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An I2RS BGP Data Model
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Abstract

This document introduces a yang data for i2RS BGP protocol and network policy that aligns with the I2RS BGP use cases. This draft utilizes the general Policy based routing structured found in the RIB Information Model (IM) and Policy Base Policy.

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[1.](#) Introduction

The Interface to the Routing System (I2RS) provides read and write access to the information and state within the routing process within routing elements via protocol message exchange between an I2RS Client and an I2RS Agent associated with the a routing system. The [\[I-D.ietf-i2rs-architecture\]](#) describes the basic interactions of this exchange. One of the important functions of this messages exchange is for the I2RS client to interact with one or more I2RS agents to collect information from network routing systems.

One of the key information pieces that I2RS clients may collect from I2RS agents is the BGP information regarding BGP peers, BGP routes, and network topologies created within BGP. This document introduces a basic information model for BGP policies. This policy model can be linked with other information models such as the I2RS RIB informational model [\[I-D.ietf-i2rs-rib-info-model\]](#), and uses the generic policy found in the Policy Routing modules in [\[I-D.hares-i2rs-bnp-info-model\]](#). This basic BGP Information Model is an extendable policy model is a product of the industry approach to I2RS.

[2.](#) Definitions and Acronyms

BGP: Border Gateway Protocol

Information Model: An abstract model of a conceptual domain, independent of a specific implementation or data representation

NETCONF: The Network Configuration Protocol as defined in [\[RFC6536\]](#)

RESTCONF: The REST-like protocol that provides a programmatic interface over HTTP for accesing data defined in YANG, using datastores defined in NETCONF Protocol [\[I-D.ietf-netconf-restconf\]](#) as defined in RBNF: Routing Backus-Naur Form [\[RFC5511\]](#).

3. BGP Yang top-level description

Below is the full BGP Yang top-level description for the configuration portion of I2RS configuration model. Additional information on the structure of the information model is described in [\[I-D.hares-i2rs-bnp-info-model\]](#).

```

module: bgp-protocol
  +--rw bgp-protocol
    +--rw router-id?                inet:ip-address
    +--rw as-number?                uint32
    +--ro protocol-status?          enumeration
    +--rw shutdown-protocol?        boolean
    +--ro bgp-role?                 enumeration
    +--rw bgp-ipv4-uni-instance
      | +--rw bgp-instance-name?    string
      | +--rw bgp-instance-create?  enumeration
      | +--rw bgp-instance-type?    enumeration
      | +--rw bgp-vendor-type?      enumeration
      | +--rw afi?                  afi-def
      | +--rw safi?                  safi-def
      | +--rw bgp-local-rib
      | | +--rw bgp-route-list* [ipv4-route ipv4-prefix-length]
      | |   +--rw ipv4-route        inet:ipv4-prefix
      | |   +--rw ipv4-prefix-length uint8
      | |   +--rw bgp-route-type?   enumeration
      | |   +--rw bgp-attribute-list
      | |   | +--rw bgp-origin?      enumeration
      | |   | +--rw bgp-aspath
      | |   | | +--rw usascount?     uint16
      | |   | | +--rw ulrefcount?    uint16
      | |   | | +--rw asstring?      string
      | |   | | +--ro usascountfrcomp? uint16
      | |   | | +--rw usastotalcount? uint16
      | |   | | +--rw usas4pathlen?  uint16
      | |   | | +--rw as4pathvalue?  string
      | |   | +--rw bgp-nexthop?     inet:ip-address
      | |   | +--rw bgp-med?          uint32
      | |   | +--rw bgp-localpref?   uint32
      | |   | +--rw bgp-atomic-aggregate? uint32
      | |   | +--rw bgp-aggregator
      | |   | | +--rw ulipaddress?    uint32
      | |   | | +--rw ulasnumber?     uint32
      | |   | +--rw bgp-commattr
      | |   | | +--rw uscommsize?     uint16
      | |   | | +--rw ulrefcomm?      uint32
      | |   | | +--rw commattr-value? string
      | |   | +--rw bgp-extcommattr

```



```

| | | | +--rw usextcommsize?      uint16
| | | | +--rw ulrefcount?        uint32
| | | | +--rw extcommattr-value?  string
| | | | +--rw bgp-clusterlist
| | | | +--rw uscluslen?          uint16
| | | | +--rw ulrefclus?          uint32
| | | | +--rw clusterlist-value?  string
| | | | +--rw bgp-originator-id?  uint32
| | +--ro bgp-route-create?       enumeration
| | +--ro bgp-rt-state-info
| |   +--ro rib-current-state?    rib-state-def
| |   +--ro rib-last-state?       rib-state-def
| |   +--ro rib-rejected-reason?  enumeration
| |   +--ro not-preferred-reason? enumeration
| +--rw bgp-peer-list* [bgp-peer-name]
|   +--rw peer-session-address
|   | +--rw local-ipv4-address?   inet:ipv4-prefix
|   | +--rw remote-ipv4-address?  inet:ipv4-prefix
|   +--rw bgp-peer-name          string
|   +--ro bgp-peer-type?          enumeration
|   +--ro bgp-peer-create?        enumeration
|   +--rw bgp-policy-in
|   +--rw bgp-policy-out
|   +--ro peer-policy-in-pset
|   +--ro peer-policy-out-pset
|   +--rw peer-state-info
|   | +--ro peer-current-state?   peer-state
|   | +--ro peer-last-state?      peer-state
|   | +--ro peer-down-reason
|   | | +--ro error-code?         enumeration
|   | | +--ro sub-error-code
|   | |   +--ro (sub-error-code-type)?
|   | |     +--:(head-error-sub-code)
|   | |     | +--ro head-error-sub-value?      enumeration
|   | |     +--:(open-error-sub-code)
|   | |     | +--ro open-error-sub-value?      enumeration
|   | |     +--:(update-error-sub-code)
|   | |     | +--ro update-error-sub-value?    enumeration
|   | |     +--:(route-refresh-error-sub-code)
|   | |     | +--ro route-refresh-error-sub-value?  enumeration
|   | +--ro peer-received-update-cnt?  uint64
|   | +--ro peer-transmit-update-cnt?   uint64
|   | +--ro peer-received-route-cnt?    uint64
|   | +--ro peer-send-route-cnt?        uint64
|   | +--rw max-prefix-rcv-limit?       uint64
|   | +--rw max-prefix-xmt-limit?       uint64
|   | +--ro peer-prefix-high?           uint64
|   | +--ro peer-prefix-low?            uint64

```



```

|   |   +--ro peer-perfix-ave?          uint64
|   |   +--ro peer-prefix-time?        uint64
|   |   +--ro peer-prefix-max?         uint64
|   |   +--ro publish-version?         uint64
| +--rw bgp-rib-in
|   |   +--rw bgp-rib-in-list* [ipv4-route ipv4-prefix-length]
|   |   |   +--rw ipv4-route            inet:ipv4-prefix
|   |   |   +--rw ipv4-prefix-length    uint8
|   |   |   +--rw bgp-route-type?       enumeration
|   |   |   +--rw bgp-attribute-list
|   |   |   |   +--rw bgp-origin?        enumeration
|   |   |   |   +--rw bgp-aspath
|   |   |   |   |   +--rw usascount?     uint16
|   |   |   |   |   +--rw ulrefcount?    uint16
|   |   |   |   |   +--rw asstring?     string
|   |   |   |   |   +--ro usascountfrcomp? uint16
|   |   |   |   |   +--rw usastotalcount? uint16
|   |   |   |   |   +--rw usas4pathlen?  uint16
|   |   |   |   |   +--rw as4pathvalue?  string
|   |   |   |   +--rw bgp-nexthop?      inet:ip-address
|   |   |   |   +--rw bgp-med?          uint32
|   |   |   |   +--rw bgp-localpref?    uint32
|   |   |   |   +--rw bgp-atomic-aggregate? uint32
|   |   |   |   +--rw bgp-aggregator
|   |   |   |   |   +--rw ulipaddress?   uint32
|   |   |   |   |   +--rw ulasnumber?    uint32
|   |   |   |   +--rw bgp-commattr
|   |   |   |   |   +--rw uscommsize?    uint16
|   |   |   |   |   +--rw ulrefcomm?     uint32
|   |   |   |   |   +--rw commattr-value? string
|   |   |   |   +--rw bgp-extcommattr
|   |   |   |   |   +--rw usextcommsize?  uint16
|   |   |   |   |   +--rw ulrefcount?    uint32
|   |   |   |   |   +--rw extcommattr-value? string
|   |   |   |   +--rw bgp-clusterlist
|   |   |   |   |   +--rw uscluslen?     uint16
|   |   |   |   |   +--rw ulrefclus?     uint32
|   |   |   |   |   +--rw clusterlist-value? string
|   |   |   |   +--rw bgp-originator-id? uint32
|   |   +--ro bgp-route-create?         enumeration
|   |   +--ro bgp-rt-state-info
|   |   |   +--ro rib-current-state?     rib-state-def
|   |   |   +--ro rib-last-state?        rib-state-def
|   |   |   +--ro rib-rejected-reason?    enumeration
|   |   |   +--ro not-preferred-reason?   enumeration
| +--rw bgp-rib-out
|   |   +--rw bgp-rib-out-list* [ipv4-route ipv4-prefix-length]
|   |   |   +--rw ipv4-route            inet:ipv4-prefix

```



```

|         +--rw ipv4-prefix-length      uint8
|         +--rw bgp-route-type?         enumeration
|         +--rw bgp-attribute-list
|         |   +--rw bgp-origin?          enumeration
|         |   +--rw bgp-aspath
|         |   |   +--rw usascount?       uint16
|         |   |   +--rw ulrefcount?     uint16
|         |   |   +--rw asstring?       string
|         |   |   +--ro usascountfrcomp? uint16
|         |   |   +--rw usastotalcount?  uint16
|         |   |   +--rw usas4pathlen?    uint16
|         |   |   +--rw as4pathvalue?    string
|         |   +--rw bgp-nexthop?         inet:ip-address
|         |   +--rw bgp-med?             uint32
|         |   +--rw bgp-localpref?       uint32
|         |   +--rw bgp-atomic-aggregate? uint32
|         |   +--rw bgp-aggregator
|         |   |   +--rw ulipaddress?     uint32
|         |   |   +--rw ulasnumber?     uint32
|         |   +--rw bgp-commattr
|         |   |   +--rw uscommsize?      uint16
|         |   |   +--rw ulrefcomm?      uint32
|         |   |   +--rw commattr-value?  string
|         |   +--rw bgp-extcommattr
|         |   |   +--rw usextcommsize?   uint16
|         |   |   +--rw ulrefcount?     uint32
|         |   |   +--rw extcommattr-value? string
|         |   +--rw bgp-clusterlist
|         |   |   +--rw uscluslen?       uint16
|         |   |   +--rw ulrefclus?      uint32
|         |   |   +--rw clusterlist-value? string
|         |   +--rw bgp-originator-id?  uint32
|         +--ro bgp-route-create?        enumeration
|         +--ro bgp-rt-state-info
|         |   +--ro rib-current-state?   rib-state-def
|         |   +--ro rib-last-state?     rib-state-def
|         |   +--ro rib-rejected-reason? enumeration
|         |   +--ro not-preferred-reason? enumeration
+--rw bgp-labeled-ipv4-instance
|   +--rw bgp-instance-name?    string
|   +--rw bgp-instance-create?  enumeration
|   +--rw bgp-instance-type?    enumeration
|   +--rw bgp-vendor-type?      enumeration
|   +--rw afi?                  afi-def
|   +--rw safi?                  safi-def
|   +--rw bgp-local-rib
|   |   +--rw bgp-route-list* [ipv4-route ipv4-prefix-length mpls-label]
|   |   +--rw ipv4-route        inet:ipv4-prefix

```



```

| | +--rw ipv4-prefix-length      uint8
| | +--rw mpls-label             mpls-label-def
| | +--rw bgp-route-type?       enumeration
| | +--rw bgp-attribute-list
| | | +--rw bgp-origin?         enumeration
| | | +--rw bgp-aspath
| | | | +--rw usascount?        uint16
| | | | +--rw ulrefcount?       uint16
| | | | +--rw asstring?         string
| | | | +--ro usascountfrcomp?  uint16
| | | | +--rw usastotalcount?   uint16
| | | | +--rw usas4pathlen?     uint16
| | | | +--rw as4pathvalue?     string
| | | +--rw bgp-nexthop?        inet:ip-address
| | | +--rw bgp-med?            uint32
| | | +--rw bgp-localpref?      uint32
| | | +--rw bgp-atomic-aggregate? uint32
| | | +--rw bgp-aggregator
| | | | +--rw ulipaddress?      uint32
| | | | +--rw ulasnumber?      uint32
| | | +--rw bgp-commattr
| | | | +--rw uscommsize?       uint16
| | | | +--rw ulrefcomm?       uint32
| | | | +--rw commattr-value?  string
| | | +--rw bgp-extcommattr
| | | | +--rw usextcommsize?    uint16
| | | | +--rw ulrefcount?      uint32
| | | | +--rw extcommattr-value? string
| | | +--rw bgp-clusterlist
| | | | +--rw uscluslen?        uint16
| | | | +--rw ulrefclus?       uint32
| | | | +--rw clusterlist-value? string
| | | +--rw bgp-originator-id? uint32
| | +--ro bgp-route-create?     enumeration
| | +--ro bgp-rt-state-info
| | | +--ro rib-current-state?  rib-state-def
| | | +--ro rib-last-state?     rib-state-def
| | | +--ro rib-rejected-reason? enumeration
| | | +--ro not-preferred-reason? enumeration
| +--rw bgp-peer-list* [bgp-peer-name]
| | +--rw peer-session-address
| | | +--rw local-ipv4-address?  inet:ipv4-prefix
| | | +--rw remote-ipv4-address? inet:ipv4-prefix
| | +--rw bgp-peer-name         string
| | +--ro bgp-peer-type?        enumeration
| | +--ro bgp-peer-create?      enumeration
| +--rw bgp-policy-in
| +--rw bgp-policy-out

```



```

|      +---ro peer-policy-in-pset
|      +---ro peer-policy-out-pset
|      +---rw peer-state-info
|      |      +---ro peer-current-state?          peer-state
|      |      +---ro peer-last-state?             peer-state
|      |      +---ro peer-down-reason
|      |      |      +---ro error-code?           enumeration
|      |      |      +---ro sub-error-code
|      |      |      |      +---ro (sub-error-code-type)?
|      |      |      |      |      +---:(head-error-sub-code)
|      |      |      |      |      |      +---ro head-error-sub-value?          enumeration
|      |      |      |      |      |      +---:(open-error-sub-code)
|      |      |      |      |      |      |      +---ro open-error-sub-value?          enumeration
|      |      |      |      |      |      |      +---:(update-error-sub-code)
|      |      |      |      |      |      |      |      +---ro update-error-sub-value?          enumeration
|      |      |      |      |      |      |      |      +---:(route-refresh-error-sub-code)
|      |      |      |      |      |      |      |      |      +---ro route-refresh-error-sub-value?          enumeration
|      |      +---ro peer-received-update-cnt?    uint64
|      |      +---ro peer-transmit-update-cnt?    uint64
|      |      +---ro peer-received-route-cnt?     uint64
|      |      +---ro peer-send-route-cnt?         uint64
|      |      +---rw max-prefix-rcv-limit?        uint64
|      |      +---rw max-prefix-xmt-limit?        uint64
|      |      +---ro peer-prefix-high?           uint64
|      |      +---ro peer-prefix-low?            uint64
|      |      +---ro peer-perfix-ave?             uint64
|      |      +---ro peer-prefix-time?           uint64
|      |      +---ro peer-prefix-max?            uint64
|      |      +---ro publish-version?            uint64
|      +---rw bgp-rib-in
|      |      +---rw bgp-rib-in-list* [ipv4-route ipv4-prefix-length mpls-
label]
|      |      |      +---rw ipv4-route            inet:ipv4-prefix
|      |      |      +---rw ipv4-prefix-length    uint8
|      |      |      +---rw mpls-label            mpls-label-def
|      |      |      +---rw bgp-route-type?       enumeration
|      |      |      +---rw bgp-attribute-list
|      |      |      |      +---rw bgp-origin?          enumeration
|      |      |      |      +---rw bgp-aspath
|      |      |      |      |      +---rw usascount?      uint16
|      |      |      |      |      +---rw ulrefcount?     uint16
|      |      |      |      |      +---rw asstring?       string
|      |      |      |      |      +---ro usascountfrcomp? uint16
|      |      |      |      |      +---rw usastotalcount? uint16
|      |      |      |      |      +---rw usas4pathlen?   uint16
|      |      |      |      |      +---rw as4pathvalue?   string
|      |      |      |      +---rw bgp-nexthop?          inet:ip-address
|      |      |      +---rw bgp-med?                  uint32

```

| | | +--rw bgp-localpref? uint32

```

|         |         | +--rw bgp-atomic-aggregate?  uint32
|         |         | +--rw bgp-aggregator
|         |         | | +--rw ulipaddress?  uint32
|         |         | | +--rw ulasnumber?   uint32
|         |         | +--rw bgp-commattr
|         |         | | +--rw uscommsize?      uint16
|         |         | | +--rw ulrefcomm?      uint32
|         |         | | +--rw commattr-value?  string
|         |         | +--rw bgp-extcommattr
|         |         | | +--rw usextcommsize?    uint16
|         |         | | +--rw ulrefcount?      uint32
|         |         | | +--rw extcommattr-value? string
|         |         | +--rw bgp-clusterlist
|         |         | | +--rw uscluslen?      uint16
|         |         | | +--rw ulrefclus?      uint32
|         |         | | +--rw clusterlist-value? string
|         |         | +--rw bgp-originator-id? uint32
|         | +--ro bgp-route-create?  enumeration
|         | +--ro bgp-rt-state-info
|         |   +--ro rib-current-state?  rib-state-def
|         |   +--ro rib-last-state?     rib-state-def
|         |   +--ro rib-rejected-reason? enumeration
|         |   +--ro not-preferred-reason? enumeration
| +--rw bgp-rib-out
|   +--rw bgp-rib-out-list* [ipv4-route ipv4-prefix-length mpls-
label]
|     +--rw ipv4-route          inet:ipv4-prefix
|     +--rw ipv4-prefix-length  uint8
|     +--rw mpls-label          mpls-label-def
|     +--rw bgp-route-type?     enumeration
|     +--rw bgp-attribute-list
|     | +--rw bgp-origin?       enumeration
|     | +--rw bgp-aspath
|     | | +--rw usascount?      uint16
|     | | +--rw ulrefcount?     uint16
|     | | +--rw asstring?       string
|     | | +--ro usascountfrcomp? uint16
|     | | +--rw usastotalcount?  uint16
|     | | +--rw usas4pathlen?   uint16
|     | | +--rw as4pathvalue?   string
|     | +--rw bgp-nexthop?      inet:ip-address
|     | +--rw bgp-med?          uint32
|     | +--rw bgp-localpref?    uint32
|     | +--rw bgp-atomic-aggregate? uint32
|     | +--rw bgp-aggregator
|     | | +--rw ulipaddress?    uint32
|     | | +--rw ulasnumber?     uint32
|     | +--rw bgp-commattr

```

| | +-rw uscommsize? uint16

```

|         | | +--rw ulrefcomm?          uint32
|         | | +--rw commattr-value?    string
|         | +--rw bgp-extcommattr
|         | | +--rw usextcommsize?      uint16
|         | | +--rw ulrefcount?        uint32
|         | | +--rw extcommattr-value?  string
|         | +--rw bgp-clusterlist
|         | | +--rw uscluslen?          uint16
|         | | +--rw ulrefclus?         uint32
|         | | +--rw clusterlist-value?  string
|         | +--rw bgp-originator-id?   uint32
|         +--ro bgp-route-create?       enumeration
|         +--ro bgp-rt-state-info
|             +--ro rib-current-state?   rib-state-def
|             +--ro rib-last-state?      rib-state-def
|             +--ro rib-rejected-reason?  enumeration
|             +--ro not-preferred-reason? enumeration
+--rw bgp-ipv4-multi-instance
|   +--rw bgp-instance-name?            string
|   +--rw bgp-instance-create?          enumeration
|   +--rw bgp-instance-type?            enumeration
|   +--rw bgp-vendor-type?              enumeration
|   +--rw afi?                          afi-def
|   +--rw safi?                         safi-def
|   +--rw bgp-local-rib
|     +--rw bgp-route-list* [ipv4-route ipv4-prefix-length]
|     |   +--rw ipv4-route              inet:ipv4-prefix
|     |   +--rw ipv4-prefix-length      uint8
|     |   +--rw bgp-route-type?         enumeration
|     |   +--rw bgp-attribute-list
|     |     +--rw bgp-origin?           enumeration
|     |     +--rw bgp-aspath
|     |       +--rw usascount?          uint16
|     |       +--rw ulrefcount?        uint16
|     |       +--rw asstring?          string
|     |       +--ro usascountfrcomp?    uint16
|     |       +--rw usastotalcount?     uint16
|     |       +--rw usas4pathlen?      uint16
|     |       +--rw as4pathvalue?      string
|     |     +--rw bgp-nexthop?          inet:ip-address
|     |     +--rw bgp-med?              uint32
|     |     +--rw bgp-localpref?       uint32
|     |     +--rw bgp-atomic-aggregate? uint32
|     |     +--rw bgp-aggregator
|     |       +--rw ulipaddress?        uint32
|     |       +--rw ulasnumber?        uint32
|     |     +--rw bgp-commattr
|     |     +--rw uscommsize?          uint16

