighbor) AS is 64496, is followed immediately by any two ASes and either 64500 or an AS in the range 64505..64511.

Community Regex

- Like AS_PATH, need to standardize format of community regex.
- Many implementations have restrictions on what they can do.
- Solution: Restricted profile for POSIX.2 Extended Regular Expressions.
 - This would widely cover most implementations.
 - POSIX.2 extended regex is a well-known standard.

Community Regex (2)

Exclusions:

- Character class expressions (Section 9.3.5)
- Collating symbols (Section 9.3.5)
- Equivalence classes (Section 9.3.5)
- Back-reference expressions (Section 9.3.6)



Issues

- Tracked here
 - <https://github.com/mjethanandani/ietf-bgp-yang/issues>
- Major issue
 - Need AS_PATH regex expression ABNF (Issue #293)
 - Move key item to the top of list neighbors (Issue #340)
- Minor issue
 - Punctuation cleanup (Issue #68)

Everything else is an enhancement (to be tackled in a –bis or a new draft)



Next Steps

- ~~97%~~ 99% there
 - Believe we are dealing with last set of issues
 - v17 will hopefully be the last WG version
- Chair ask
 - Identify shepherd (co-authors are also chairs)
 - YANG Doctor reviews. Have had 2 already
 - OpsDir review??
 - RtgDir review. Early review done.