```



```

| | | | +--rw ulrefcomm?      uint32
| | | | +--rw commattr-value? string
| | | | +--rw bgp-extcommattr
| | | | | +--rw usextcommsize?   uint16
| | | | | +--rw ulrefcount?     uint32
| | | | | +--rw extcommattr-value? string
| | | | +--rw bgp-clusterlist
| | | | | +--rw uscluslen?      uint16
| | | | | +--rw ulrefclus?     uint32
| | | | | +--rw clusterlist-value? string
| | | | +--rw bgp-originator-id? uint32
| | +--ro bgp-route-create?      enumeration
| | +--ro bgp-rt-state-info
| | | +--ro rib-current-state?    rib-state-def
| | | +--ro rib-last-state?      rib-state-def
| | | +--ro rib-rejected-reason?  enumeration
| | | +--ro not-preferred-reason? enumeration
| +--rw bgp-peer-list* [bgp-peer-name]
| | +--rw peer-session-address
| | | +--rw local-ipv4-address?   inet:ipv4-prefix
| | | +--rw remote-ipv4-address?  inet:ipv4-prefix
| | +--rw bgp-peer-name          string
| | +--ro bgp-peer-type?          enumeration
| | +--ro bgp-peer-create?        enumeration
| | +--rw bgp-policy-in
| | +--rw bgp-policy-out
| | +--ro peer-policy-in-pset
| | +--ro peer-policy-out-pset
| | +--rw peer-state-info
| | | +--ro peer-current-state?    peer-state
| | | +--ro peer-last-state?      peer-state
| | | +--ro peer-down-reason
| | | | +--ro error-code?          enumeration
| | | | +--ro sub-error-code
| | | | | +--ro (sub-error-code-type)?
| | | | | | +--:(head-error-sub-code)
| | | | | | | +--ro head-error-sub-value?      enumeration
| | | | | | | +--:(open-error-sub-code)
| | | | | | | | +--ro open-error-sub-value?    enumeration
| | | | | | | | +--:(update-error-sub-code)
| | | | | | | | +--ro update-error-sub-value?  enumeration
| | | | | | | | +--:(route-refresh-error-sub-code)
| | | | | | | | | +--ro route-refresh-error-sub-value? enumeration
| | | +--ro peer-received-update-cnt?  uint64
| | | +--ro peer-transmit-update-cnt?  uint64
| | | +--ro peer-received-route-cnt?   uint64
| | | +--ro peer-send-route-cnt?      uint64
| | +--rw max-prefix-rcv-limit?      uint64

```



```

|      | +--rw max-prefix-xmt-limit?      uint64
|      | +--ro peer-prefix-high?         uint64
|      | +--ro peer-prefix-low?          uint64
|      | +--ro peer-perfix-ave?           uint64
|      | +--ro peer-prefix-time?          uint64
|      | +--ro peer-prefix-max?           uint64
|      | +--ro publish-version?           uint64
| +--rw bgp-rib-in
|      | +--rw bgp-rib-in-list* [ipv4-route ipv4-prefix-length]
|      |   +--rw ipv4-route               inet:ipv4-prefix
|      |   +--rw ipv4-prefix-length        uint8
|      |   +--rw bgp-route-type?           enumeration
|      |   +--rw bgp-attribute-list
|      |     | +--rw bgp-origin?            enumeration
|      |     | +--rw bgp-aspath
|      |     |   | +--rw usascount?          uint16
|      |     |   | +--rw ulrefcount?         uint16
|      |     |   | +--rw asstring?           string
|      |     |   | +--ro usascountfrcomp?    uint16
|      |     |   | +--rw usastotalcount?     uint16
|      |     |   | +--rw usas4pathlen?       uint16
|      |     |   | +--rw as4pathvalue?       string
|      |     | +--rw bgp-nexthop?            inet:ip-address
|      |     | +--rw bgp-med?                 uint32
|      |     | +--rw bgp-localpref?           uint32
|      |     | +--rw bgp-atomic-aggregate?    uint32
|      |     | +--rw bgp-aggregator
|      |     |   | +--rw ulipaddress?        uint32
|      |     |   | +--rw ulasnumber?         uint32
|      |     | +--rw bgp-commattr
|      |     |   | +--rw uscommsize?          uint16
|      |     |   | +--rw ulrefcomm?          uint32
|      |     |   | +--rw commattr-value?     string
|      |     | +--rw bgp-extcommattr
|      |     |   | +--rw usextcommsize?       uint16
|      |     |   | +--rw ulrefcount?          uint32
|      |     |   | +--rw extcommattr-value?   string
|      |     | +--rw bgp-clusterlist
|      |     |   | +--rw uscluslen?           uint16
|      |     |   | +--rw ulrefclus?          uint32
|      |     |   | +--rw clusterlist-value?   string
|      |     | +--rw bgp-originator-id?      uint32
|      | +--ro bgp-route-create?             enumeration
|      | +--ro bgp-rt-state-info
|      |   +--ro rib-current-state?           rib-state-def
|      |   +--ro rib-last-state?              rib-state-def
|      |   +--ro rib-rejected-reason?          enumeration
|      |   +--ro not-preferred-reason?         enumeration

```



```
|      +--rw bgp-rib-out
|      +--rw bgp-rib-out-list* [ipv4-route ipv4-prefix-length]
|          +--rw ipv4-route          inet:ipv4-prefix
|          +--rw ipv4-prefix-length  uint8
|          +--rw bgp-route-type?     enumeration
|          +--rw bgp-attribute-list
|              | +--rw bgp-origin?      enumeration
|              | +--rw bgp-aspath
|              | | +--rw usascount?     uint16
|              | | +--rw ulrefcount?    uint16
|              | | +--rw asstring?      string
|              | | +--ro usascountfrcomp? uint16
|              | | +--rw usastotalcount? uint16
|              | | +--rw usas4pathlen?  uint16
|              | | +--rw as4pathvalue?  string
|              | +--rw bgp-nexthop?     inet:ip-address
|              | +--rw bgp-med?         uint32
|              | +--rw bgp-localpref?   uint32
|              | +--rw bgp-atomic-aggregate? uint32
|              | +--rw bgp-aggregator
|              | | +--rw ulipaddress?   uint32
|              | | +--rw ulasnumber?    uint32
|              | +--rw bgp-commattr
|              | | +--rw uscommsize?    uint16
|              | | +--rw ulrefcomm?     uint32
|              | | +--rw commattr-value? string
|              | +--rw bgp-extcommattr
|              | | +--rw usextcommsize? uint16
|              | | +--rw ulrefcount?    uint32
|              | | +--rw extcommattr-value? string
|              | +--rw bgp-clusterlist
|              | | +--rw uscluslen?     uint16
|              | | +--rw ulrefclus?     uint32
|              | | +--rw clusterlist-value? string
|              | +--rw bgp-originator-id? uint32
|          +--ro bgp-route-create?     enumeration
|          +--ro bgp-rt-state-info
|              +--ro rib-current-state?  rib-state-def
|              +--ro rib-last-state?     rib-state-def
|              +--ro rib-rejected-reason? enumeration
|              +--ro not-preferred-reason? enumeration
+--rw bgp-vpnv4-instance
|   +--rw bgp-instance-name?  string
|   +--rw bgp-instance-create? enumeration
|   +--rw bgp-instance-type?  enumeration
|   +--rw bgp-vendor-type?    enumeration
|   +--rw afi?                afi-def
|   +--rw safi?               safi-def
```



```

|   +--rw bgp-local-rib
|   |   +--rw bgp-route-list* [ipv4-route ipv4-prefix-length route-
distinguisher]
|   |   |   +--rw ipv4-route                inet:ipv4-prefix
|   |   |   +--rw ipv4-prefix-length        uint8
|   |   |   +--rw mpls-label?               mpls-label-def
|   |   |   +--rw route-distinguisher       route-distinguisher-def
|   |   |   +--rw bgp-route-type?           enumeration
|   |   |   +--rw bgp-attribute-list
|   |   |   |   +--rw bgp-origin?            enumeration
|   |   |   |   +--rw bgp-aspath
|   |   |   |   |   +--rw usascount?         uint16
|   |   |   |   |   +--rw ulrefcount?       uint16
|   |   |   |   |   +--rw asstring?         string
|   |   |   |   |   +--ro usascountfrcomp?  uint16
|   |   |   |   |   +--rw usastotalcount?   uint16
|   |   |   |   |   +--rw usas4pathlen?     uint16
|   |   |   |   |   +--rw as4pathvalue?     string
|   |   |   |   +--rw bgp-nexthop?          inet:ip-address
|   |   |   |   +--rw bgp-med?              uint32
|   |   |   |   +--rw bgp-localpref?        uint32
|   |   |   |   +--rw bgp-atomic-aggregate? uint32
|   |   |   |   +--rw bgp-aggregator
|   |   |   |   |   +--rw ulipaddress?      uint32
|   |   |   |   |   +--rw ulasnumber?       uint32
|   |   |   |   +--rw bgp-commattr
|   |   |   |   |   +--rw uscommsize?        uint16
|   |   |   |   |   +--rw ulrefcomm?        uint32
|   |   |   |   |   +--rw commattr-value?   string
|   |   |   |   +--rw bgp-extcommattr
|   |   |   |   |   +--rw usextcommsize?     uint16
|   |   |   |   |   +--rw ulrefcount?       uint32
|   |   |   |   |   +--rw extcommattr-value? string
|   |   |   |   +--rw bgp-clusterlist
|   |   |   |   |   +--rw uscluslen?        uint16
|   |   |   |   |   +--rw ulrefclus?       uint32
|   |   |   |   |   +--rw clusterlist-value? string
|   |   |   |   +--rw bgp-originator-id?   uint32
|   |   |   +--ro bgp-route-create?         enumeration
|   |   |   +--ro bgp-rt-state-info
|   |   |   |   +--ro rib-current-state?     rib-state-def
|   |   |   |   +--ro rib-last-state?        rib-state-def
|   |   |   |   +--ro rib-rejected-reason?   enumeration
|   |   |   |   +--ro not-preferred-reason?  enumeration
|   +--rw bgp-peer-list* [bgp-peer-name]
|   |   +--rw peer-session-address
|   |   |   +--rw local-ipv4-address?        inet:ipv4-prefix
|   |   |   +--rw remote-ipv4-address?      inet:ipv4-prefix

```

| +--rw bgp-peer-name string

```

|      +--ro bgp-peer-type?          enumeration
|      +--ro bgp-peer-create?        enumeration
|      +--rw bgp-policy-in
|      +--rw bgp-policy-out
|      +--ro peer-policy-in-pset
|      +--ro peer-policy-out-pset
|      +--rw peer-state-info
|      |      +--ro peer-current-state?      peer-state
|      |      +--ro peer-last-state?        peer-state
|      |      +--ro peer-down-reason
|      |      |      +--ro error-code?      enumeration
|      |      |      +--ro sub-error-code
|      |      |      |      +--ro (sub-error-code-type)?
|      |      |      |      |      +--:(head-error-sub-code)
|      |      |      |      |      |      +--ro head-error-sub-value?      enumeration
|      |      |      |      |      |      +--:(open-error-sub-code)
|      |      |      |      |      |      |      +--ro open-error-sub-value?      enumeration
|      |      |      |      |      |      |      +--:(update-error-sub-code)
|      |      |      |      |      |      |      |      +--ro update-error-sub-value?      enumeration
|      |      |      |      |      |      |      |      +--:(route-refresh-error-sub-code)
|      |      |      |      |      |      |      |      |      +--ro route-refresh-error-sub-value?      enumeration
|      |      +--ro peer-received-update-cnt?      uint64
|      |      +--ro peer-transmit-update-cnt?      uint64
|      |      +--ro peer-received-route-cnt?      uint64
|      |      +--ro peer-send-route-cnt?          uint64
|      |      +--rw max-prefix-rcv-limit?         uint64
|      |      +--rw max-prefix-xmt-limit?         uint64
|      |      +--ro peer-prefix-high?            uint64
|      |      +--ro peer-prefix-low?            uint64
|      |      +--ro peer-perfix-ave?             uint64
|      |      +--ro peer-prefix-time?           uint64
|      |      +--ro peer-prefix-max?            uint64
|      |      +--ro publish-version?            uint64
|      +--rw bgp-rib-in
|      |      +--rw bgp-rib-in-list* [ipv4-route ipv4-prefix-length route-
distinguisher]
|      |      |      +--rw ipv4-route            inet:ipv4-prefix
|      |      |      +--rw ipv4-prefix-length    uint8
|      |      |      +--rw mpls-label?          mpls-label-def
|      |      |      +--rw route-distinguisher  route-distinguisher-def
|      |      |      +--rw bgp-route-type?      enumeration
|      |      |      +--rw bgp-attribute-list
|      |      |      |      +--rw bgp-origin?      enumeration
|      |      |      |      +--rw bgp-aspath
|      |      |      |      |      +--rw usascount?      uint16
|      |      |      |      |      +--rw ulrefcount?     uint16
|      |      |      |      |      +--rw asstring?      string
|      |      |      |      |      +--ro usascountfrcomp? uint16

```

| | | |--rw usastotalcount? uint16

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```

|         |         |         | +--rw usas4pathlen?      uint16
|         |         |         | +--rw as4pathvalue?     string
|         |         |         | +--rw bgp-nexthop?      inet:ip-address
|         |         |         | +--rw bgp-med?          uint32
|         |         |         | +--rw bgp-localpref?       uint32
|         |         |         | +--rw bgp-atomic-aggregate?  uint32
|         |         |         | +--rw bgp-aggregator
|         |         |         | | +--rw ulipaddress?      uint32
|         |         |         | | +--rw ulasnumber?       uint32
|         |         |         | +--rw bgp-commattr
|         |         |         | | +--rw uscommsize?        uint16
|         |         |         | | +--rw ulrefcomm?         uint32
|         |         |         | | +--rw commattr-value?     string
|         |         |         | +--rw bgp-extcommattr
|         |         |         | | +--rw usextcommsize?      uint16
|         |         |         | | +--rw ulrefcount?         uint32
|         |         |         | | +--rw extcommattr-value?   string
|         |         |         | +--rw bgp-clusterlist
|         |         |         | | +--rw uscluslen?          uint16
|         |         |         | | +--rw ulrefclus?          uint32
|         |         |         | | +--rw clusterlist-value?   string
|         |         |         | +--rw bgp-originator-id?    uint32
|         |         | +--ro bgp-route-create?               enumeration
|         |         | +--ro bgp-rt-state-info
|         |         | | +--ro rib-current-state?            rib-state-def
|         |         | | +--ro rib-last-state?               rib-state-def
|         |         | | +--ro rib-rejected-reason?           enumeration
|         |         | | +--ro not-preferred-reason?          enumeration
|         | +--rw bgp-rib-out
|         | +--rw bgp-rib-out-list* [ipv4-route ipv4-prefix-length route-
distinguisher]
|         | +--rw ipv4-route                                inet:ipv4-prefix
|         | +--rw ipv4-prefix-length                        uint8
|         | +--rw mpls-label?                                mpls-label-def
|         | +--rw route-distinguisher                       route-distinguisher-def
|         | +--rw bgp-route-type?                           enumeration
|         | +--rw bgp-attribute-list
|         | | +--rw bgp-origin?                              enumeration
|         | | +--rw bgp-aspath
|         | | | +--rw usascount?                             uint16
|         | | | +--rw ulrefcount?                             uint16
|         | | | +--rw asstring?                               string
|         | | | +--ro usascountfrcomp?                       uint16
|         | | | +--rw usastotalcount?                       uint16
|         | | | +--rw usas4pathlen?                         uint16
|         | | | +--rw as4pathvalue?                         string
|         | | +--rw bgp-nexthop?                            inet:ip-address
|         | | +--rw bgp-med?                                  uint32

```

| | +--rw bgp-localpref? uint32

```

|         | +--rw bgp-atomic-aggregate?  uint32
|         | +--rw bgp-aggregator
|         | | +--rw ulipaddress?  uint32
|         | | +--rw ulasnumber?   uint32
|         | +--rw bgp-commattr
|         | | +--rw uscommsize?      uint16
|         | | +--rw ulrefcomm?      uint32
|         | | +--rw commattr-value?  string
|         | +--rw bgp-extcommattr
|         | | +--rw usextcommsize?   uint16
|         | | +--rw ulrefcount?      uint32
|         | | +--rw extcommattr-value? string
|         | +--rw bgp-clusterlist
|         | | +--rw uscluslen?       uint16
|         | | +--rw ulrefclus?       uint32
|         | | +--rw clusterlist-value? string
|         | +--rw bgp-originator-id? uint32
|         +--ro bgp-route-create?      enumeration
|         +--ro bgp-rt-state-info
|             +--ro rib-current-state?  rib-state-def
|             +--ro rib-last-state?     rib-state-def
|             +--ro rib-rejected-reason? enumeration
|             +--ro not-preferred-reason? enumeration
+--rw bgp-ipv4-l3vpn-instance-list* [bgp-l3vpn-instance-name]
|   +--rw bgp-l3vpn-instance-name  string
|   +--rw bgp-instance-name?       string
|   +--rw bgp-instance-create?     enumeration
|   +--rw bgp-instance-type?       enumeration
|   +--rw bgp-vendor-type?         enumeration
|   +--rw afi?                     afi-def
|   +--rw safi?                    safi-def
|   +--rw bgp-local-rib
|     +--rw bgp-route-list* [ipv4-route ipv4-prefix-length]
|     |   +--rw ipv4-route          inet:ipv4-prefix
|     |   +--rw ipv4-prefix-length  uint8
|     |   +--rw bgp-route-type?     enumeration
|     |   +--rw bgp-attribute-list
|     |   |   +--rw bgp-origin?      enumeration
|     |   |   +--rw bgp-aspath
|     |   |   |   +--rw usascount?    uint16
|     |   |   |   +--rw ulrefcount?   uint16
|     |   |   |   +--rw asstring?     string
|     |   |   |   +--ro usascountfrcomp? uint16
|     |   |   |   +--rw usastotalcount? uint16
|     |   |   |   +--rw usas4pathlen?  uint16
|     |   |   |   +--rw as4pathvalue?  string
|     |   |   +--rw bgp-nexthop?      inet:ip-address
|     |   |   +--rw bgp-med?          uint32

```



```

| | | +--rw bgp-localpref?          uint32
| | | +--rw bgp-atomic-aggregate?  uint32
| | | +--rw bgp-aggregator
| | | | +--rw ulipaddress?          uint32
| | | | +--rw ulasnumber?          uint32
| | | +--rw bgp-commattr
| | | | +--rw uscommsize?           uint16
| | | | +--rw ulrefcomm?           uint32
| | | | +--rw commattr-value?      string
| | | +--rw bgp-extcommattr
| | | | +--rw usextcommsize?        uint16
| | | | +--rw ulrefcount?          uint32
| | | | +--rw extcommattr-value?    string
| | | +--rw bgp-clusterlist
| | | | +--rw uscluslen?           uint16
| | | | +--rw ulrefclus?           uint32
| | | | +--rw clusterlist-value?    string
| | | +--rw bgp-originator-id?     uint32
| | +--ro bgp-route-create?         enumeration
| | +--ro bgp-rt-state-info
| | | +--ro rib-current-state?      rib-state-def
| | | +--ro rib-last-state?         rib-state-def
| | | +--ro rib-rejected-reason?    enumeration
| | | +--ro not-preferred-reason?   enumeration
| +--rw bgp-peer-list* [bgp-peer-name]
| | +--rw peer-session-address
| | | +--rw local-ipv4-address?     inet:ipv4-prefix
| | | +--rw remote-ipv4-address?    inet:ipv4-prefix
| | +--rw bgp-peer-name             string
| | +--ro bgp-peer-type?            enumeration
| | +--ro bgp-peer-create?          enumeration
| | +--rw bgp-policy-in
| | +--rw bgp-policy-out
| | +--ro peer-policy-in-pset
| | +--ro peer-policy-out-pset
| | +--rw peer-state-info
| | | +--ro peer-current-state?      peer-state
| | | +--ro peer-last-state?         peer-state
| | | +--ro peer-down-reason
| | | | +--ro error-code?           enumeration
| | | | +--ro sub-error-code
| | | | | +--ro (sub-error-code-type)?
| | | | | | +--:(head-error-sub-code)
| | | | | | | +--ro head-error-sub-value?      enumeration
| | | | | | +--:(open-error-sub-code)
| | | | | | | +--ro open-error-sub-value?      enumeration
| | | | | | +--:(update-error-sub-code)
| | | | | | | +--ro update-error-sub-value?    enumeration

```



```

| | +--:(route-refresh-error-sub-code)
| | | +--ro route-refresh-error-sub-value? enumeration
| +--ro peer-received-update-cnt? uint64
| +--ro peer-transmit-update-cnt? uint64
| +--ro peer-received-route-cnt? uint64
| +--ro peer-send-route-cnt? uint64
| +--rw max-prefix-rcv-limit? uint64
| +--rw max-prefix-xmt-limit? uint64
| +--ro peer-prefix-high? uint64
| +--ro peer-prefix-low? uint64
| +--ro peer-perfix-ave? uint64
| +--ro peer-prefix-time? uint64
| +--ro peer-prefix-max? uint64
| +--ro publish-version? uint64
+--rw bgp-rib-in
| +--rw bgp-rib-in-list* [ipv4-route ipv4-prefix-length]
| | +--rw ipv4-route inet:ipv4-prefix
| | +--rw ipv4-prefix-length uint8
| | +--rw bgp-route-type? enumeration
| | +--rw bgp-attribute-list
| | | +--rw bgp-origin? enumeration
| | | +--rw bgp-aspath
| | | | +--rw usascount? uint16
| | | | +--rw ulrefcount? uint16
| | | | +--rw asstring? string
| | | | +--ro usascountfrcomp? uint16
| | | | +--rw usastotalcount? uint16
| | | | +--rw usas4pathlen? uint16
| | | | +--rw as4pathvalue? string
| | | +--rw bgp-nexthop? inet:ip-address
| | | +--rw bgp-med? uint32
| | | +--rw bgp-localpref? uint32
| | | +--rw bgp-atomic-aggregate? uint32
| | | +--rw bgp-aggregator
| | | | +--rw ulipaddress? uint32
| | | | +--rw ulasnumber? uint32
| | | +--rw bgp-commattr
| | | | +--rw uscommsize? uint16
| | | | +--rw ulrefcomm? uint32
| | | | +--rw commattr-value? string
| | | +--rw bgp-extcommattr
| | | | +--rw usextcommsize? uint16
| | | | +--rw ulrefcount? uint32
| | | | +--rw extcommattr-value? string
| | | +--rw bgp-clusterlist
| | | | +--rw uscluslen? uint16
| | | | +--rw ulrefclus? uint32
| | | | +--rw clusterlist-value? string

```



```

|         | +--rw bgp-originator-id?      uint32
|         | +--ro bgp-route-create?      enumeration
|         | +--ro bgp-rt-state-info
|         |     +--ro rib-current-state?  rib-state-def
|         |     +--ro rib-last-state?    rib-state-def
|         |     +--ro rib-rejected-reason? enumeration
|         |     +--ro not-preferred-reason? enumeration
| +--rw bgp-rib-out
|     +--rw bgp-rib-out-list* [ipv4-route ipv4-prefix-length]
|         +--rw ipv4-route                inet:ipv4-prefix
|         +--rw ipv4-prefix-length        uint8
|         +--rw bgp-route-type?          enumeration
|         +--rw bgp-attribute-list
|             | +--rw bgp-origin?          enumeration
|             | +--rw bgp-aspath
|             | | +--rw usascount?          uint16
|             | | +--rw ulrefcount?        uint16
|             | | +--rw asstring?          string
|             | | +--ro usascountfrcomp?    uint16
|             | | +--rw usastotalcount?    uint16
|             | | +--rw usas4pathlen?      uint16
|             | | +--rw as4pathvalue?      string
|             | +--rw bgp-nexthop?         inet:ip-address
|             | +--rw bgp-med?             uint32
|             | +--rw bgp-localpref?       uint32
|             | +--rw bgp-atomic-aggregate? uint32
|             | +--rw bgp-aggregator
|             | | +--rw ulipaddress?        uint32
|             | | +--rw ulasnumber?        uint32
|             | +--rw bgp-commattr
|             | | +--rw uscommsize?         uint16
|             | | +--rw ulrefcomm?         uint32
|             | | +--rw commattr-value?    string
|             | +--rw bgp-extcommattr
|             | | +--rw usextcommsize?     uint16
|             | | +--rw ulrefcount?        uint32
|             | | +--rw extcommattr-value? string
|             | +--rw bgp-clusterlist
|             | | +--rw uscluslen?         uint16
|             | | +--rw ulrefclus?         uint32
|             | | +--rw clusterlist-value? string
|             | +--rw bgp-originator-id?  uint32
|         +--ro bgp-route-create?          enumeration
|         +--ro bgp-rt-state-info
|             +--ro rib-current-state?     rib-state-def
|             +--ro rib-last-state?       rib-state-def
|             +--ro rib-rejected-reason?   enumeration
|             +--ro not-preferred-reason?   enumeration

```



```

+--rw bgp-ipv6-uni-instance
| +--rw bgp-instance-name?      string
| +--rw bgp-instance-create?    enumeration
| +--rw bgp-instance-type?      enumeration
| +--rw bgp-vendor-type?        enumeration
| +--rw afi?                    afi-def
| +--rw safi?                   safi-def
| +--rw bgp-local-rib
| | +--rw bgp-route-list* [ipv6-route ipv6-prefix-length]
| | | +--rw ipv6-route          inet:ipv6-prefix
| | | +--rw ipv6-prefix-length  uint8
| | | +--rw bgp-route-type?     enumeration
| | | +--rw bgp-attribute-list
| | | | +--rw bgp-origin?       enumeration
| | | | +--rw bgp-aspath
| | | | | +--rw usascount?       uint16
| | | | | +--rw ulrefcount?     uint16
| | | | | +--rw asstring?       string
| | | | | +--ro usascountfrcomp? uint16
| | | | | +--rw usastotalcount?  uint16
| | | | | +--rw usas4pathlen?   uint16
| | | | | +--rw as4pathvalue?   string
| | | | +--rw bgp-nexthop?      inet:ip-address
| | | | +--rw bgp-med?          uint32
| | | | +--rw bgp-localpref?    uint32
| | | | +--rw bgp-atomic-aggregate? uint32
| | | | +--rw bgp-aggregator
| | | | | +--rw ulipaddress?     uint32
| | | | | +--rw ulasnumber?     uint32
| | | | +--rw bgp-commattr
| | | | | +--rw uscommsize?      uint16
| | | | | +--rw ulrefcomm?      uint32
| | | | | +--rw commattr-value?  string
| | | | +--rw bgp-extcommattr
| | | | | +--rw usextcommsize?   uint16
| | | | | +--rw ulrefcount?     uint32
| | | | | +--rw extcommattr-value? string
| | | | +--rw bgp-clusterlist
| | | | | +--rw uscluslen?       uint16
| | | | | +--rw ulrefclus?      uint32
| | | | | +--rw clusterlist-value? string
| | | | +--rw bgp-originator-id? uint32
| | | +--ro bgp-route-create?    enumeration
| | +--ro bgp-rt-state-info
| | | +--ro rib-current-state?    rib-state-def
| | | +--ro rib-last-state?       rib-state-def
| | | +--ro rib-rejected-reason?  enumeration
| | | +--ro not-preferred-reason? enumeration

```



```

|  +--rw bgp-peer-list* [bgp-peer-name]
|  |  +--rw peer-session-address
|  |  |  +--rw local-ipv6-address?    inet:ipv6-prefix
|  |  |  +--rw remote-ipv6-address?   inet:ipv6-prefix
|  |  +--rw bgp-peer-name             string
|  |  +--ro bgp-peer-type?             enumeration
|  |  +--ro bgp-peer-create?          enumeration
|  |  +--rw bgp-policy-in
|  |  +--rw bgp-policy-out
|  |  +--ro peer-policy-in-pset
|  |  +--ro peer-policy-out-pset
|  |  +--rw peer-state-info
|  |  |  +--ro peer-current-state?     peer-state
|  |  |  +--ro peer-last-state?       peer-state
|  |  |  +--ro peer-down-reason
|  |  |  |  +--ro error-code?          enumeration
|  |  |  |  +--ro sub-error-code
|  |  |  |  |  +--ro (sub-error-code-type)?
|  |  |  |  |  |  +--:(head-error-sub-code)
|  |  |  |  |  |  |  +--ro head-error-sub-value?      enumeration
|  |  |  |  |  |  +--:(open-error-sub-code)
|  |  |  |  |  |  |  +--ro open-error-sub-value?      enumeration
|  |  |  |  |  |  +--:(update-error-sub-code)
|  |  |  |  |  |  |  +--ro update-error-sub-value?    enumeration
|  |  |  |  |  |  +--:(route-refresh-error-sub-code)
|  |  |  |  |  |  |  +--ro route-refresh-error-sub-value? enumeration
|  |  |  +--ro peer-received-update-cnt?  uint64
|  |  |  +--ro peer-transmit-update-cnt?   uint64
|  |  |  +--ro peer-received-route-cnt?    uint64
|  |  |  +--ro peer-send-route-cnt?        uint64
|  |  |  +--rw max-prefix-rcv-limit?       uint64
|  |  |  +--rw max-prefix-xmt-limit?       uint64
|  |  |  +--ro peer-prefix-high?           uint64
|  |  |  +--ro peer-prefix-low?            uint64
|  |  |  +--ro peer-perfix-ave?             uint64
|  |  |  +--ro peer-prefix-time?           uint64
|  |  |  +--ro peer-prefix-max?            uint64
|  |  |  +--ro publish-version?            uint64
|  |  +--rw bgp-rib-in
|  |  |  +--rw bgp-rib-in-list* [ipv6-route ipv6-prefix-length]
|  |  |  |  +--rw ipv6-route             inet:ipv6-prefix
|  |  |  |  +--rw ipv6-prefix-length     uint8
|  |  |  |  +--rw bgp-route-type?        enumeration
|  |  |  |  +--rw bgp-attribute-list
|  |  |  |  |  +--rw bgp-origin?          enumeration
|  |  |  |  |  +--rw bgp-aspath
|  |  |  |  |  |  +--rw usascount?        uint16
|  |  |  |  |  |  +--rw ulrefcount?       uint16

```



```

|         |         |         | +--rw asstring?          string
|         |         |         | +--ro usascountfrcomp?  uint16
|         |         |         | +--rw usastotalcount?   uint16
|         |         |         | +--rw usas4pathlen?     uint16
|         |         |         | +--rw as4pathvalue?      string
|         |         |         | +--rw bgp-nexthop?        inet:ip-address
|         |         |         | +--rw bgp-med?            uint32
|         |         |         | +--rw bgp-localpref?        uint32
|         |         |         | +--rw bgp-atomic-aggregate?  uint32
|         |         |         | +--rw bgp-aggregator
|         |         |         | | +--rw ulipaddress?      uint32
|         |         |         | | +--rw ulasnumber?      uint32
|         |         |         | +--rw bgp-commattr
|         |         |         | | +--rw uscommsize?        uint16
|         |         |         | | +--rw ulrefcomm?         uint32
|         |         |         | | +--rw commattr-value?    string
|         |         |         | +--rw bgp-extcommattr
|         |         |         | | +--rw usextcommsize?      uint16
|         |         |         | | +--rw ulrefcount?         uint32
|         |         |         | | +--rw extcommattr-value?  string
|         |         |         | +--rw bgp-clusterlist
|         |         |         | | +--rw uscluslen?          uint16
|         |         |         | | +--rw ulrefclus?          uint32
|         |         |         | | +--rw clusterlist-value?  string
|         |         |         | +--rw bgp-originator-id?    uint32
|         |         | +--ro bgp-route-create?               enumeration
|         |         | +--ro bgp-rt-state-info
|         |         |     +--ro rib-current-state?          rib-state-def
|         |         |     +--ro rib-last-state?             rib-state-def
|         |         |     +--ro rib-rejected-reason?         enumeration
|         |         |     +--ro not-preferred-reason?        enumeration
|         | +--rw bgp-rib-out
|         |     +--rw bgp-rib-out-list* [ipv6-route ipv6-prefix-length]
|         |         +--rw ipv6-route                        inet:ipv6-prefix
|         |         +--rw ipv6-prefix-length                uint8
|         |         +--rw bgp-route-type?                   enumeration
|         |         +--rw bgp-attribute-list
|         |         | +--rw bgp-origin?                     enumeration
|         |         | +--rw bgp-aspath
|         |         | | +--rw usascount?                     uint16
|         |         | | +--rw ulrefcount?                    uint16
|         |         | | +--rw asstring?                      string
|         |         | | +--ro usascountfrcomp?              uint16
|         |         | | +--rw usastotalcount?                uint16
|         |         | | +--rw usas4pathlen?                  uint16
|         |         | | +--rw as4pathvalue?                  string
|         |         | +--rw bgp-nexthop?                    inet:ip-address
|         |         | +--rw bgp-med?                        uint32

```



```

|         | +--rw bgp-localpref?          uint32
|         | +--rw bgp-atomic-aggregate?   uint32
|         | +--rw bgp-aggregator
|         | | +--rw ulipaddress?          uint32
|         | | +--rw ulasnumber?          uint32
|         | +--rw bgp-commattr
|         | | +--rw uscommsize?           uint16
|         | | +--rw ulrefcomm?           uint32
|         | | +--rw commattr-value?      string
|         | +--rw bgp-extcommattr
|         | | +--rw usextcommsize?        uint16
|         | | +--rw ulrefcount?          uint32
|         | | +--rw extcommattr-value?    string
|         | +--rw bgp-clusterlist
|         | | +--rw uscluslen?           uint16
|         | | +--rw ulrefclus?           uint32
|         | | +--rw clusterlist-value?    string
|         | +--rw bgp-originator-id?     uint32
|         +--ro bgp-route-create?         enumeration
|         +--ro bgp-rt-state-info
|             +--ro rib-current-state?     rib-state-def
|             +--ro rib-last-state?        rib-state-def
|             +--ro rib-rejected-reason?    enumeration
|             +--ro not-preferred-reason?   enumeration
+--rw bgp-labeled-ipv6-instance
|   +--rw bgp-instance-name?              string
|   +--rw bgp-instance-create?            enumeration
|   +--rw bgp-instance-type?              enumeration
|   +--rw bgp-vendor-type?                enumeration
|   +--rw afi?                            afi-def
|   +--rw safi?                            safi-def
|   +--rw bgp-local-rib
|     +--rw bgp-route-list* [ipv6-route ipv6-prefix-length mpls-label]
|     |   +--rw ipv6-route                  inet:ipv6-prefix
|     |   +--rw ipv6-prefix-length          uint8
|     |   +--rw mpls-label                  mpls-label-def
|     |   +--rw bgp-route-type?            enumeration
|     |   +--rw bgp-attribute-list
|     |     | +--rw bgp-origin?              enumeration
|     |     | +--rw bgp-aspath
|     |     | | +--rw usascount?             uint16
|     |     | | +--rw ulrefcount?            uint16
|     |     | | +--rw asstring?              string
|     |     | | +--ro usascountfrcomp?       uint16
|     |     | | +--rw usastotalcount?        uint16
|     |     | | +--rw usas4pathlen?          uint16
|     |     | | +--rw as4pathvalue?          string
|     |     +--rw bgp-nexthop?              inet:ip-address

```



```

| | | +--rw bgp-med? uint32
| | | +--rw bgp-localpref? uint32
| | | +--rw bgp-atomic-aggregate? uint32
| | | +--rw bgp-aggregator
| | | | +--rw ulipaddress? uint32
| | | | +--rw ulasnumber? uint32
| | | +--rw bgp-commattr
| | | | +--rw uscommsize? uint16
| | | | +--rw ulrefcomm? uint32
| | | | +--rw commattr-value? string
| | | +--rw bgp-extcommattr
| | | | +--rw usextcommsize? uint16
| | | | +--rw ulrefcount? uint32
| | | | +--rw extcommattr-value? string
| | | +--rw bgp-clusterlist
| | | | +--rw uscluslen? uint16
| | | | +--rw ulrefclus? uint32
| | | | +--rw clusterlist-value? string
| | | +--rw bgp-originator-id? uint32
| | +--ro bgp-route-create? enumeration
| | +--ro bgp-rt-state-info
| | | +--ro rib-current-state? rib-state-def
| | | +--ro rib-last-state? rib-state-def
| | | +--ro rib-rejected-reason? enumeration
| | | +--ro not-preferred-reason? enumeration
| +--rw bgp-peer-list* [bgp-peer-name]
| | +--rw peer-session-address
| | | +--rw local-ipv6-address? inet:ipv6-prefix
| | | +--rw remote-ipv6-address? inet:ipv6-prefix
| | +--rw bgp-peer-name string
| | +--ro bgp-peer-type? enumeration
| | +--ro bgp-peer-create? enumeration
| | +--rw bgp-policy-in
| | +--rw bgp-policy-out
| | +--ro peer-policy-in-pset
| | +--ro peer-policy-out-pset
| | +--rw peer-state-info
| | | +--ro peer-current-state? peer-state
| | | +--ro peer-last-state? peer-state
| | | +--ro peer-down-reason
| | | | +--ro error-code? enumeration
| | | | +--ro sub-error-code
| | | | | +--ro (sub-error-code-type)?
| | | | | | +--:(head-error-sub-code)
| | | | | | | +--ro head-error-sub-value? enumeration
| | | | | | +--:(open-error-sub-code)
| | | | | | | +--ro open-error-sub-value? enumeration
| | | | | | +--:(update-error-sub-code)

```



```

|         |         |         | +--ro update-error-sub-value?      enumeration
|         |         |         | +--:(route-refresh-error-sub-code)
|         |         |         | +--ro route-refresh-error-sub-value?  enumeration
|         | +--ro peer-received-update-cnt?  uint64
|         | +--ro peer-transmit-update-cnt?   uint64
|         | +--ro peer-received-route-cnt?   uint64
|         | +--ro peer-send-route-cnt?       uint64
|         | +--rw max-prefix-rcv-limit?      uint64
|         | +--rw max-prefix-xmt-limit?      uint64
|         | +--ro peer-prefix-high?         uint64
|         | +--ro peer-prefix-low?          uint64
|         | +--ro peer-perfix-ave?          uint64
|         | +--ro peer-prefix-time?         uint64
|         | +--ro peer-prefix-max?          uint64
|         | +--ro publish-version?          uint64
| +--rw bgp-rib-in
|   +--rw bgp-rib-in-list* [ipv6-route ipv6-prefix-length mpls-
label]
|     +--rw ipv6-route          inet:ipv6-prefix
|     +--rw ipv6-prefix-length  uint8
|     +--rw mpls-label          mpls-label-def
|     +--rw bgp-route-type?     enumeration
|     +--rw bgp-attribute-list
|       +--rw bgp-origin?       enumeration
|       +--rw bgp-aspath
|         +--rw usascount?      uint16
|         +--rw ulrefcount?     uint16
|         +--rw asstring?       string
|         +--ro usascountfrcomp? uint16
|         +--rw usastotalcount? uint16
|         +--rw usas4pathlen?   uint16
|         +--rw as4pathvalue?   string
|       +--rw bgp-nexthop?      inet:ip-address
|       +--rw bgp-med?          uint32
|       +--rw bgp-localpref?    uint32
|       +--rw bgp-atomic-aggregate? uint32
|       +--rw bgp-aggregator
|         +--rw ulipaddress?    uint32
|         +--rw ulasnumber?     uint32
|       +--rw bgp-commattr
|         +--rw uscommsize?      uint16
|         +--rw ulrefcomm?      uint32
|         +--rw commattr-value? string
|       +--rw bgp-extcommattr
|         +--rw usextcommsize?   uint16
|         +--rw ulrefcount?     uint32
|         +--rw extcommattr-value? string
|       +--rw bgp-clusterlist

```

| | | +-rw uscluslen? uint16

```

|         |         |         | +--rw ulrefclus?          uint32
|         |         |         | +--rw clusterlist-value?  string
|         |         |         | +--rw bgp-originator-id?    uint32
|         |         | +--ro bgp-route-create?      enumeration
|         |         | +--ro bgp-rt-state-info
|         |         |         | +--ro rib-current-state?      rib-state-def
|         |         |         | +--ro rib-last-state?         rib-state-def
|         |         |         | +--ro rib-rejected-reason?    enumeration
|         |         |         | +--ro not-preferred-reason?   enumeration
|         | +--rw bgp-rib-out
|         |         | +--rw bgp-rib-out-list* [ipv6-route ipv6-prefix-length mpls-
label]
|         |         | +--rw ipv6-route                inet:ipv6-prefix
|         |         | +--rw ipv6-prefix-length         uint8
|         |         | +--rw mpls-label                 mpls-label-def
|         |         | +--rw bgp-route-type?           enumeration
|         |         | +--rw bgp-attribute-list
|         |         |         | +--rw bgp-origin?        enumeration
|         |         |         | +--rw bgp-aspath
|         |         |         |         | +--rw usascount?    uint16
|         |         |         |         | +--rw ulrefcount?   uint16
|         |         |         |         | +--rw asstring?     string
|         |         |         |         | +--ro usascountfrcomp? uint16
|         |         |         |         | +--rw usastotalcount? uint16
|         |         |         |         | +--rw usas4pathlen?  uint16
|         |         |         |         | +--rw as4pathvalue?  string
|         |         |         | +--rw bgp-nexthop?          inet:ip-address
|         |         |         | +--rw bgp-med?              uint32
|         |         |         | +--rw bgp-localpref?        uint32
|         |         |         | +--rw bgp-atomic-aggregate?  uint32
|         |         |         | +--rw bgp-aggregator
|         |         |         |         | +--rw ulipaddress?  uint32
|         |         |         |         | +--rw ulasnumber?   uint32
|         |         |         | +--rw bgp-commattr
|         |         |         |         | +--rw uscommsize?    uint16
|         |         |         |         | +--rw ulrefcomm?     uint32
|         |         |         |         | +--rw commattr-value? string
|         |         |         | +--rw bgp-extcommattr
|         |         |         |         | +--rw usextcommsize?  uint16
|         |         |         |         | +--rw ulrefcount?     uint32
|         |         |         |         | +--rw extcommattr-value? string
|         |         |         | +--rw bgp-clusterlist
|         |         |         |         | +--rw uscluslen?     uint16
|         |         |         |         | +--rw ulrefclus?     uint32
|         |         |         |         | +--rw clusterlist-value? string
|         |         |         | +--rw bgp-originator-id?    uint32
|         |         | +--ro bgp-route-create?      enumeration
|         |         | +--ro bgp-rt-state-info

```

| +--ro rib-current-state? rib-state-def

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```

|           +--ro rib-last-state?          rib-state-def
|           +--ro rib-rejected-reason?     enumeration
|           +--ro not-preferred-reason?    enumeration
+--rw bgp-ipv6-multi-instance
|   +--rw bgp-instance-name?              string
|   +--rw bgp-instance-create?            enumeration
|   +--rw bgp-instance-type?              enumeration
|   +--rw bgp-vendor-type?                enumeration
|   +--rw afi?                            afi-def
|   +--rw safi?                            safi-def
|   +--rw bgp-local-rib
|   |   +--rw bgp-route-list* [ipv6-route ipv6-prefix-length]
|   |   |   +--rw ipv6-route                inet:ipv6-prefix
|   |   |   +--rw ipv6-prefix-length        uint8
|   |   |   +--rw bgp-route-type?          enumeration
|   |   |   +--rw bgp-attribute-list
|   |   |   |   +--rw bgp-origin?            enumeration
|   |   |   |   +--rw bgp-aspath
|   |   |   |   |   +--rw usascount?          uint16
|   |   |   |   |   +--rw ulrefcount?        uint16
|   |   |   |   |   +--rw asstring?          string
|   |   |   |   |   +--ro usascountfrcomp?    uint16
|   |   |   |   |   +--rw usastotalcount?    uint16
|   |   |   |   |   +--rw usas4pathlen?      uint16
|   |   |   |   |   +--rw as4pathvalue?      string
|   |   |   |   +--rw bgp-nexthop?          inet:ip-address
|   |   |   |   +--rw bgp-med?              uint32
|   |   |   |   +--rw bgp-localpref?        uint32
|   |   |   |   +--rw bgp-atomic-aggregate?  uint32
|   |   |   |   +--rw bgp-aggregator
|   |   |   |   |   +--rw ulipaddress?      uint32
|   |   |   |   |   +--rw ulasnumber?      uint32
|   |   |   |   +--rw bgp-commattr
|   |   |   |   |   +--rw uscommsize?        uint16
|   |   |   |   |   +--rw ulrefcomm?        uint32
|   |   |   |   |   +--rw commattr-value?   string
|   |   |   |   +--rw bgp-extcommattr
|   |   |   |   |   +--rw usextcommsize?     uint16
|   |   |   |   |   +--rw ulrefcount?       uint32
|   |   |   |   |   +--rw extcommattr-value? string
|   |   |   |   +--rw bgp-clusterlist
|   |   |   |   |   +--rw uscluslen?        uint16
|   |   |   |   |   +--rw ulrefclus?       uint32
|   |   |   |   |   +--rw clusterlist-value? string
|   |   |   |   +--rw bgp-originator-id?    uint32
|   |   +--ro bgp-route-create?            enumeration
|   |   +--ro bgp-rt-state-info
|   |   +--ro rib-current-state?          rib-state-def

```



```

| |      +--ro rib-last-state?      rib-state-def
| |      +--ro rib-rejected-reason?  enumeration
| |      +--ro not-preferred-reason? enumeration
| +--rw bgp-peer-list* [bgp-peer-name]
|   +--rw peer-session-address
|   |   +--rw local-ipv6-address?    inet:ipv6-prefix
|   |   +--rw remote-ipv6-address?  inet:ipv6-prefix
|   +--rw bgp-peer-name              string
|   +--ro bgp-peer-type?              enumeration
|   +--ro bgp-peer-create?            enumeration
|   +--rw bgp-policy-in
|   +--rw bgp-policy-out
|   +--ro peer-policy-in-pset
|   +--ro peer-policy-out-pset
|   +--rw peer-state-info
|   |   +--ro peer-current-state?      peer-state
|   |   +--ro peer-last-state?         peer-state
|   |   +--ro peer-down-reason
|   |   |   +--ro error-code?          enumeration
|   |   |   +--ro sub-error-code
|   |   |   |   +--ro (sub-error-code-type)?
|   |   |   |   |   +--:(head-error-sub-code)
|   |   |   |   |   |   +--ro head-error-sub-value?      enumeration
|   |   |   |   |   +--:(open-error-sub-code)
|   |   |   |   |   |   +--ro open-error-sub-value?      enumeration
|   |   |   |   |   +--:(update-error-sub-code)
|   |   |   |   |   |   +--ro update-error-sub-value?    enumeration
|   |   |   |   |   +--:(route-refresh-error-sub-code)
|   |   |   |   |   |   +--ro route-refresh-error-sub-value? enumeration
|   |   +--ro peer-received-update-cnt? uint64
|   |   +--ro peer-transmit-update-cnt? uint64
|   |   +--ro peer-received-route-cnt?  uint64
|   |   +--ro peer-send-route-cnt?      uint64
|   |   +--rw max-prefix-rcv-limit?     uint64
|   |   +--rw max-prefix-xmt-limit?     uint64
|   |   +--ro peer-prefix-high?         uint64
|   |   +--ro peer-prefix-low?          uint64
|   |   +--ro peer-perfix-ave?           uint64
|   |   +--ro peer-prefix-time?         uint64
|   |   +--ro peer-prefix-max?          uint64
|   |   +--ro publish-version?          uint64
| +--rw bgp-rib-in
|   |   +--rw bgp-rib-in-list* [ipv6-route ipv6-prefix-length]
|   |   |   +--rw ipv6-route            inet:ipv6-prefix
|   |   |   +--rw ipv6-prefix-length    uint8
|   |   |   +--rw bgp-route-type?       enumeration
|   |   |   +--rw bgp-attribute-list
|   |   |   |   +--rw bgp-origin?        enumeration

```



```

|         |         | +--rw bgp-aspath
|         |         | | +--rw usascount?      uint16
|         |         | | +--rw ulrefcount?    uint16
|         |         | | +--rw asstring?      string
|         |         | | +--ro usascountfrcomp? uint16
|         |         | | +--rw usastotalcount? uint16
|         |         | | +--rw usas4pathlen?   uint16
|         |         | | +--rw as4pathvalue?   string
|         |         | +--rw bgp-nexthop?      inet:ip-address
|         |         | +--rw bgp-med?          uint32
|         |         | +--rw bgp-localpref?     uint32
|         |         | +--rw bgp-atomic-aggregate? uint32
|         |         | +--rw bgp-aggregator
|         |         | | +--rw ulipaddress?    uint32
|         |         | | +--rw ulasnumber?    uint32
|         |         | +--rw bgp-commattr
|         |         | | +--rw uscommsize?      uint16
|         |         | | +--rw ulrefcomm?      uint32
|         |         | | +--rw commattr-value?  string
|         |         | +--rw bgp-extcommattr
|         |         | | +--rw usextcommsize?   uint16
|         |         | | +--rw ulrefcount?     uint32
|         |         | | +--rw extcommattr-value? string
|         |         | +--rw bgp-clusterlist
|         |         | | +--rw uscluslen?      uint16
|         |         | | +--rw ulrefclus?     uint32
|         |         | | +--rw clusterlist-value? string
|         |         | +--rw bgp-originator-id? uint32
|         | +--ro bgp-route-create?    enumeration
|         | +--ro bgp-rt-state-info
|         | | +--ro rib-current-state?      rib-state-def
|         | | +--ro rib-last-state?         rib-state-def
|         | | +--ro rib-rejected-reason?    enumeration
|         | | +--ro not-preferred-reason?   enumeration
| +--rw bgp-rib-out
|   +--rw bgp-rib-out-list* [ipv6-route ipv6-prefix-length]
|     +--rw ipv6-route      inet:ipv6-prefix
|     +--rw ipv6-prefix-length uint8
|     +--rw bgp-route-type? enumeration
|     +--rw bgp-attribute-list
|       +--rw bgp-origin?    enumeration
|       +--rw bgp-aspath
|       | +--rw usascount?    uint16
|       | +--rw ulrefcount?   uint16
|       | +--rw asstring?     string
|       | +--ro usascountfrcomp? uint16
|       | +--rw usastotalcount? uint16
|       | +--rw usas4pathlen?  uint16

```



```

|         | | +--rw as4pathvalue?      string
|         | +--rw bgp-nexthop?         inet:ip-address
|         | +--rw bgp-med?             uint32
|         | +--rw bgp-localpref?       uint32
|         | +--rw bgp-atomic-aggregate? uint32
|         | +--rw bgp-aggregator
|         | | +--rw ulipaddress?      uint32
|         | | +--rw ulasnumber?      uint32
|         | +--rw bgp-commattr
|         | | +--rw uscommsize?       uint16
|         | | +--rw ulrefcomm?       uint32
|         | | +--rw commattr-value?  string
|         | +--rw bgp-extcommattr
|         | | +--rw usextcommsize?    uint16
|         | | +--rw ulrefcount?      uint32
|         | | +--rw extcommattr-value? string
|         | +--rw bgp-clusterlist
|         | | +--rw uscluslen?       uint16
|         | | +--rw ulrefclus?      uint32
|         | | +--rw clusterlist-value? string
|         | +--rw bgp-originator-id?  uint32
|         +--ro bgp-route-create?      enumeration
|         +--ro bgp-rt-state-info
|             +--ro rib-current-state?  rib-state-def
|             +--ro rib-last-state?     rib-state-def
|             +--ro rib-rejected-reason? enumeration
|             +--ro not-preferred-reason? enumeration
+--rw bgp-vpnv6-instance
|   +--rw bgp-instance-name?      string
|   +--rw bgp-instance-create?    enumeration
|   +--rw bgp-instance-type?      enumeration
|   +--rw bgp-vendor-type?        enumeration
|   +--rw afi?                    afi-def
|   +--rw safi?                   safi-def
|   +--rw bgp-local-rib
|   | +--rw bgp-route-list* [ipv6-route ipv6-prefix-length route-
distinguisher]
|   | | +--rw ipv6-route          inet:ipv6-prefix
|   | | +--rw ipv6-prefix-length  uint8
|   | | +--rw mpls-label?         mpls-label-def
|   | | +--rw route-distinguisher route-distinguisher-def
|   | | +--rw bgp-route-type?     enumeration
|   | | +--rw bgp-attribute-list
|   | | | +--rw bgp-origin?       enumeration
|   | | | +--rw bgp-aspath
|   | | | | +--rw usascount?      uint16
|   | | | | +--rw ulrefcount?    uint16
|   | | | | +--rw asstring?      string

```

| | | | +--ro usascountfrcomp? uint16

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```

| | | | +--rw usastotalcount?      uint16
| | | | +--rw usas4pathlen?       uint16
| | | | +--rw as4pathvalue?       string
| | | | +--rw bgp-nexthop?        inet:ip-address
| | | | +--rw bgp-med?            uint32
| | | | +--rw bgp-localpref?      uint32
| | | | +--rw bgp-atomic-aggregate? uint32
| | | | +--rw bgp-aggregator
| | | | | +--rw ulipaddress?      uint32
| | | | | +--rw ulasnumber?      uint32
| | | | +--rw bgp-commattr
| | | | | +--rw uscommsize?       uint16
| | | | | +--rw ulrefcomm?       uint32
| | | | | +--rw commattr-value?  string
| | | | +--rw bgp-extcommattr
| | | | | +--rw usextcommsize?    uint16
| | | | | +--rw ulrefcount?      uint32
| | | | | +--rw extcommattr-value? string
| | | | +--rw bgp-clusterlist
| | | | | +--rw uscluslen?       uint16
| | | | | +--rw ulrefclus?      uint32
| | | | | +--rw clusterlist-value? string
| | | | +--rw bgp-originator-id? uint32
| | +--ro bgp-route-create?      enumeration
| | +--ro bgp-rt-state-info
| | | +--ro rib-current-state?    rib-state-def
| | | +--ro rib-last-state?      rib-state-def
| | | +--ro rib-rejected-reason?  enumeration
| | | +--ro not-preferred-reason? enumeration
| +--rw bgp-peer-list* [bgp-peer-name]
| | +--rw peer-session-address
| | | +--rw local-ipv6-address?   inet:ipv6-prefix
| | | +--rw remote-ipv6-address? inet:ipv6-prefix
| | +--rw bgp-peer-name          string
| | +--ro bgp-peer-type?         enumeration
| | +--ro bgp-peer-create?      enumeration
| | +--rw bgp-policy-in
| | +--rw bgp-policy-out
| | +--ro peer-policy-in-pset
| | +--ro peer-policy-out-pset
| | +--rw peer-state-info
| | | +--ro peer-current-state?    peer-state
| | | +--ro peer-last-state?      peer-state
| | | +--ro peer-down-reason
| | | | +--ro error-code?         enumeration
| | | | +--ro sub-error-code
| | | | +--ro (sub-error-code-type)?
| | | | +--:(head-error-sub-code)

```



```

|         |         |         |   +--ro head-error-sub-value?           enumeration
|         |         |         |   +--:(open-error-sub-code)
|         |         |         |   +--ro open-error-sub-value?           enumeration
|         |         |         |   +--:(update-error-sub-code)
|         |         |         |   +--ro update-error-sub-value?         enumeration
|         |         |         |   +--:(route-refresh-error-sub-code)
|         |         |         |   +--ro route-refresh-error-sub-value?   enumeration
|         |         |         |
|         |   +--ro peer-received-update-cnt?   uint64
|         |   +--ro peer-transmit-update-cnt?   uint64
|         |   +--ro peer-received-route-cnt?    uint64
|         |   +--ro peer-send-route-cnt?        uint64
|         |   +--rw max-prefix-rcv-limit?       uint64
|         |   +--rw max-prefix-xmt-limit?       uint64
|         |   +--ro peer-prefix-high?           uint64
|         |   +--ro peer-prefix-low?            uint64
|         |   +--ro peer-perfix-ave?            uint64
|         |   +--ro peer-prefix-time?           uint64
|         |   +--ro peer-prefix-max?            uint64
|         |   +--ro publish-version?            uint64
|         |
|         |   +--rw bgp-rib-in
|         |   +--rw bgp-rib-in-list* [ipv6-route ipv6-prefix-length route-
distinguisher]
|         |
|         |   +--rw ipv6-route                  inet:ipv6-prefix
|         |   +--rw ipv6-prefix-length          uint8
|         |   +--rw mpls-label?                 mpls-label-def
|         |   +--rw route-distinguisher         route-distinguisher-def
|         |   +--rw bgp-route-type?             enumeration
|         |   +--rw bgp-attribute-list
|         |   |
|         |   |   +--rw bgp-origin?             enumeration
|         |   |   +--rw bgp-aspath
|         |   |   |
|         |   |   |   +--rw usascount?           uint16
|         |   |   |   +--rw ulrefcount?          uint16
|         |   |   |   +--rw asstring?            string
|         |   |   |   +--ro usascountfrcomp?     uint16
|         |   |   |   +--rw usastotalcount?      uint16
|         |   |   |   +--rw usas4pathlen?        uint16
|         |   |   |   +--rw as4pathvalue?        string
|         |   |   +--rw bgp-nexthop?             inet:ip-address
|         |   |   +--rw bgp-med?                  uint32
|         |   |   +--rw bgp-localpref?            uint32
|         |   |   +--rw bgp-atomic-aggregate?    uint32
|         |   |   +--rw bgp-aggregator
|         |   |   |
|         |   |   |   +--rw ulipaddress?        uint32
|         |   |   |   +--rw ulasnumber?         uint32
|         |   |   +--rw bgp-commattr
|         |   |   |
|         |   |   |   +--rw uscommssize?         uint16
|         |   |   |   +--rw ulrefcomm?           uint32
|         |   |   |   +--rw commattr-value?      string

```

| | | +--rw bgp-extcommattr

```

|         |         |         | +--rw usextcommsize?      uint16
|         |         |         | +--rw ulrefcount?        uint32
|         |         |         | +--rw extcommattr-value?   string
|         |         |         | +--rw bgp-clusterlist
|         |         |         | +--rw uscluslen?          uint16
|         |         |         | +--rw ulrefclus?          uint32
|         |         |         | +--rw clusterlist-value?    string
|         |         |         | +--rw bgp-originator-id?    uint32
|         |         | +--ro bgp-route-create?      enumeration
|         |         | +--ro bgp-rt-state-info
|         |         |     +--ro rib-current-state?      rib-state-def
|         |         |     +--ro rib-last-state?         rib-state-def
|         |         |     +--ro rib-rejected-reason?     enumeration
|         |         |     +--ro not-preferred-reason?    enumeration
|         | +--rw bgp-rib-out
|         | +--rw bgp-rib-out-list* [ipv6-route ipv6-prefix-length route-
distinguisher]
|         |         +--rw ipv6-route                inet:ipv6-prefix
|         |         +--rw ipv6-prefix-length         uint8
|         |         +--rw mpls-label?               mpls-label-def
|         |         +--rw route-distinguisher        route-distinguisher-def
|         |         +--rw bgp-route-type?            enumeration
|         |         +--rw bgp-attribute-list
|         |         | +--rw bgp-origin?              enumeration
|         |         | +--rw bgp-aspath
|         |         | | +--rw usascount?              uint16
|         |         | | +--rw ulrefcount?             uint16
|         |         | | +--rw asstring?               string
|         |         | | +--ro usascountfrcomp?        uint16
|         |         | | +--rw usastotalcount?         uint16
|         |         | | +--rw usas4pathlen?           uint16
|         |         | | +--rw as4pathvalue?           string
|         |         | +--rw bgp-nexthop?              inet:ip-address
|         |         | +--rw bgp-med?                  uint32
|         |         | +--rw bgp-localpref?            uint32
|         |         | +--rw bgp-atomic-aggregate?     uint32
|         |         | +--rw bgp-aggregator
|         |         | | +--rw ulipaddress?            uint32
|         |         | | +--rw ulasnumber?             uint32
|         |         | +--rw bgp-commattr
|         |         | | +--rw uscommsize?              uint16
|         |         | | +--rw ulrefcomm?              uint32
|         |         | | +--rw commattr-value?         string
|         |         | +--rw bgp-extcommattr
|         |         | | +--rw usextcommsize?          uint16
|         |         | | +--rw ulrefcount?             uint32
|         |         | | +--rw extcommattr-value?      string
|         |         | +--rw bgp-clusterlist

```

| | +-rw uscluslen? uint16

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```

|         | | +--rw ulrefclus?          uint32
|         | | +--rw clusterlist-value?  string
|         | +--rw bgp-originator-id?    uint32
|         +--ro bgp-route-create?        enumeration
|         +--ro bgp-rt-state-info
|             +--ro rib-current-state?    rib-state-def
|             +--ro rib-last-state?       rib-state-def
|             +--ro rib-rejected-reason?  enumeration
|             +--ro not-preferred-reason? enumeration
+--rw bgp-ipv6-l3vpn-instance-list* [bgp-l3vpn-instance-name]
|   +--rw bgp-l3vpn-instance-name  string
|   +--rw bgp-instance-name?       string
|   +--rw bgp-instance-create?     enumeration
|   +--rw bgp-instance-type?       enumeration
|   +--rw bgp-vendor-type?         enumeration
|   +--rw afi?                     afi-def
|   +--rw safi?                    safi-def
|   +--rw bgp-local-rib
|       +--rw bgp-route-list* [ipv6-route ipv6-prefix-length]
|           +--rw ipv6-route          inet:ipv6-prefix
|           +--rw ipv6-prefix-length  uint8
|           +--rw bgp-route-type?     enumeration
|           +--rw bgp-attribute-list
|               +--rw bgp-origin?     enumeration
|               +--rw bgp-aspath
|                   +--rw usascount?   uint16
|                   +--rw ulrefcount?  uint16
|                   +--rw asstring?    string
|                   +--ro usascountfrcomp? uint16
|                   +--rw usastotalcount? uint16
|                   +--rw usas4pathlen? uint16
|                   +--rw as4pathvalue? string
|               +--rw bgp-nexthop?     inet:ip-address
|               +--rw bgp-med?         uint32
|               +--rw bgp-localpref?   uint32
|               +--rw bgp-atomic-aggregate? uint32
|               +--rw bgp-aggregator
|                   +--rw ulipaddress?  uint32
|                   +--rw ulasnumber?   uint32
|               +--rw bgp-commattr
|                   +--rw uscommsize?    uint16
|                   +--rw ulrefcomm?     uint32
|                   +--rw commattr-value? string
|               +--rw bgp-extcommattr
|                   +--rw usextcommsize? uint16
|                   +--rw ulrefcount?    uint32
|                   +--rw extcommattr-value? string
|               +--rw bgp-clusterlist

```



```

| | | | +--rw uscluslen?          uint16
| | | | +--rw ulrefclus?         uint32
| | | | +--rw clusterlist-value?  string
| | | | +--rw bgp-originator-id?  uint32
| | | +--ro bgp-route-create?      enumeration
| | | +--ro bgp-rt-state-info
| | | | +--ro rib-current-state?    rib-state-def
| | | | +--ro rib-last-state?       rib-state-def
| | | | +--ro rib-rejected-reason?  enumeration
| | | | +--ro not-preferred-reason? enumeration
| +--rw bgp-peer-list* [bgp-peer-name]
| | +--rw peer-session-address
| | | +--rw local-ipv6-address?    inet:ipv6-prefix
| | | +--rw remote-ipv6-address?  inet:ipv6-prefix
| | +--rw bgp-peer-name           string
| | +--ro bgp-peer-type?          enumeration
| | +--ro bgp-peer-create?        enumeration
| | +--rw bgp-policy-in
| | +--rw bgp-policy-out
| | +--ro peer-policy-in-pset
| | +--ro peer-policy-out-pset
| | +--rw peer-state-info
| | | +--ro peer-current-state?     peer-state
| | | +--ro peer-last-state?        peer-state
| | | +--ro peer-down-reason
| | | | +--ro error-code?           enumeration
| | | | +--ro sub-error-code
| | | | | +--ro (sub-error-code-type)?
| | | | | | +--:(head-error-sub-code)
| | | | | | | +--ro head-error-sub-value?      enumeration
| | | | | | +--:(open-error-sub-code)
| | | | | | | +--ro open-error-sub-value?      enumeration
| | | | | | +--:(update-error-sub-code)
| | | | | | | +--ro update-error-sub-value?    enumeration
| | | | | | +--:(route-refresh-error-sub-code)
| | | | | | | +--ro route-refresh-error-sub-value? enumeration
| | | +--ro peer-received-update-cnt?  uint64
| | | +--ro peer-transmit-update-cnt?  uint64
| | | +--ro peer-received-route-cnt?   uint64
| | | +--ro peer-send-route-cnt?       uint64
| | | +--rw max-prefix-rcv-limit?      uint64
| | | +--rw max-prefix-xmt-limit?      uint64
| | | +--ro peer-prefix-high?          uint64
| | | +--ro peer-prefix-low?           uint64
| | | +--ro peer-perfix-ave?            uint64
| | | +--ro peer-prefix-time?          uint64
| | | +--ro peer-prefix-max?           uint64
| | | +--ro publish-version?           uint64

```



```

|   +---rw bgp-rib-in
|   |   +---rw bgp-rib-in-list* [ipv6-route ipv6-prefix-length]
|   |   |   +---rw ipv6-route                inet:ipv6-prefix
|   |   |   +---rw ipv6-prefix-length        uint8
|   |   |   +---rw bgp-route-type?           enumeration
|   |   |   +---rw bgp-attribute-list
|   |   |   |   +---rw bgp-origin?            enumeration
|   |   |   |   +---rw bgp-aspath
|   |   |   |   |   +---rw usascount?         uint16
|   |   |   |   |   +---rw ulrefcount?        uint16
|   |   |   |   |   +---rw asstring?          string
|   |   |   |   |   +---ro usascountfrcomp?   uint16
|   |   |   |   |   +---rw usastotalcount?    uint16
|   |   |   |   |   +---rw usas4pathlen?      uint16
|   |   |   |   |   +---rw as4pathvalue?      string
|   |   |   |   +---rw bgp-nexthop?           inet:ip-address
|   |   |   |   +---rw bgp-med?               uint32
|   |   |   |   +---rw bgp-localpref?         uint32
|   |   |   |   +---rw bgp-atomic-aggregate?  uint32
|   |   |   |   +---rw bgp-aggregator
|   |   |   |   |   +---rw ulipaddress?       uint32
|   |   |   |   |   +---rw ulasnumber?       uint32
|   |   |   |   +---rw bgp-commattr
|   |   |   |   |   +---rw uscommsize?        uint16
|   |   |   |   |   +---rw ulrefcomm?        uint32
|   |   |   |   |   +---rw commattr-value?    string
|   |   |   |   +---rw bgp-extcommattr
|   |   |   |   |   +---rw usextcommsize?     uint16
|   |   |   |   |   +---rw ulrefcount?        uint32
|   |   |   |   |   +---rw extcommattr-value? string
|   |   |   |   +---rw bgp-clusterlist
|   |   |   |   |   +---rw uscluslen?         uint16
|   |   |   |   |   +---rw ulrefclus?        uint32
|   |   |   |   |   +---rw clusterlist-value? string
|   |   |   |   +---rw bgp-originator-id?    uint32
|   |   |   +---ro bgp-route-create?          enumeration
|   |   |   +---ro bgp-rt-state-info
|   |   |   |   +---ro rib-current-state?      rib-state-def
|   |   |   |   +---ro rib-last-state?        rib-state-def
|   |   |   |   +---ro rib-rejected-reason?    enumeration
|   |   |   |   +---ro not-preferred-reason?   enumeration
|   +---rw bgp-rib-out
|   |   +---rw bgp-rib-out-list* [ipv6-route ipv6-prefix-length]
|   |   |   +---rw ipv6-route                inet:ipv6-prefix
|   |   |   +---rw ipv6-prefix-length        uint8
|   |   |   +---rw bgp-route-type?           enumeration
|   |   |   +---rw bgp-attribute-list
|   |   |   |   +---rw bgp-origin?            enumeration

```



```

|         | +--rw bgp-aspath
|         | | +--rw usascount?      uint16
|         | | +--rw ulrefcount?    uint16
|         | | +--rw asstring?      string
|         | | +--ro usascountfrcomp? uint16
|         | | +--rw usastotalcount? uint16
|         | | +--rw usas4pathlen?  uint16
|         | | +--rw as4pathvalue?  string
|         | +--rw bgp-nexthop?     inet:ip-address
|         | +--rw bgp-med?         uint32
|         | +--rw bgp-localpref?   uint32
|         | +--rw bgp-atomic-aggregate? uint32
|         | +--rw bgp-aggregator
|         | | +--rw ulipaddress?   uint32
|         | | +--rw ulasnumber?   uint32
|         | +--rw bgp-commattr
|         | | +--rw uscommsize?     uint16
|         | | +--rw ulrefcomm?     uint32
|         | | +--rw commattr-value? string
|         | +--rw bgp-extcommattr
|         | | +--rw usextcommsize?  uint16
|         | | +--rw ulrefcount?    uint32
|         | | +--rw extcommattr-value? string
|         | +--rw bgp-clusterlist
|         | | +--rw uscluslen?     uint16
|         | | +--rw ulrefclus?    uint32
|         | | +--rw clusterlist-value? string
|         | +--rw bgp-originator-id? uint32
|         +--ro bgp-route-create?   enumeration
|         +--ro bgp-rt-state-info
|             +--ro rib-current-state?  rib-state-def
|             +--ro rib-last-state?     rib-state-def
|             +--ro rib-rejected-reason? enumeration
|             +--ro not-preferred-reason? enumeration
+--rw bgp-ipv4-mvpn-instance
| +--rw bgp-instance-name?  string
| +--rw bgp-instance-create? enumeration
| +--rw bgp-instance-type?  enumeration
| +--rw bgp-vendor-type?    enumeration
| +--rw afi?                afi-def
| +--rw safi?                safi-def
| +--rw bgp-local-rib
| | +--rw bgp-route-type?   enumeration
| | +--rw bgp-attribute-list
| | | +--rw bgp-origin?     enumeration
| | | +--rw bgp-aspath
| | | | +--rw usascount?    uint16
| | | | +--rw ulrefcount?  uint16

```



```

| | | | +--rw asstring?          string
| | | | +--ro usascountfrcomp?   uint16
| | | | +--rw usastotalcount?    uint16
| | | | +--rw usas4pathlen?      uint16
| | | | +--rw as4pathvalue?      string
| | | +--rw bgp-nexthop?         inet:ip-address
| | | +--rw bgp-med?            uint32
| | | +--rw bgp-localpref?      uint32
| | | +--rw bgp-atomic-aggregate? uint32
| | | +--rw bgp-aggregator
| | | | +--rw ulipaddress?      uint32
| | | | +--rw ulasnumber?      uint32
| | | +--rw bgp-commattr
| | | | +--rw uscommsize?       uint16
| | | | +--rw ulrefcomm?       uint32
| | | | +--rw commattr-value?  string
| | | +--rw bgp-extcommattr
| | | | +--rw usextcommsize?    uint16
| | | | +--rw ulrefcount?      uint32
| | | | +--rw extcommattr-value? string
| | | +--rw bgp-clusterlist
| | | | +--rw uscluslen?       uint16
| | | | +--rw ulrefclus?      uint32
| | | | +--rw clusterlist-value? string
| | | +--rw bgp-originator-id? uint32
| | +--ro bgp-route-create?     enumeration
| | +--ro bgp-rt-state-info
| | | +--ro rib-current-state?  rib-state-def
| | | +--ro rib-last-state?    rib-state-def
| | | +--ro rib-rejected-reason? enumeration
| | | +--ro not-preferred-reason? enumeration
| | +--rw (bgp-mvpn-route-type)?
| | | +--:(INTRA_AS_I_PMSI_AD)
| | | | +--rw intra-as-i-pmsi-ad-route* [route-type route-
distinguisher origin-router-ip-addr]
| | | | | +--rw route-type          mvpn-route-type
| | | | | +--rw route-distinguisher route-distinguisher-def
| | | | | +--rw origin-router-ip-addr inet:ip-prefix
| | | | +--:(INTER_AS_I_PMSI_AD)
| | | | +--rw inter_as_i_pmsi_as_route* [route-type route-
distinguisher source-as]
| | | | | +--rw route-type          mvpn-route-type
| | | | | +--rw route-distinguisher route-distinguisher-def
| | | | | +--rw source-as          inet:as-number
| | | | +--:(S_PMSI_AD)
| | | | +--rw s-pmsi-ad-route* [route-type route-distinguisher
multicast-source multicast-group origin-router-ip-addr]
| | | | | +--rw route-type          mvpn-route-type

```

			+--rw route-distinguisher	route-distinguisher-def
			+--rw multicast-source	inet:ip-prefix
			+--rw multicast-group	inet:ip-prefix

```

| | | +--rw origin-router-ip-addr    inet:ip-prefix
| | | +--:(LEAF_AD)
| | | +--rw leaf-ad-route* [route-type route-key origin-router-ip-
addr]
| | | +--rw route-type                mvpn-route-type
| | | +--rw route-key                 binary
| | | +--rw origin-router-ip-addr    inet:ip-prefix
| | | +--:(SOURCE_ACTIVE_AD)
| | | +--rw source-active-ad-route* [route-type route-distinguisher
multicast-source multicast-group]
| | | +--rw route-type                mvpn-route-type
| | | +--rw route-distinguisher      route-distinguisher-def
| | | +--rw multicast-source          inet:ip-prefix
| | | +--rw multicast-group           inet:ip-prefix
| | | +--:(SHARED_TREE_JOIN)
| | | +--rw shared-tree-join-route* [route-type route-distinguisher
source-as multicast-source multicast-group]
| | | +--rw route-type                mvpn-route-type
| | | +--rw route-distinguisher      route-distinguisher-def
| | | +--rw source-as                inet:as-number
| | | +--rw multicast-source          inet:ip-prefix
| | | +--rw multicast-group           inet:ip-prefix
| | | +--:(SOURCE_TREE_JOIN)
| | | +--rw source-tree-join-route* [route-type route-distinguisher
source-as multicast-source multicast-group]
| | | +--rw route-type                mvpn-route-type
| | | +--rw route-distinguisher      route-distinguisher-def
| | | +--rw source-as                inet:as-number
| | | +--rw multicast-source          inet:ip-prefix
| | | +--rw multicast-group           inet:ip-prefix
| +--rw bgp-peer-list* [bgp-peer-name]
|   +--rw peer-session-address
|   |   +--rw local-ipv4-address?    inet:ipv4-prefix
|   |   +--rw remote-ipv4-address?   inet:ipv4-prefix
|   +--rw bgp-peer-name              string
|   +--ro bgp-peer-type?              enumeration
|   +--ro bgp-peer-create?            enumeration
|   +--rw bgp-policy-in
|   +--rw bgp-policy-out
|   +--ro peer-policy-in-pset
|   +--ro peer-policy-out-pset
|   +--rw peer-state-info
|   |   +--ro peer-current-state?     peer-state
|   |   +--ro peer-last-state?        peer-state
|   |   +--ro peer-down-reason
|   |   |   +--ro error-code?         enumeration
|   |   |   +--ro sub-error-code
|   |   |   +--ro (sub-error-code-type)?

```

			+--:(head-error-sub-code)	
			+--ro head-error-sub-value?	enumeration
			+--:(open-error-sub-code)	
			+--ro open-error-sub-value?	enumeration

```

|         |         |         +--:(update-error-sub-code)
|         |         |         | +--ro update-error-sub-value?      enumeration
|         |         |         +--:(route-refresh-error-sub-code)
|         |         |         +--ro route-refresh-error-sub-value?  enumeration
|         | +--ro peer-received-update-cnt?    uint64
|         | +--ro peer-transmit-update-cnt?    uint64
|         | +--ro peer-received-route-cnt?     uint64
|         | +--ro peer-send-route-cnt?         uint64
|         | +--rw max-prefix-rcv-limit?        uint64
|         | +--rw max-prefix-xmt-limit?        uint64
|         | +--ro peer-prefix-high?            uint64
|         | +--ro peer-prefix-low?             uint64
|         | +--ro peer-perfix-ave?              uint64
|         | +--ro peer-prefix-time?            uint64
|         | +--ro peer-prefix-max?             uint64
|         | +--ro publish-version?             uint64
| +--rw bgp-rib-in
|         | +--rw bgp-route-type?              enumeration
|         | +--rw bgp-attribute-list
|         | | +--rw bgp-origin?                enumeration
|         | | +--rw bgp-aspath
|         | | | +--rw usascount?                uint16
|         | | | +--rw ulrefcount?              uint16
|         | | | +--rw asstring?                string
|         | | | +--ro usascountfrcomp?          uint16
|         | | | +--rw usastotalcount?          uint16
|         | | | +--rw usas4pathlen?            uint16
|         | | | +--rw as4pathvalue?            string
|         | | +--rw bgp-nexthop?                inet:ip-address
|         | | +--rw bgp-med?                    uint32
|         | | +--rw bgp-localpref?              uint32
|         | | +--rw bgp-atomic-aggregate?       uint32
|         | | +--rw bgp-aggregator
|         | | | +--rw ulipaddress?              uint32
|         | | | +--rw ulasnumber?              uint32
|         | | +--rw bgp-commattr
|         | | | +--rw uscommsize?                uint16
|         | | | +--rw ulrefcomm?                uint32
|         | | | +--rw commattr-value?           string
|         | | +--rw bgp-extcommattr
|         | | | +--rw usextcommsize?            uint16
|         | | | +--rw ulrefcount?              uint32
|         | | | +--rw extcommattr-value?       string
|         | | +--rw bgp-clusterlist
|         | | | +--rw uscluslen?                uint16
|         | | | +--rw ulrefclus?                uint32
|         | | | +--rw clusterlist-value?       string
|         | | +--rw bgp-originator-id?        uint32

```



```

|      | +--ro bgp-route-create?          enumeration
|      | +--ro bgp-rt-state-info
|      | | +--ro rib-current-state?      rib-state-def
|      | | +--ro rib-last-state?        rib-state-def
|      | | +--ro rib-rejected-reason?    enumeration
|      | | +--ro not-preferred-reason?   enumeration
|      | +--rw (bgp-mvpn-route-type)?
|      | +--:(INTRA_AS_I_PMSI_AD)
|      | | +--rw intra-as-i-pmsi-ad-route* [route-type route-
distinguisher origin-router-ip-addr]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-distinguisher    route-distinguisher-def
|      | | | +--rw origin-router-ip-addr  inet:ip-prefix
|      | | +--:(INTER_AS_I_PMSI_AD)
|      | | | +--rw inter_as_i_pmsi_as_route* [route-type route-
distinguisher source-as]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-distinguisher    route-distinguisher-def
|      | | | +--rw source-as              inet:as-number
|      | | +--:(S_PMSI_AD)
|      | | | +--rw s-pmsi-ad-route* [route-type route-distinguisher
multicast-source multicast-group origin-router-ip-addr]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-distinguisher    route-distinguisher-def
|      | | | +--rw multicast-source        inet:ip-prefix
|      | | | +--rw multicast-group         inet:ip-prefix
|      | | | +--rw origin-router-ip-addr  inet:ip-prefix
|      | | +--:(LEAF_AD)
|      | | | +--rw leaf-ad-route* [route-type route-key origin-router-
ip-addr]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-key              binary
|      | | | +--rw origin-router-ip-addr  inet:ip-prefix
|      | | +--:(SOURCE_ACTIVE_AD)
|      | | | +--rw source-active-ad-route* [route-type route-
distinguisher multicast-source multicast-group]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-distinguisher    route-distinguisher-def
|      | | | +--rw multicast-source        inet:ip-prefix
|      | | | +--rw multicast-group         inet:ip-prefix
|      | | +--:(SHARED_TREE_JOIN)
|      | | | +--rw shared-tree-join-route* [route-type route-
distinguisher source-as multicast-source multicast-group]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-distinguisher    route-distinguisher-def
|      | | | +--rw source-as              inet:as-number
|      | | | +--rw multicast-source        inet:ip-prefix
|      | | | +--rw multicast-group         inet:ip-prefix

```

			+-: (SOURCE_TREE_JOIN)	
			+-rw source-tree-join-route*	[route-type route-
distinguisher		source-as	multicast-source	multicast-group]
			+-rw route-type	mvpn-route-type
			+-rw route-distinguisher	route-distinguisher-def
			+-rw source-as	inet:as-number
			+-rw multicast-source	inet:ip-prefix

```

|         |         +--rw multicast-group          inet:ip-prefix
| +--rw bgp-rib-out
|   +--rw bgp-route-type?          enumeration
|   +--rw bgp-attribute-list
|     | +--rw bgp-origin?          enumeration
|     | +--rw bgp-aspath
|     | | +--rw usascount?         uint16
|     | | +--rw ulrefcount?       uint16
|     | | +--rw asstring?         string
|     | | +--ro usascountfrcomp?   uint16
|     | | +--rw usastotalcount?   uint16
|     | | +--rw usas4pathlen?     uint16
|     | | +--rw as4pathvalue?     string
|     | +--rw bgp-nexthop?        inet:ip-address
|     | +--rw bgp-med?            uint32
|     | +--rw bgp-localpref?      uint32
|     | +--rw bgp-atomic-aggregate? uint32
|     | +--rw bgp-aggregator
|     | | +--rw ulipaddress?      uint32
|     | | +--rw ulasnumber?      uint32
|     | +--rw bgp-commattr
|     | | +--rw uscommsize?       uint16
|     | | +--rw ulrefcomm?       uint32
|     | | +--rw commattr-value?  string
|     | +--rw bgp-extcommattr
|     | | +--rw usextcommsize?    uint16
|     | | +--rw ulrefcount?      uint32
|     | | +--rw extcommattr-value? string
|     | +--rw bgp-clusterlist
|     | | +--rw uscluslen?       uint16
|     | | +--rw ulrefclus?      uint32
|     | | +--rw clusterlist-value? string
|     | +--rw bgp-originator-id? uint32
| +--ro bgp-route-create?          enumeration
| +--ro bgp-rt-state-info
|   | +--ro rib-current-state?    rib-state-def
|   | +--ro rib-last-state?      rib-state-def
|   | +--ro rib-rejected-reason?  enumeration
|   | +--ro not-preferred-reason? enumeration
| +--rw (bgp-mvpn-route-type)?
|   +--:(INTRA_AS_I_PMSI_AD)
|     | +--rw intra-as-i-pmsi-ad-route* [route-type route-
distinguisher origin-router-ip-addr]
|       | +--rw route-type          mvpn-route-type
|       | +--rw route-distinguisher route-distinguisher-def
|       | +--rw origin-router-ip-addr inet:ip-prefix
|   +--:(INTER_AS_I_PMSI_AD)
|     | +--rw inter_as_i_pmsi_as_route* [route-type route-

```

```
distinguisher source-as]
|               |  +--rw route-type          mvpn-route-type
```

```

|         |         +--rw route-distinguisher    route-distinguisher-def
|         |         +--rw source-as              inet:as-number
|         +---:(S_PMSI_AD)
|         |         +--rw s-pmsi-ad-route* [route-type route-distinguisher
multicast-source multicast-group origin-router-ip-addr]
|         |         +--rw route-type              mvpn-route-type
|         |         +--rw route-distinguisher      route-distinguisher-def
|         |         +--rw multicast-source          inet:ip-prefix
|         |         +--rw multicast-group           inet:ip-prefix
|         |         +--rw origin-router-ip-addr     inet:ip-prefix
|         +---:(LEAF_AD)
|         |         +--rw leaf-ad-route* [route-type route-key origin-router-
ip-addr]
|         |         +--rw route-type              mvpn-route-type
|         |         +--rw route-key                binary
|         |         +--rw origin-router-ip-addr     inet:ip-prefix
|         +---:(SOURCE_ACTIVE_AD)
|         |         +--rw source-active-ad-route* [route-type route-
distinguisher multicast-source multicast-group]
|         |         +--rw route-type              mvpn-route-type
|         |         +--rw route-distinguisher      route-distinguisher-def
|         |         +--rw multicast-source          inet:ip-prefix
|         |         +--rw multicast-group           inet:ip-prefix
|         +---:(SHARED_TREE_JOIN)
|         |         +--rw shared-tree-join-route* [route-type route-
distinguisher source-as multicast-source multicast-group]
|         |         +--rw route-type              mvpn-route-type
|         |         +--rw route-distinguisher      route-distinguisher-def
|         |         +--rw source-as                inet:as-number
|         |         +--rw multicast-source          inet:ip-prefix
|         |         +--rw multicast-group           inet:ip-prefix
|         +---:(SOURCE_TREE_JOIN)
|         |         +--rw source-tree-join-route* [route-type route-
distinguisher source-as multicast-source multicast-group]
|         |         +--rw route-type              mvpn-route-type
|         |         +--rw route-distinguisher      route-distinguisher-def
|         |         +--rw source-as                inet:as-number
|         |         +--rw multicast-source          inet:ip-prefix
|         |         +--rw multicast-group           inet:ip-prefix
+--rw bgp-ipv6-mvpn-instance
|  +--rw bgp-instance-name?    string
|  +--rw bgp-instance-create?  enumeration
|  +--rw bgp-instance-type?    enumeration
|  +--rw bgp-vendor-type?      enumeration
|  +--rw afi?                  afi-def
|  +--rw safi?                  safi-def
|  +--rw bgp-local-rib
|  |  +--rw bgp-route-type?    enumeration

```

```

| | +--rw bgp-attribute-list
| | | +--rw bgp-origin?          enumeration
| | | +--rw bgp-aspath
| | | | +--rw usascount?         uint16
| | | | +--rw ulrefcount?        uint16

```

```

| | | | +--rw asstring?          string
| | | | +--ro usascountfrcomp?   uint16
| | | | +--rw usastotalcount?    uint16
| | | | +--rw usas4pathlen?      uint16
| | | | +--rw as4pathvalue?      string
| | | +--rw bgp-nexthop?         inet:ip-address
| | | +--rw bgp-med?             uint32
| | | +--rw bgp-localpref?       uint32
| | | +--rw bgp-atomic-aggregate? uint32
| | | +--rw bgp-aggregator
| | | | +--rw ulipaddress?        uint32
| | | | +--rw ulasnumber?        uint32
| | | +--rw bgp-commattr
| | | | +--rw uscommsize?         uint16
| | | | +--rw ulrefcomm?         uint32
| | | | +--rw commattr-value?    string
| | | +--rw bgp-extcommattr
| | | | +--rw usextcommsize?      uint16
| | | | +--rw ulrefcount?        uint32
| | | | +--rw extcommattr-value? string
| | | +--rw bgp-clusterlist
| | | | +--rw uscluslen?         uint16
| | | | +--rw ulrefclus?        uint32
| | | | +--rw clusterlist-value? string
| | | +--rw bgp-originator-id?   uint32
| | +--ro bgp-route-create?       enumeration
| | +--ro bgp-rt-state-info
| | | +--ro rib-current-state?    rib-state-def
| | | +--ro rib-last-state?       rib-state-def
| | | +--ro rib-rejected-reason?  enumeration
| | | +--ro not-preferred-reason? enumeration
| | +--rw (bgp-mvpn-route-type)?
| | | +--:(INTRA_AS_I_PMSI_AD)
| | | | +--rw intra-as-i-pmsi-ad-route* [route-type route-
distinguisher origin-router-ip-addr]
| | | | | +--rw route-type          mvpn-route-type
| | | | | +--rw route-distinguisher route-distinguisher-def
| | | | | +--rw origin-router-ip-addr inet:ip-prefix
| | | | +--:(INTER_AS_I_PMSI_AD)
| | | | +--rw inter_as_i_pmsi_as_route* [route-type route-
distinguisher source-as]
| | | | | +--rw route-type          mvpn-route-type
| | | | | +--rw route-distinguisher route-distinguisher-def
| | | | | +--rw source-as           inet:as-number
| | | | +--:(S_PMSI_AD)
| | | | +--rw s-pmsi-ad-route* [route-type route-distinguisher
multicast-source multicast-group origin-router-ip-addr]
| | | | | +--rw route-type          mvpn-route-type

```

			+--rw route-distinguisher	route-distinguisher-def
			+--rw multicast-source	inet:ip-prefix
			+--rw multicast-group	inet:ip-prefix

```

| | | +--rw origin-router-ip-addr    inet:ip-prefix
| | | +--:(LEAF_AD)
| | | +--rw leaf-ad-route* [route-type route-key origin-router-ip-
addr]
| | | +--rw route-type                mvpn-route-type
| | | +--rw route-key                 binary
| | | +--rw origin-router-ip-addr    inet:ip-prefix
| | | +--:(SOURCE_ACTIVE_AD)
| | | +--rw source-active-ad-route* [route-type route-distinguisher
multicast-source multicast-group]
| | | +--rw route-type                mvpn-route-type
| | | +--rw route-distinguisher      route-distinguisher-def
| | | +--rw multicast-source         inet:ip-prefix
| | | +--rw multicast-group          inet:ip-prefix
| | | +--:(SHARED_TREE_JOIN)
| | | +--rw shared-tree-join-route* [route-type route-distinguisher
source-as multicast-source multicast-group]
| | | +--rw route-type                mvpn-route-type
| | | +--rw route-distinguisher      route-distinguisher-def
| | | +--rw source-as                inet:as-number
| | | +--rw multicast-source         inet:ip-prefix
| | | +--rw multicast-group          inet:ip-prefix
| | | +--:(SOURCE_TREE_JOIN)
| | | +--rw source-tree-join-route* [route-type route-distinguisher
source-as multicast-source multicast-group]
| | | +--rw route-type                mvpn-route-type
| | | +--rw route-distinguisher      route-distinguisher-def
| | | +--rw source-as                inet:as-number
| | | +--rw multicast-source         inet:ip-prefix
| | | +--rw multicast-group          inet:ip-prefix
| +--rw bgp-peer-list* [bgp-peer-name]
|   +--rw peer-session-address
|   |   +--rw local-ipv6-address?    inet:ipv6-prefix
|   |   +--rw remote-ipv6-address?  inet:ipv6-prefix
|   +--rw bgp-peer-name              string
|   +--ro bgp-peer-type?              enumeration
|   +--ro bgp-peer-create?            enumeration
|   +--rw bgp-policy-in
|   +--rw bgp-policy-out
|   +--ro peer-policy-in-pset
|   +--ro peer-policy-out-pset
|   +--rw peer-state-info
|   |   +--ro peer-current-state?     peer-state
|   |   +--ro peer-last-state?        peer-state
|   |   +--ro peer-down-reason
|   |   |   +--ro error-code?         enumeration
|   |   |   +--ro sub-error-code
|   |   |   +--ro (sub-error-code-type)?

```

			+--:(head-error-sub-code)	
			+--ro head-error-sub-value?	enumeration
			+--:(open-error-sub-code)	
			+--ro open-error-sub-value?	enumeration

```

|         |         |         +--:(update-error-sub-code)
|         |         |         | +--ro update-error-sub-value?         enumeration
|         |         |         +--:(route-refresh-error-sub-code)
|         |         |         +--ro route-refresh-error-sub-value?     enumeration
|         | +--ro peer-received-update-cnt?    uint64
|         | +--ro peer-transmit-update-cnt?    uint64
|         | +--ro peer-received-route-cnt?     uint64
|         | +--ro peer-send-route-cnt?         uint64
|         | +--rw max-prefix-rcv-limit?        uint64
|         | +--rw max-prefix-xmt-limit?        uint64
|         | +--ro peer-prefix-high?            uint64
|         | +--ro peer-prefix-low?             uint64
|         | +--ro peer-perfix-ave?             uint64
|         | +--ro peer-prefix-time?            uint64
|         | +--ro peer-prefix-max?             uint64
|         | +--ro publish-version?             uint64
| +--rw bgp-rib-in
|         | +--rw bgp-route-type?              enumeration
|         | +--rw bgp-attribute-list
|         | | +--rw bgp-origin?                enumeration
|         | | +--rw bgp-aspath
|         | | | +--rw usascount?                uint16
|         | | | +--rw ulrefcount?              uint16
|         | | | +--rw asstring?                string
|         | | | +--ro usascountfrcomp?          uint16
|         | | | +--rw usastotalcount?          uint16
|         | | | +--rw usas4pathlen?            uint16
|         | | | +--rw as4pathvalue?            string
|         | | +--rw bgp-nexthop?               inet:ip-address
|         | | +--rw bgp-med?                   uint32
|         | | +--rw bgp-localpref?             uint32
|         | | +--rw bgp-atomic-aggregate?      uint32
|         | | +--rw bgp-aggregator
|         | | | +--rw ulipaddress?             uint32
|         | | | +--rw ulasnumber?              uint32
|         | | +--rw bgp-commattr
|         | | | +--rw uscommsize?               uint16
|         | | | +--rw ulrefcomm?               uint32
|         | | | +--rw commattr-value?          string
|         | | +--rw bgp-extcommattr
|         | | | +--rw usextcommsize?           uint16
|         | | | +--rw ulrefcount?              uint32
|         | | | +--rw extcommattr-value?       string
|         | | +--rw bgp-clusterlist
|         | | | +--rw uscluslen?               uint16
|         | | | +--rw ulrefclus?              uint32
|         | | | +--rw clusterlist-value?       string
|         | | +--rw bgp-originator-id?        uint32

```



```

|      | +--ro bgp-route-create?          enumeration
|      | +--ro bgp-rt-state-info
|      | | +--ro rib-current-state?      rib-state-def
|      | | +--ro rib-last-state?        rib-state-def
|      | | +--ro rib-rejected-reason?    enumeration
|      | | +--ro not-preferred-reason?   enumeration
|      | +--rw (bgp-mvpn-route-type)?
|      | +--:(INTRA_AS_I_PMSI_AD)
|      | | +--rw intra-as-i-pmsi-ad-route* [route-type route-
distinguisher origin-router-ip-addr]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-distinguisher   route-distinguisher-def
|      | | | +--rw origin-router-ip-addr  inet:ip-prefix
|      | | +--:(INTER_AS_I_PMSI_AD)
|      | | | +--rw inter_as_i_pmsi_as_route* [route-type route-
distinguisher source-as]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-distinguisher   route-distinguisher-def
|      | | | +--rw source-as             inet:as-number
|      | | +--:(S_PMSI_AD)
|      | | | +--rw s-pmsi-ad-route* [route-type route-distinguisher
multicast-source multicast-group origin-router-ip-addr]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-distinguisher   route-distinguisher-def
|      | | | +--rw multicast-source       inet:ip-prefix
|      | | | +--rw multicast-group       inet:ip-prefix
|      | | | +--rw origin-router-ip-addr  inet:ip-prefix
|      | | +--:(LEAF_AD)
|      | | | +--rw leaf-ad-route* [route-type route-key origin-router-
ip-addr]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-key             binary
|      | | | +--rw origin-router-ip-addr  inet:ip-prefix
|      | | +--:(SOURCE_ACTIVE_AD)
|      | | | +--rw source-active-ad-route* [route-type route-
distinguisher multicast-source multicast-group]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-distinguisher   route-distinguisher-def
|      | | | +--rw multicast-source       inet:ip-prefix
|      | | | +--rw multicast-group       inet:ip-prefix
|      | | +--:(SHARED_TREE_JOIN)
|      | | | +--rw shared-tree-join-route* [route-type route-
distinguisher source-as multicast-source multicast-group]
|      | | | +--rw route-type            mvpn-route-type
|      | | | +--rw route-distinguisher   route-distinguisher-def
|      | | | +--rw source-as             inet:as-number
|      | | | +--rw multicast-source       inet:ip-prefix
|      | | | +--rw multicast-group       inet:ip-prefix

```

			+-: (SOURCE_TREE_JOIN)	
			+-rw source-tree-join-route*	[route-type route-
distinguisher		source-as	multicast-source	multicast-group]
			+-rw route-type	mvpn-route-type
			+-rw route-distinguisher	route-distinguisher-def
			+-rw source-as	inet:as-number
			+-rw multicast-source	inet:ip-prefix

```

|         |         +--rw multicast-group          inet:ip-prefix
| +--rw bgp-rib-out
|   +--rw bgp-route-type?          enumeration
|   +--rw bgp-attribute-list
|     | +--rw bgp-origin?          enumeration
|     | +--rw bgp-aspath
|     | | +--rw usascount?         uint16
|     | | +--rw ulrefcount?       uint16
|     | | +--rw asstring?         string
|     | | +--ro usascountfrcomp?  uint16
|     | | +--rw usastotalcount?   uint16
|     | | +--rw usas4pathlen?     uint16
|     | | +--rw as4pathvalue?     string
|     | +--rw bgp-nexthop?        inet:ip-address
|     | +--rw bgp-med?            uint32
|     | +--rw bgp-localpref?      uint32
|     | +--rw bgp-atomic-aggregate? uint32
|     | +--rw bgp-aggregator
|     | | +--rw ulipaddress?      uint32
|     | | +--rw ulasnumber?      uint32
|     | +--rw bgp-commattr
|     | | +--rw uscommsize?       uint16
|     | | +--rw ulrefcomm?       uint32
|     | | +--rw commattr-value?  string
|     | +--rw bgp-extcommattr
|     | | +--rw usextcommsize?    uint16
|     | | +--rw ulrefcount?      uint32
|     | | +--rw extcommattr-value? string
|     | +--rw bgp-clusterlist
|     | | +--rw uscluslen?       uint16
|     | | +--rw ulrefclus?      uint32
|     | | +--rw clusterlist-value? string
|     | +--rw bgp-originator-id? uint32
| +--ro bgp-route-create?          enumeration
| +--ro bgp-rt-state-info
|   | +--ro rib-current-state?    rib-state-def
|   | +--ro rib-last-state?      rib-state-def
|   | +--ro rib-rejected-reason?  enumeration
|   | +--ro not-preferred-reason? enumeration
| +--rw (bgp-mvpn-route-type)?
|   +--:(INTRA_AS_I_PMSI_AD)
|     | +--rw intra-as-i-pmsi-ad-route* [route-type route-
distinguisher origin-router-ip-addr]
|       | +--rw route-type        mvpn-route-type
|       | +--rw route-distinguisher route-distinguisher-def
|       | +--rw origin-router-ip-addr inet:ip-prefix
|   +--:(INTER_AS_I_PMSI_AD)
|     | +--rw inter_as_i_pmsi_as_route* [route-type route-

```

```
distinguisher source-as]
|               |  +--rw route-type          mvpn-route-type
```

```

|         |         +--rw route-distinguisher    route-distinguisher-def
|         |         +--rw source-as              inet:as-number
|         +---:(S_PMSI_AD)
|         |         +--rw s-pmsi-ad-route* [route-type route-distinguisher
multicast-source multicast-group origin-router-ip-addr]
|         |         +--rw route-type              mvpn-route-type
|         |         +--rw route-distinguisher      route-distinguisher-def
|         |         +--rw multicast-source          inet:ip-prefix
|         |         +--rw multicast-group           inet:ip-prefix
|         |         +--rw origin-router-ip-addr     inet:ip-prefix
|         +---:(LEAF_AD)
|         |         +--rw leaf-ad-route* [route-type route-key origin-router-
ip-addr]
|         |         +--rw route-type              mvpn-route-type
|         |         +--rw route-key                binary
|         |         +--rw origin-router-ip-addr     inet:ip-prefix
|         +---:(SOURCE_ACTIVE_AD)
|         |         +--rw source-active-ad-route* [route-type route-
distinguisher multicast-source multicast-group]
|         |         +--rw route-type              mvpn-route-type
|         |         +--rw route-distinguisher      route-distinguisher-def
|         |         +--rw multicast-source          inet:ip-prefix
|         |         +--rw multicast-group           inet:ip-prefix
|         +---:(SHARED_TREE_JOIN)
|         |         +--rw shared-tree-join-route* [route-type route-
distinguisher source-as multicast-source multicast-group]
|         |         +--rw route-type              mvpn-route-type
|         |         +--rw route-distinguisher      route-distinguisher-def
|         |         +--rw source-as                inet:as-number
|         |         +--rw multicast-source          inet:ip-prefix
|         |         +--rw multicast-group           inet:ip-prefix
|         +---:(SOURCE_TREE_JOIN)
|         |         +--rw source-tree-join-route* [route-type route-
distinguisher source-as multicast-source multicast-group]
|         |         +--rw route-type              mvpn-route-type
|         |         +--rw route-distinguisher      route-distinguisher-def
|         |         +--rw source-as                inet:as-number
|         |         +--rw multicast-source          inet:ip-prefix
|         |         +--rw multicast-group           inet:ip-prefix
+--rw bgp-mcast-vpls-instance
| +--rw bgp-instance-name?    string
| +--rw bgp-instance-create?  enumeration
| +--rw bgp-instance-type?    enumeration
| +--rw bgp-vendor-type?      enumeration
| +--rw afi?                  afi-def
| +--rw safi?                  safi-def
| +--rw bgp-local-rib
| | +--rw bgp-route-type?      enumeration

```

```
| | +--rw bgp-attribute-list
| | | +--rw bgp-origin?          enumeration
| | | +--rw bgp-aspath
| | | | +--rw usascount?         uint16
| | | | +--rw ulrefcount?       uint16
```

```

| | | | +--rw asstring?          string
| | | | +--ro usascountfrcomp?   uint16
| | | | +--rw usastotalcount?    uint16
| | | | +--rw usas4pathlen?      uint16
| | | | +--rw as4pathvalue?      string
| | | +--rw bgp-nexthop?         inet:ip-address
| | | +--rw bgp-med?             uint32
| | | +--rw bgp-localpref?       uint32
| | | +--rw bgp-atomic-aggregate? uint32
| | | +--rw bgp-aggregator
| | | | +--rw ulipaddress?        uint32
| | | | +--rw ulasnumber?        uint32
| | | +--rw bgp-commattr
| | | | +--rw uscommsize?         uint16
| | | | +--rw ulrefcomm?         uint32
| | | | +--rw commattr-value?    string
| | | +--rw bgp-extcommattr
| | | | +--rw usextcommsize?      uint16
| | | | +--rw ulrefcount?        uint32
| | | | +--rw extcommattr-value? string
| | | +--rw bgp-clusterlist
| | | | +--rw uscluslen?         uint16
| | | | +--rw ulrefclus?        uint32
| | | | +--rw clusterlist-value? string
| | | +--rw bgp-originator-id?   uint32
| | +--ro bgp-route-create?       enumeration
| | +--ro bgp-rt-state-info
| | | +--ro rib-current-state?    rib-state-def
| | | +--ro rib-last-state?      rib-state-def
| | | +--ro rib-rejected-reason?  enumeration
| | | +--ro not-preferred-reason? enumeration
| | +--rw (bgp-mcast-vpls-route-type)?
| | | +--:(SELECTIVE_TREE_AD_ROUTE)
| | | | +--rw selective-tree-ad-route* [route-type route-
distinguisher multicast-source multicast-group origin-router-ip-addr]
| | | | | +--rw route-type          mcast-vpls-route-type
| | | | | +--rw route-distinguisher route-distinguisher-def
| | | | | +--rw multicast-source    inet:ip-prefix
| | | | | +--rw multicast-group     inet:ip-prefix
| | | | | +--rw origin-router-ip-addr inet:ip-prefix
| | | | +--:(LEAF_AD)
| | | | +--rw leaf-ad-route* [route-type route-key origin-router-ip-
addr]
| | | | | +--rw route-type          mcast-vpls-route-type
| | | | | +--rw route-key          binary
| | | | | +--rw origin-router-ip-addr inet:ip-prefix
| | +--rw bgp-peer-list* [bgp-peer-name]
| | +--rw peer-session-address

```

```
|      | +--rw local-ipv4-address?    inet:ipv4-prefix
|      | +--rw remote-ipv4-address?  inet:ipv4-prefix
```

```

|   +---rw bgp-peer-name          string
|   +---ro bgp-peer-type?         enumeration
|   +---ro bgp-peer-create?       enumeration
|   +---rw bgp-policy-in
|   +---rw bgp-policy-out
|   +---ro peer-policy-in-pset
|   +---ro peer-policy-out-pset
|   +---rw peer-state-info
|   |   +---ro peer-current-state?    peer-state
|   |   +---ro peer-last-state?      peer-state
|   |   +---ro peer-down-reason
|   |   |   +---ro error-code?        enumeration
|   |   |   +---ro sub-error-code
|   |   |   |   +---ro (sub-error-code-type)?
|   |   |   |   |   +---:(head-error-sub-code)
|   |   |   |   |   |   +---ro head-error-sub-value?    enumeration
|   |   |   |   |   +---:(open-error-sub-code)
|   |   |   |   |   |   +---ro open-error-sub-value?    enumeration
|   |   |   |   |   +---:(update-error-sub-code)
|   |   |   |   |   |   +---ro update-error-sub-value?  enumeration
|   |   |   |   |   +---:(route-refresh-error-sub-code)
|   |   |   |   |   |   +---ro route-refresh-error-sub-value?  enumeration
|   |   +---ro peer-received-update-cnt?  uint64
|   |   +---ro peer-transmit-update-cnt?  uint64
|   |   +---ro peer-received-route-cnt?   uint64
|   |   +---ro peer-send-route-cnt?       uint64
|   |   +---rw max-prefix-rcv-limit?      uint64
|   |   +---rw max-prefix-xmt-limit?      uint64
|   |   +---ro peer-prefix-high?          uint64
|   |   +---ro peer-prefix-low?           uint64
|   |   +---ro peer-perfix-ave?           uint64
|   |   +---ro peer-prefix-time?          uint64
|   |   +---ro peer-prefix-max?           uint64
|   |   +---ro publish-version?           uint64
|   +---rw bgp-rib-in
|   |   +---rw bgp-route-type?            enumeration
|   |   +---rw bgp-attribute-list
|   |   |   +---rw bgp-origin?            enumeration
|   |   |   +---rw bgp-aspath
|   |   |   |   +---rw usascount?          uint16
|   |   |   |   +---rw ulrefcount?         uint16
|   |   |   |   +---rw asstring?           string
|   |   |   |   +---ro usascountfrcomp?    uint16
|   |   |   |   +---rw usastotalcount?     uint16
|   |   |   |   +---rw usas4pathlen?       uint16
|   |   |   |   +---rw as4pathvalue?       string
|   |   |   +---rw bgp-nexthop?           inet:ip-address
|   |   |   +---rw bgp-med?               uint32

```



```

|         | | +--rw bgp-localpref?          uint32
|         | | +--rw bgp-atomic-aggregate?   uint32
|         | | +--rw bgp-aggregator
|         | | | +--rw ulipaddress?          uint32
|         | | | +--rw ulasnumber?          uint32
|         | | +--rw bgp-commattr
|         | | | +--rw uscommsize?           uint16
|         | | | +--rw ulrefcomm?           uint32
|         | | | +--rw commattr-value?      string
|         | | +--rw bgp-extcommattr
|         | | | +--rw usextcommsize?        uint16
|         | | | +--rw ulrefcount?          uint32
|         | | | +--rw extcommattr-value?    string
|         | | +--rw bgp-clusterlist
|         | | | +--rw uscluslen?           uint16
|         | | | +--rw ulrefclus?           uint32
|         | | | +--rw clusterlist-value?    string
|         | | +--rw bgp-originator-id?      uint32
|         | +--ro bgp-route-create?          enumeration
|         | +--ro bgp-rt-state-info
|         | | +--ro rib-current-state?      rib-state-def
|         | | +--ro rib-last-state?         rib-state-def
|         | | +--ro rib-rejected-reason?    enumeration
|         | | +--ro not-preferred-reason?   enumeration
|         | +--rw (bgp-mcast-vpls-route-type)?
|         | | +--:(SELECTIVE_TREE_AD_ROUTE)
|         | | | +--rw selective-tree-ad-route* [route-type route-
distinguisher multicast-source multicast-group origin-router-ip-addr]
|         | | | +--rw route-type            mcast-vpls-route-type
|         | | | +--rw route-distinguisher    route-distinguisher-def
|         | | | +--rw multicast-source        inet:ip-prefix
|         | | | +--rw multicast-group         inet:ip-prefix
|         | | | +--rw origin-router-ip-addr  inet:ip-prefix
|         | | +--:(LEAF_AD)
|         | | | +--rw leaf-ad-route* [route-type route-key origin-router-
ip-addr]
|         | | | +--rw route-type            mcast-vpls-route-type
|         | | | +--rw route-key              binary
|         | | | +--rw origin-router-ip-addr  inet:ip-prefix
|         | +--rw bgp-rib-out
|         | | +--rw bgp-route-type?          enumeration
|         | | +--rw bgp-attribute-list
|         | | | +--rw bgp-origin?            enumeration
|         | | | +--rw bgp-aspath
|         | | | | +--rw usascount?           uint16
|         | | | | +--rw ulrefcount?         uint16
|         | | | | +--rw asstring?           string
|         | | | | +--ro usascountfrcomp?    uint16

```

			+--rw usastotalcount?	uint16
			+--rw usas4pathlen?	uint16

```

|         | | +--rw as4pathvalue?      string
|         | +--rw bgp-nexthop?         inet:ip-address
|         | +--rw bgp-med?             uint32
|         | +--rw bgp-localpref?       uint32
|         | +--rw bgp-atomic-aggregate? uint32
|         | +--rw bgp-aggregator
|         | | +--rw ulipaddress?      uint32
|         | | +--rw ulasnumber?      uint32
|         | +--rw bgp-commattr
|         | | +--rw uscommsize?       uint16
|         | | +--rw ulrefcomm?       uint32
|         | | +--rw commattr-value?  string
|         | +--rw bgp-extcommattr
|         | | +--rw usextcommsize?    uint16
|         | | +--rw ulrefcount?      uint32
|         | | +--rw extcommattr-value? string
|         | +--rw bgp-clusterlist
|         | | +--rw uscluslen?       uint16
|         | | +--rw ulrefclus?      uint32
|         | | +--rw clusterlist-value? string
|         | +--rw bgp-originator-id?  uint32
|         +--ro bgp-route-create?      enumeration
|         +--ro bgp-rt-state-info
|         | +--ro rib-current-state?   rib-state-def
|         | +--ro rib-last-state?     rib-state-def
|         | +--ro rib-rejected-reason? enumeration
|         | +--ro not-preferred-reason? enumeration
|         +--rw (bgp-mcast-vpls-route-type)?
|         | +--:(SELECTIVE_TREE_AD_ROUTE)
|         | | +--rw selective-tree-ad-route* [route-type route-
distinguisher multicast-source multicast-group origin-router-ip-addr]
|         | | +--rw route-type          mcast-vpls-route-type
|         | | +--rw route-distinguisher route-distinguisher-def
|         | | +--rw multicast-source     inet:ip-prefix
|         | | +--rw multicast-group      inet:ip-prefix
|         | | +--rw origin-router-ip-addr inet:ip-prefix
|         | +--:(LEAF_AD)
|         | +--rw leaf-ad-route* [route-type route-key origin-router-
ip-addr]
|         | +--rw route-type          mcast-vpls-route-type
|         | +--rw route-key           binary
|         | +--rw origin-router-ip-addr inet:ip-prefix
+--rw bgp-evpn-instance
  +--rw bgp-instance-name?      string
  +--rw bgp-instance-create?    enumeration
  +--rw bgp-instance-type?      enumeration
  +--rw bgp-vendor-type?        enumeration
  +--rw afi?                    afi-def

```

```
+--rw safi?                safi-def
+--rw bgp-local-rib
```

```

| +--rw bgp-route-type?          enumeration
| +--rw bgp-attribute-list
| | +--rw bgp-origin?           enumeration
| | +--rw bgp-aspath
| | | +--rw usascount?          uint16
| | | +--rw ulrefcount?         uint16
| | | +--rw asstring?           string
| | | +--ro usascountfrcomp?    uint16
| | | +--rw usastotalcount?     uint16
| | | +--rw usas4pathlen?       uint16
| | | +--rw as4pathvalue?       string
| | +--rw bgp-nexthop?          inet:ip-address
| | +--rw bgp-med?              uint32
| | +--rw bgp-localpref?        uint32
| | +--rw bgp-atomic-aggregate? uint32
| | +--rw bgp-aggregator
| | | +--rw ulipaddress?        uint32
| | | +--rw ulasnumber?         uint32
| | +--rw bgp-commattr
| | | +--rw uscommsize?          uint16
| | | +--rw ulrefcomm?          uint32
| | | +--rw commattr-value?     string
| | +--rw bgp-extcommattr
| | | +--rw usextcommsize?       uint16
| | | +--rw ulrefcount?         uint32
| | | +--rw extcommattr-value?  string
| | +--rw bgp-clusterlist
| | | +--rw uscluslen?          uint16
| | | +--rw ulrefclus?          uint32
| | | +--rw clusterlist-value?  string
| | +--rw bgp-originator-id?    uint32
| +--ro bgp-route-create?        enumeration
| +--ro bgp-rt-state-info
| | +--ro rib-current-state?     rib-state-def
| | +--ro rib-last-state?        rib-state-def
| | +--ro rib-rejected-reason?   enumeration
| | +--ro not-preferred-reason?  enumeration
| +--rw (bgp-evpn-route-type)?
| | +--:(EVPN_AD_ROUTE)
| | | +--rw evpn-ad-route* [route-type route-distinguisher esi eth-
tag-id]
| | | | +--rw route-type          evpn-route-type
| | | | +--rw route-distinguisher route-distinguisher-def
| | | | +--rw esi                  string
| | | | +--rw eth-tag-id           uint32
| | | +--:(EVPN_MAC_ROUTE)
| | | | +--rw evpn-mac-route* [route-type route-distinguisher esi
eth-tag-id mac-length mac-address ip-address-length ip-address]

```

		+-rw route-type	evpn-route-type
		+-rw route-distinguisher	route-distinguisher-def

```

|      |      +--rw esi                      string
|      |      +--rw eth-tag-id                uint32
|      |      +--rw mac-length                uint8
|      |      +--rw mac-address               yang:mac-address
|      |      +--rw ip-address-length          uint8
|      |      +--rw ip-address                inet:ip-address
|      |      +--rw label1?                   uint32
|      |      +--rw label2?                   uint32
|      |      +--:(EVPN_INC_MCAST_TREE)
|      |      +--rw evpn-inc-mcast-tree-route* [route-type route-
distinguisher eth-tag-id ip-address-length origin-router-ip-addr]
|      |      +--rw route-type                evpn-route-type
|      |      +--rw route-distinguisher        route-distinguisher-def
|      |      +--rw eth-tag-id                uint32
|      |      +--rw ip-address-length          uint8
|      |      +--rw origin-router-ip-addr      inet:ip-prefix
|      |      +--:(EVPN_ETH_SEGMENT_ROUTE)
|      |      +--rw evpn-eth-segment-route* [route-type route-distinguisher
esi ip-address-length origin-router-ip-addr]
|      |      +--rw route-type                evpn-route-type
|      |      +--rw route-distinguisher        route-distinguisher-def
|      |      +--rw esi                      string
|      |      +--rw ip-address-length          uint8
|      |      +--rw origin-router-ip-addr      inet:ip-prefix
+--rw bgp-peer-list* [bgp-peer-name]
+--rw peer-session-address
| +--rw local-ipv4-address?    inet:ipv4-prefix
| +--rw remote-ipv4-address?  inet:ipv4-prefix
+--rw bgp-peer-name            string
+--ro bgp-peer-type?           enumeration
+--ro bgp-peer-create?         enumeration
+--rw bgp-policy-in
+--rw bgp-policy-out
+--ro peer-policy-in-pset
+--ro peer-policy-out-pset
+--rw peer-state-info
| +--ro peer-current-state?    peer-state
| +--ro peer-last-state?      peer-state
| +--ro peer-down-reason
| | +--ro error-code?          enumeration
| | +--ro sub-error-code
| |   +--ro (sub-error-code-type)?
| |   +--:(head-error-sub-code)
| |   | +--ro head-error-sub-value?          enumeration
| |   +--:(open-error-sub-code)
| |   | +--ro open-error-sub-value?          enumeration
| |   +--:(update-error-sub-code)
| |   | +--ro update-error-sub-value?        enumeration

```

		+--:(route-refresh-error-sub-code)	
		+--ro route-refresh-error-sub-value?	enumeration

```

| +--ro peer-received-update-cnt?    uint64
| +--ro peer-transmit-update-cnt?    uint64
| +--ro peer-received-route-cnt?    uint64
| +--ro peer-send-route-cnt?        uint64
| +--rw max-prefix-rcv-limit?        uint64
| +--rw max-prefix-xmt-limit?        uint64
| +--ro peer-prefix-high?            uint64
| +--ro peer-prefix-low?             uint64
| +--ro peer-perfix-ave?              uint64
| +--ro peer-prefix-time?            uint64
| +--ro peer-prefix-max?             uint64
| +--ro publish-version?             uint64
+--rw bgp-rib-in
| +--rw bgp-route-type?              enumeration
| +--rw bgp-attribute-list
| | +--rw bgp-origin?                enumeration
| | +--rw bgp-aspath
| | | +--rw usascount?               uint16
| | | +--rw ulrefcount?              uint16
| | | +--rw asstring?                string
| | | +--ro usascountfrcomp?          uint16
| | | +--rw usastotalcount?          uint16
| | | +--rw usas4pathlen?            uint16
| | | +--rw as4pathvalue?            string
| | +--rw bgp-nexthop?               inet:ip-address
| | +--rw bgp-med?                   uint32
| | +--rw bgp-localpref?             uint32
| | +--rw bgp-atomic-aggregate?      uint32
| | +--rw bgp-aggregator
| | | +--rw ulipaddress?              uint32
| | | +--rw ulasnumber?              uint32
| | +--rw bgp-commattr
| | | +--rw uscommsize?               uint16
| | | +--rw ulrefcomm?               uint32
| | | +--rw commattr-value?          string
| | +--rw bgp-extcommattr
| | | +--rw usextcommsize?            uint16
| | | +--rw ulrefcount?              uint32
| | | +--rw extcommattr-value?       string
| | +--rw bgp-clusterlist
| | | +--rw uscluslen?               uint16
| | | +--rw ulrefclus?               uint32
| | | +--rw clusterlist-value?       string
| | +--rw bgp-originator-id?         uint32
+--ro bgp-route-create?              enumeration
+--ro bgp-rt-state-info
| +--ro rib-current-state?            rib-state-def
| +--ro rib-last-state?              rib-state-def

```



```

| | +--ro rib-rejected-reason? enumeration
| | +--ro not-preferred-reason? enumeration
| +--rw (bgp-evpn-route-type)?
|   +--:(EVPN_AD_ROUTE)
|     | +--rw evpn-ad-route* [route-type route-distinguisher esi
eth-tag-id]
|       | +--rw route-type evpn-route-type
|       | +--rw route-distinguisher route-distinguisher-def
|       | +--rw esi string
|       | +--rw eth-tag-id uint32
|       +--:(EVPN_MAC_ROUTE)
|         | +--rw evpn-mac-route* [route-type route-distinguisher esi
eth-tag-id mac-length mac-address ip-address-length ip-address]
|           | +--rw route-type evpn-route-type
|           | +--rw route-distinguisher route-distinguisher-def
|           | +--rw esi string
|           | +--rw eth-tag-id uint32
|           | +--rw mac-length uint8
|           | +--rw mac-address yang:mac-address
|           | +--rw ip-address-length uint8
|           | +--rw ip-address inet:ip-address
|           | +--rw label1? uint32
|           | +--rw label2? uint32
|           +--:(EVPN_INC_MCAST_TREE)
|             | +--rw evpn-inc-mcast-tree-route* [route-type route-
distinguisher eth-tag-id ip-address-length origin-router-ip-addr]
|               | +--rw route-type evpn-route-type
|               | +--rw route-distinguisher route-distinguisher-def
|               | +--rw eth-tag-id uint32
|               | +--rw ip-address-length uint8
|               | +--rw origin-router-ip-addr inet:ip-prefix
|               +--:(EVPN_ETH_SEGMENT_ROUTE)
|                 +--rw evpn-eth-segment-route* [route-type route-
distinguisher esi ip-address-length origin-router-ip-addr]
|                   +--rw route-type evpn-route-type
|                   +--rw route-distinguisher route-distinguisher-def
|                   +--rw esi string
|                   +--rw ip-address-length uint8
|                   +--rw origin-router-ip-addr inet:ip-prefix
+--rw bgp-rib-out
+--rw bgp-route-type? enumeration
+--rw bgp-attribute-list
| +--rw bgp-origin? enumeration
| +--rw bgp-aspath
| | +--rw usascount? uint16
| | +--rw ulrefcount? uint16
| | +--rw asstring? string
| | +--ro usascountfrcomp? uint16

```

```
| | +--rw usastotalcount?    uint16
| | +--rw usas4pathlen?      uint16
| | +--rw as4pathvalue?      string
| +--rw bgp-nexthop?         inet:ip-address
```

```

| +--rw bgp-med?                uint32
| +--rw bgp-localpref?          uint32
| +--rw bgp-atomic-aggregate?   uint32
| +--rw bgp-aggregator
| | +--rw ulipaddress?          uint32
| | +--rw ulasnumber?           uint32
| +--rw bgp-commattr
| | +--rw uscommsize?           uint16
| | +--rw ulrefcomm?            uint32
| | +--rw commattr-value?       string
| +--rw bgp-extcommattr
| | +--rw usextcommsize?        uint16
| | +--rw ulrefcount?           uint32
| | +--rw extcommattr-value?    string
| +--rw bgp-clusterlist
| | +--rw uscluslen?            uint16
| | +--rw ulrefclus?            uint32
| | +--rw clusterlist-value?    string
| +--rw bgp-originator-id?      uint32
+--ro bgp-route-create?          enumeration
+--ro bgp-rt-state-info
| +--ro rib-current-state?       rib-state-def
| +--ro rib-last-state?          rib-state-def
| +--ro rib-rejected-reason?     enumeration
| +--ro not-preferred-reason?    enumeration
+--rw (bgp-evpn-route-type)?
+--:(EVPN_AD_ROUTE)
| +--rw evpn-ad-route* [route-type route-distinguisher esi
eth-tag-id]
| | +--rw route-type              evpn-route-type
| | +--rw route-distinguisher     route-distinguisher-def
| | +--rw esi                     string
| | +--rw eth-tag-id              uint32
+--:(EVPN_MAC_ROUTE)
| +--rw evpn-mac-route* [route-type route-distinguisher esi
eth-tag-id mac-length mac-address ip-address-length ip-address]
| | +--rw route-type              evpn-route-type
| | +--rw route-distinguisher     route-distinguisher-def
| | +--rw esi                     string
| | +--rw eth-tag-id              uint32
| | +--rw mac-length              uint8
| | +--rw mac-address              yang:mac-address
| | +--rw ip-address-length        uint8
| | +--rw ip-address              inet:ip-address
| | +--rw label1?                 uint32
| | +--rw label2?                 uint32
+--:(EVPN_INC_MCAST_TREE)
| +--rw evpn-inc-mcast-tree-route* [route-type route-

```

```
distinguisher eth-tag-id ip-address-length origin-router-ip-addr]
|      +--rw route-type          evpn-route-type
|      +--rw route-distinguisher  route-distinguisher-def
```

```

|      +--rw eth-tag-id          uint32
|      +--rw ip-address-length   uint8
|      +--rw origin-router-ip-addr inet:ip-prefix
+---:(EVPN_ETH_SEGMENT_ROUTE)
    +--rw evpn-eth-segment-route* [route-type route-
distinguisher esi ip-address-length origin-router-ip-addr]
        +--rw route-type          evpn-route-type
        +--rw route-distinguisher route-distinguisher-def
        +--rw esi                  string
        +--rw ip-address-length    uint8
        +--rw origin-router-ip-addr inet:ip-prefix

```

4. BGP Yang description

```
//<code begins> file "i2rs bgp@2014-09-30.yang"
```

```

module bgp-protocol {

  namespace "urn:huawei:params:xml:ns:yang:rt:i2rs:bgp";
  // replace with iana namespace when assigned
  prefix "bgp-protocol";

  import ietf-inet-types {
    prefix inet;
    //rfc6991
  }
  import ietf-yang-types {
    prefix yang;
    //RFC6991
  }

  organization
    "huawei technologies co., ltd. ";
  contact
    "email: wanglixing@huawei.com
    email: shares@ndzh.com
    email: zhuangshunwan@huawei.com";

  description
    "
      terms and acronyms

      isis (isis):

      ip (ip): internet protocol

      ipv4 (ipv4):internet protocol version 4

```



```
    ipv6 (ipv6): internet protocol version 6

    metric(metric): multi exit discriminator

    igp (igp): interior gateway protocol

    mtu (mtu) maximum transmission unit
";
```

```
revision "2014-08-22" {
    description "initial revision";
    reference "draft-hares-i2rs-bgp-im-00";
}
```

```
/*common definition wanglixing*/
```

```
typedef afi-def {
    description
        "afi is address family,it can be write and read.";
    type enumeration {
        enum "ipv4";
        enum "ipv6";
        enum "l2vpn";
    }
}
```

```
typedef safi-def {
    description
        "afi is sub-address family,it can be write and read. ";
    type enumeration {
        enum "unicast";
        enum "multicast";
        enum "l3vpn";
        enum "mpls";
        enum "mvpn";
        enum "rt-constrain";
        enum "ipv4-flow-spec";
        enum "vpnv4-flow-spec";
        enum "clns-vpn";
        enum "ng-mvpn";
        enum "mdt-safi";
    }
}
```

```
typedef mvpn-route-type {
    reference "http://tools.ietf.org/html/rfc6514#section-4";
    type enumeration {
        enum INTRA_AS_I_PMSI_AD {
```



```
        value 1;
    }
    enum INTER_AS_I_PMSI_AD {
        value 2;
    }
    enum S_PMSI_AD {
        value 3;
    }
    enum LEAF_AD {
        value 4;
    }
    enum SOURCE_ACTIVE_AD {
        value 5;
    }
    enum SHARED_TREE_JOIN {
        value 6;
    }
    enum SOURCE_TREE_JOIN {
        value 7;
    }
}

typedef mcast-vpls-route-type {
    reference "http://tools.ietf.org/html/rfc7117#section-9.2";
    type enumeration {
        enum SELECTIVE_TREE_AD_ROUTE {
            value 3;
        }
        enum LEAF_AD {
            value 4;
        }
    }
}

typedef evpn-route-type {
    reference "draft-ietf-l2vpn-evpn-08";
    type enumeration {
        enum EVPN_AD_ROUTE {
            value 1;
        }
        enum EVPN_MAC_ROUTE {
            value 2;
        }
        enum EVPN_INC_MCAST_TREE {
            value 3;
        }
        enum EVPN_ETH_SEGMENT_ROUTE {
```



```
        value 4;
    }
}

typedef bgp-route-create-mode {
    description
        "the way of creating of bgp route.";
    type enumeration {
        enum "not-i2rs-route";
        enum "i2rsclient-create-bgp-route";
        enum "i2rsagent-fails-bgp-route-create";
        enum "i2rsagent-created-bgp-route";
        enum "i2rsagent-bgp-route-create";
        enum "i2rsagent-rejects-bgp-route-create";
        enum "i2rsagent-attempts-bgp-route-create";
    }
}

typedef bgp-route-type-def {
    type enumeration {
        enum "bgp-route-type-rd";
        enum "bgp-route-type-ipv4";
        enum "bgp-route-type-ipv6";
        enum "bgp-labeled-ipv4";
        enum "bgp-labeled-ipv6";
        enum "bgp-route-type-flow";
        enum "bgp-route-type-evpn";
        enum "bgp-route-type-mvpn";
        enum "bgp-route-type-vpls";
        enum "bgp-route-type-bgp-ls";
        enum "bgp-route-type-l2vpn-signaling-nlri";
        enum "bgp-rt-constraint";
        enum "pw-route";
    }
}

typedef peer-state {
    type enumeration {
        enum "established";
        enum "idle";
        enum "connect";
        enum "active";
        enum "open-send";
        enum "open-confirm";
    }
}

typedef rib-state-def {
```



```
    type enumeration {
      enum "active";
      enum "in-active";
      enum "primary";
      enum "backup";
      enum "suppress";
    }
  }

  typedef mpls-label-def {
    description
      "label of the vrf.";
    type uint32 {
      range "16..1048574";
    }
  }

  typedef route-distinguisher-def {
    description
      "the route-distinguisher command configures a route distinguisher (rd)
      for the ipv4 or ipv6 address family of a vpn instance.
      format is asn:nn or ip-address:nn.";
    type string {
      length "3..21";
    }
  }
}

grouping bgp-instance-commom {
  description
    "the common structure of bgp instance.";

  leaf bgp-instance-name {
    type string;
  }

  leaf bgp-instance-create {
    type enumeration {
      enum "not-i2rs";
      enum "i2rsclient-create-bgp-instance";
      enum "i2rsagent-fails-bgp-instance-create";
      enum "i2rsagent-created-bgp-instance";
      enum "i2rsagent-bgp-instance-create";
      enum "i2rsagent-rejects-bgp-instance-create";
      enum "i2rsagent-attempts-bgp-instance-create";
    }
  }
}
```



```
leaf bgp-instance-type {
  type enumeration {
    enum "bgp-ipv4-uni";
    enum "bgp-ipv4-multi";
    enum "bgp-ipv4-l3vpn";
    enum "bgp-ipv4-mvpn";
    enum "bgp-vpls";
    enum "bgp-mdt";
    enum "bgp-evpn";
    enum "bgp-ls";
    enum "bgp-ipv4-mpls-vpn";
    enum "bgp-ipv4-mpls-mvpn";
    enum "bgp-route-target";
    enum "bgp-ipv4-flow";
    enum "bgp-ipv4-vpn-flow";
    enum "bgp-ipv4-vrf-list";
    enum "bgp-ipv6-vrf-list";
    enum "bgp-ipv6-uni";
    enum "bgp-ipv6-vpnv6";
  }
}

leaf bgp-vendor-type {
  type enumeration {
    enum "cisco";
    enum "huawei";
  }
}

leaf afi {
  type afi-def;
}

leaf safi {
  type safi-def;
}

}

grouping bgp-route-common {
  leaf bgp-route-type {
    type enumeration {
      enum "bgp-route-type-rd";
      enum "bgp-route-type-ipv4";
      enum "bgp-route-type-ipv6";
      enum "bgp-labeled-ipv4";
    }
  }
}
```



```
enum "bgp-labeled-ipv6";
enum "bgp-route-type-flow";
enum "bgp-route-type-evpn";
enum "bgp-route-type-mvpn";
enum "bgp-route-type-vpls";
enum "bgp-route-type-bgp-ls";
enum "bgp-route-type-l2vpn-signaling-nlri";
enum "bgp-rt-constraint";
enum "pw-route";
}
}

container bgp-attribute-list {
  leaf bgp-origin {
    type enumeration {
      enum "bgp-originattr-igp";
      enum "bgp-originattr-egp";
      enum "bgp-originattr-incomplete";
    }
  }
}

container bgp-aspath {
  leaf usascount {
    description
      "number of as's in the as path, exclude
      confed-sequence and confed-set.";

    type uint16;
  }
  leaf ulrefcount {
    description
      "reference count to this aspath.";

    type uint16;
  }
  leaf asstring {
    type string;
  }
}

leaf usascountfrcomp {
  description
    "the count used for selecting best route,
    all as-seq + 1(if exist as-set) or 0 (if no as-set),
    ignore conf-as type.";

  config "false";
  type uint16;
}
```



```
    leaf usastotalcount {
      description
        "for as-path-limit.";
      type uint16;
    }
    leaf usas4pathlen {
      description
        " length of pucas4pathvalue, tlv's 1.";
      type uint16;
    }

    leaf as4pathvalue {
      type string;
    }

  } //end of "container bgp-aspath"

  leaf bgp-nexthop {
    type inet:ip-address;
  }

  leaf bgp-med {
    type uint32;
  }

  leaf bgp-localpref {
    type uint32;          }

  leaf bgp-atomic-aggregate {
    type uint32;
  }

  container bgp-aggregator {
    leaf ulipaddress {
      description
        "ip address formed the aggregate route.";
      type uint32;
    }
    leaf ulasnumber {
      description
        "last as number that formed the aggregate route";
      type uint32;
    }
  }

  container bgp-commattr {
    leaf uscommsize {
      description
```



```
        "number of communities.";

        type uint16;
    }
    leaf ulrefcomm {
        description
            "number of routes having the same community value.";

        type uint32;
    }
    leaf commattr-value {
        description
            "community value.";

        type string;
    }
}

container bgp-extcommattr {
    leaf usextcommsize {
        description
            "number of communities.";

        type uint16;
    }
    leaf ulrefcount {
        description
            "number of routes having the same community value.";

        type uint32;
    }
    leaf extcommattr-value {
        description
            "community value.";

        type string;
    }
} //end of "container bgp-extcommattr"

container bgp-clusterlist {
    leaf uscluslen {
        description
            "length of cluster list.";

        type uint16;
    }
    leaf ulrefclus {
        description
```



```
        "count of number of routes referring to this
        cluster list.";

        type uint32;
    }
    leaf clusterlist-value {
        description
            "cluster list values.";

        type string;
    }
}

leaf bgp-originator-id {
    description
        "ip address of the originator id.";

    type uint32;
}

}

leaf bgp-route-create {
    description
        "the way of creating of bgp route.";
    type enumeration {
        enum "not-i2rs-route";
        enum "i2rsclient-create-bgp-route";
        enum "i2rsagent-fails-bgp-route-create";
        enum "i2rsagent-created-bgp-route";
        enum "i2rsagent-bgp-route-create";
        enum "i2rsagent-rejects-bgp-route-create";
        enum "i2rsagent-attempts-bgp-route-create";
    }
    config false;
}

container bgp-rt-state-info {
    config false;
    leaf rib-current-state{
        type rib-state-def;
        config false;
    }
    leaf rib-last-state{
        type rib-state-def;
        config false;
    }
}
```



```
leaf rib-rejected-reason {
  description
    "the way of creating of bgp route.";
  type enumeration {
    enum "peer-withdraw";
    enum "policy-results";
    enum "nexthop-unreachable";
    enum "malformed-peer-down";
    enum "malformed-discard";
    enum "malformed-ignore";
  }
  config false;
}
leaf not-preferred-reason {
  type enumeration {
    enum "peer-address";
    enum "router-id";
    enum "cluster-list-length";
    enum "igp-metric";
    enum "peer-type";
    enum "origin";
    enum "weight-or-preferred-value";
    enum "local-preference";
    enum "route-type";
    enum "as-path-length";
    enum "med";
  }
  config false;
}
}
```

```
grouping bgp-peer-common {

  leaf bgp-peer-name {
    type string;
  }

  leaf bgp-peer-type {
    description
      "the bgp-peer-type provides a list of bgp peer type found within the
      bgp instances
      associated with the bgp protocol function on the device associated
      with the i2rs agent.
```

these can be asbr (as border router e-bgp), pe (provider edge e-bgp),
ibgp peer,

```
        or rr (route reflector).";
    type enumeration {
        enum "asbr";
        enum "ibgp";
        enum "rr";
        enum "rr-client";
        enum "pe";
        enum "ce";
        enum "bgp-vendor-types";
        enum "bgp-vendor-type";
    }
    config false;
}

leaf bgp-peer-create {
    description
        "provides the i2rs creation status for this peer as: not-created by
        i2rs, requested by client but not processed, or an i2rs agent's
        response to the request: (agent reject peer creation, agent
        attempting peer creation, agent failed peer creation, and agent
        created bgp peer).";
    type enumeration {
        enum "not-i2rs-created-peer";
        enum "i2rsclient-bgp-peer-create-request";
        enum "i2rsagent-rejects-bgp-peer-create";
        enum "i2rsagent-attempts-bgp-instance-create";
        enum "i2rsagent-fails-bgp-instance-create";
        enum "i2rsagent-created-bgp-peer";
    }
    config false;
}
container bgp-policy-in {

}
container bgp-policy-out {

}
container peer-policy-in-pset {
    description "this is the variable the i2rs client reads to receive the
full policy-
    set used for this bgp peers inbound policy.  the i2rs agent must
    to keep this policy variable in-sync with the i2rs peer-policy-in.";
    config false;
}
container peer-policy-out-pset {
    description "this is the variable the i2rs client reads to receive the
full policy-
    set used for this bgp peers inbound policy.  the i2rs agent must
```

```
to keep this policy variable in-sync with the i2rs peer- policy-out.";
config false;
```

```
    }
    container peer-state-info {
      description "the current state of the bgp peer in the bgp state
machine.";
      leaf peer-current-state {
        type peer-state;
        config false;
      }
      leaf peer-last-state {
        description "the last state of the bgp peer according to the bgp state
machine.";
        type peer-state;
        config false;
      }
    }

    container peer-down-reason {
      description "the error code and sub-error code of the last peer down.";
      leaf error-code {
        type enumeration {
          enum message-header-error {
            value "1";
          }
          enum open-message-error {
            value "2";
          }
          enum update-message-error {
            value "3";
          }
          enum hold-timer-expired {
            value "4";
          }
          enum finite-state-machine-error {
            value "5";
          }
          enum cease {
            value "6";
          }
          enum route-refresh-error {
            value "7";
          }
        }
      }
    }

    container sub-error-code {
      choice sub-error-code-type {
        case head-error-sub-code{
          leaf head-error-sub-value {
            type enumeration {
              enum connection-not-synchronized {
```

```
        value "1";  
    }
```

```
        enum bad-message-length {
            value "2";
        }
        enum bad-message-type {
            value "3";
        }
    }
}

case open-error-sub-code{
    leaf open-error-sub-value {
        type enumeration {
            enum unsupported-version-number {
                value "1";
            }
            enum bad-peer-as {
                value "2";
            }
            enum bad-bgp-identifier {
                value "3";
            }
            enum unsupported-optional-parameter {
                value "4";
            }
            enum deprecated-see-appendix-a {
                value "5";
            }
            enum unacceptable-hold-time {
                value "6";
            }
        }
    }
}

case update-error-sub-code{
    leaf update-error-sub-value {
        type enumeration {
            enum malformed-attribute-list {
                value "1";
            }
            enum unrecognized-well-known-attribute {
                value "2";
            }
            enum missing-well-known-attribute {
                value "3";
            }
            enum attribute-flags-error {
                value "4";
            }
        }
    }
}
```



```
        enum attribute-length-error {
            value "5";
        }
        enum invalid-origin-attribute {
            value "6";
        }
        enum deprecated-see-appendix {
            value "7";
        }
        enum invalid-next-hop-attribute {
            value "8";
        }
        enum optional-attribute-error {
            value "9";
        }
        enum invalid-network-field {
            value "10";
        }
        enum malformed-as-path {
            value "11";
        }
    }
}
}
case route-refresh-error-sub-code{
    leaf route-refresh-error-sub-value {
        type enumeration {
            enum invalid-message-length {
                value "1";
            }
        }
    }
}
}
}
}
config false;
}

leaf peer-received-update-cnt {
    description
        "the count of the received update packets..";
    type uint64;
    config false;
}
leaf peer-transmit-update-cnt {
    description
        "the count of the transmit update packets.";
    type uint64;
```



```
        config false;
    }
    leaf peer-received-route-cnt {
        description
            "contains current total number of unique prefix routes received from
peer.";
        type uint64;
        config false;
    }
    leaf peer-send-route-cnt {
        description
            "contains current total number prefix routes sent to peer.";
        type uint64;
        config false;
    }

    leaf max-prefix-rcv-limit {
        description
            "maximum unique prefix routes accepted from peer.";
        type uint64;
    }
    leaf max-prefix-xmt-limit {
        description
            "maximum unique prefix routes transmit to peer.";
        type uint64;
    }

    leaf peer-prefix-high {
        description
            "contains high water mark count of total unique routes by prefix
received from peer.";
        type uint64;
        config false;
    }
    leaf peer-prefix-low {
        description
            "contains the low water mark count of total unique routes by prefix
received from peer.";
        type uint64;
        config false;
    }
    leaf peer-perfix-ave {
        description
            "contains the average number of prefix routes from peer (running).";
        type uint64;
        config false;
    }
    leaf peer-prefix-time {
```

```
    type uint64;  
    config false;  
}
```

```
    leaf peer-prefix-max {
      type uint64;
      config false;
    }
    leaf publish-version {
      type uint64;
      config false;
    }
  }
}
} //end of "container bgp-peer-list"

grouping bgp-mvpn-rib {
  uses bgp-route-common;

  choice bgp-mvpn-route-type {
    case INTRA_AS_I_PMSI_AD {
      list intra-as-i-pmsi-ad-route{
        key "route-type route-distinguisher origin-router-ip-addr";

        leaf route-type{
          type mvpn-route-type;
        }
        leaf route-distinguisher{
          type route-distinguisher-def;
        }
        leaf origin-router-ip-addr{
          type inet:ip-prefix;
        }
      }
    }
    case INTER_AS_I_PMSI_AD {
      list inter_as_i_pmsi_as_route {
        key "route-type route-distinguisher source-as";

        leaf route-type{
          type mvpn-route-type;
        }
        leaf route-distinguisher{
          type route-distinguisher-def;
        }
        leaf source-as{
          type inet:as-number;
        }
      }
    }
    case S_PMSI_AD {
      list s-pmsi-ad-route {
```



```
    key "route-type route-distinguisher multicast-source
        multicast-group origin-router-ip-addr";

    leaf route-type{
        type mvpn-route-type;
    }
    leaf route-distinguisher{
        type route-distinguisher-def;
    }
    leaf multicast-source{
        type inet:ip-prefix;
    }
    leaf multicast-group{
        type inet:ip-prefix;
    }
    leaf origin-router-ip-addr{
        type inet:ip-prefix;
    }
}
}
case LEAF_AD{
    list leaf-ad-route {
        key "route-type route-key origin-router-ip-addr";

        leaf route-type{
            type mvpn-route-type;
        }
        leaf route-key{
            type binary;
        }
        leaf origin-router-ip-addr{
            type inet:ip-prefix;
        }
    }
}
case SOURCE_ACTIVE_AD {
    list source-active-ad-route {
        key "route-type route-distinguisher
            multicast-source multicast-group";

        leaf route-type{
            type mvpn-route-type;
        }
        leaf route-distinguisher{
            type route-distinguisher-def;
        }
        leaf multicast-source{
            type inet:ip-prefix;
```



```
    }
    leaf multicast-group{
      type inet:ip-prefix;
    }
  }
}
case SHARED_TREE_JOIN {
  list shared-tree-join-route {
    key "route-type route-distinguisher source-as
        multicast-source multicast-group";

    leaf route-type{
      type mvpn-route-type;
    }
    leaf route-distinguisher{
      type route-distinguisher-def;
    }
    leaf source-as{
      type inet:as-number;
    }
    leaf multicast-source{
      type inet:ip-prefix;
    }
    leaf multicast-group{
      type inet:ip-prefix;
    }
  }
}
case SOURCE_TREE_JOIN {
  list source-tree-join-route {
    key "route-type route-distinguisher source-as
        multicast-source multicast-group";

    leaf route-type{
      type mvpn-route-type;
    }
    leaf route-distinguisher{
      type route-distinguisher-def;
    }
    leaf source-as{
      type inet:as-number;
    }
    leaf multicast-source{
      type inet:ip-prefix;
    }
    leaf multicast-group{
      type inet:ip-prefix;
    }
  }
}
```



```
    }
  }

}

grouping bgp-mcast-vpls-rib {
  uses bgp-route-common;

  choice bgp-mcast-vpls-route-type {
    case SELECTIVE_TREE_AD_ROUTE {
      list selective-tree-ad-route{
        key "route-type route-distinguisher multicast-source
            multicast-group origin-router-ip-addr";

        leaf route-type{
          type mcast-vpls-route-type;
        }
        leaf route-distinguisher{
          type route-distinguisher-def;
        }
        leaf multicast-source{
          type inet:ip-prefix;
        }
        leaf multicast-group{
          type inet:ip-prefix;
        }
        leaf origin-router-ip-addr{
          type inet:ip-prefix;
        }
      }
    }
  }
  case LEAF_AD {
    list leaf-ad-route {
      key "route-type route-key origin-router-ip-addr";

      leaf route-type{
        type mcast-vpls-route-type;
      }
      leaf route-key{
        type binary;
      }
      leaf origin-router-ip-addr{
        type inet:ip-prefix;
      }
    }
  }
}
```



```
    }
  }

  grouping bgp-evpn-rib {
    uses bgp-route-common;

    choice bgp-evpn-route-type {
      case EVPN_AD_ROUTE {
        list evpn-ad-route{
          key "route-type route-distinguisher esi eth-tag-id";

          leaf route-type{
            type evpn-route-type;
          }
          leaf route-distinguisher{
            type route-distinguisher-def;
          }
          leaf esi{
            type string{
              length "24";
              pattern "(^00([0-9a-fA-F]){2}\.(([0-9a-fA-F]){4}\.){3}
                (([0-9a-fA-F]){4}))$)";
            }
          }
          leaf eth-tag-id {
            type uint32 {
              range "1..4294967295";
            }
          }
        }
      }
    }
  }
  case EVPN_MAC_ROUTE {
    list evpn-mac-route {
      key "route-type route-distinguisher esi eth-tag-id
        mac-length mac-address ip-address-length ip-address";

      leaf route-type{
        type evpn-route-type;
      }
      leaf route-distinguisher{
        type route-distinguisher-def;
      }
      leaf esi{
        type string{
          length "24";
          pattern "(^00([0-9a-fA-F]){2}\.(([0-9a-fA-F]){4}\.){3}
            (([0-9a-fA-F]){4}))$)";
        }
      }
    }
  }
}
```



```
    }
    leaf eth-tag-id {
      type uint32 {
        range "1..4294967295";
      }
    }
    leaf mac-length {
      type uint8 {
        range "48";
      }
    }
    leaf mac-address {
      type yang:mac-address;
    }
    leaf ip-address-length {
      type uint8 {
        range "0..32";
      }
    }
    leaf ip-address {
      type inet:ip-address;
    }
    leaf label1{
      type uint32 {
        range "16..1048574";
      }
    }
    leaf label2{
      type uint32 {
        range "16..1048574";
      }
    }
  }
}

case EVPN_INC_MCAST_TREE {
  list evpn-inc-mcast-tree-route {
    key "route-type route-distinguisher eth-tag-id
        ip-address-length origin-router-ip-addr";

    leaf route-type{
      type evpn-route-type;
    }
    leaf route-distinguisher{
      type route-distinguisher-def;
    }
    leaf eth-tag-id {
      type uint32 {
        range "1..4294967295";
      }
    }
  }
}
```



```
    }
  }
  leaf ip-address-length {
    type uint8; //4 or 16 octets
  }
  leaf origin-router-ip-addr{
    type inet:ip-prefix;
  }
}
}
case EVPN_ETH_SEGMENT_ROUTE{
  list evpn-eth-segment-route {
    key "route-type route-distinguisher esi
ip-address-length origin-router-ip-addr";

    leaf route-type{
      type evpn-route-type;
    }
    leaf route-distinguisher{
      type route-distinguisher-def;
    }
    leaf esi{
      type string{
        length "24";
        pattern "^(^00([0-9a-fA-F]){2}\.(([0-9a-fA-F]){4}\.){3}
([0-9a-fA-F]){4})$)";
      }
    }
  }
  leaf ip-address-length {
    type uint8; //4 or 16 octets
  }
  leaf origin-router-ip-addr{
    type inet:ip-prefix;
  }
}
}
}
}

container bgp-protocol {
  leaf router-id {
    type inet:ip-address;
  }
  leaf as-number {
    type uint32;
  }

  leaf protocol-status {
```



```
    description
      "administrative status of bgp protocol.";
    type enumeration {
      enum "unknown";
      enum "up";
      enum "down";
    }
    config false;
  }

  leaf shutdown-protocol {
    type boolean;
  }

  leaf bgp-role {
    type enumeration {
      enum "asbr";
      enum "pe";
      enum "ibgp";
      enum "rr";
    }
    config false;
  }

  container bgp-ipv4-uni-instance {
    uses bgp-instance-common;
    container bgp-local-rib{
      list bgp-route-list{
        key "ipv4-route ipv4-prefix-length";
        leaf ipv4-route{
          type inet:ipv4-prefix;
        }
        leaf ipv4-prefix-length{
          type uint8;
        }
        uses bgp-route-common;
      }
    }
    list bgp-peer-list{
      key "bgp-peer-name";
      container peer-session-address{
        leaf local-ipv4-address{
          type inet:ipv4-prefix;
        }
        leaf remote-ipv4-address{
          type inet:ipv4-prefix;
        }
      }
    }
  }
```



```
    uses bgp-peer-common;
    container bgp-rib-in{
      list bgp-rib-in-list{
        key "ipv4-route ipv4-prefix-length";
        leaf ipv4-route{
          type inet:ipv4-prefix;
        }
        leaf ipv4-prefix-length{
          type uint8;
        }
        uses bgp-route-common;
      }
    }
    container bgp-rib-out{
      list bgp-rib-out-list{
        key "ipv4-route ipv4-prefix-length";
        leaf ipv4-route{
          type inet:ipv4-prefix;
        }
        leaf ipv4-prefix-length{
          type uint8;
        }
        uses bgp-route-common;
      }
    }
  }
}
container bgp-labeled-ipv4-instance {
  uses bgp-instance-common;
  container bgp-local-rib{
    list bgp-route-list{
      key "ipv4-route ipv4-prefix-length mpls-label";
      leaf ipv4-route{
        type inet:ipv4-prefix;
      }
      leaf ipv4-prefix-length{
        type uint8;
      }
      leaf mpls-label{
        type mpls-label-def;
      }
      uses bgp-route-common;
    }
  }
}
list bgp-peer-list{
  key "bgp-peer-name";
  container peer-session-address{
    leaf local-ipv4-address{
```



```
        type inet:ipv4-prefix;
    }
    leaf remote-ipv4-address{
        type inet:ipv4-prefix;
    }
}
uses bgp-peer-common;
container bgp-rib-in{
    list bgp-rib-in-list{
        key "ipv4-route ipv4-prefix-length mpls-label";
        leaf ipv4-route{
            type inet:ipv4-prefix;
        }
        leaf ipv4-prefix-length{
            type uint8;
        }
        leaf mpls-label{
            type mpls-label-def;
        }
        uses bgp-route-common;
    }
}
container bgp-rib-out{
    list bgp-rib-out-list{
        key "ipv4-route ipv4-prefix-length mpls-label";
        leaf ipv4-route{
            type inet:ipv4-prefix;
        }
        leaf ipv4-prefix-length{
            type uint8;
        }
        leaf mpls-label{
            type mpls-label-def;
        }
        uses bgp-route-common;
    }
}
}
```

```
container bgp-ipv4-multi-instance {
    uses bgp-instance-commom;
    container bgp-local-rib{
        list bgp-route-list{
            key "ipv4-route ipv4-prefix-length";
            leaf ipv4-route{
                type inet:ipv4-prefix;
            }
        }
    }
}
```



```
    }
    leaf ipv4-prefix-length{
        type uint8;
    }
    uses bgp-route-common;
}
}
list bgp-peer-list{
    key "bgp-peer-name";
    container peer-session-address{
        leaf local-ipv4-address{
            type inet:ipv4-prefix;
        }
        leaf remote-ipv4-address{
            type inet:ipv4-prefix;
        }
    }
}
uses bgp-peer-common;
container bgp-rib-in{
    list bgp-rib-in-list{
        key "ipv4-route ipv4-prefix-length";
        leaf ipv4-route{
            type inet:ipv4-prefix;
        }
        leaf ipv4-prefix-length{
            type uint8;
        }
        uses bgp-route-common;
    }
}
container bgp-rib-out{
    list bgp-rib-out-list{
        key "ipv4-route ipv4-prefix-length";
        leaf ipv4-route{
            type inet:ipv4-prefix;
        }
        leaf ipv4-prefix-length{
            type uint8;
        }
        uses bgp-route-common;
    }
}
}
}
}

container bgp-vpnv4-instance {
    uses bgp-instance-commom;
    container bgp-local-rib{
```



```
list bgp-route-list{
  key "ipv4-route ipv4-prefix-length route-distinguisher";
  leaf ipv4-route{
    type inet:ipv4-prefix;
  }
  leaf ipv4-prefix-length{
    type uint8;
  }
  leaf mpls-label{
    type mpls-label-def;
  }
  leaf route-distinguisher{
    type route-distinguisher-def;
  }
  uses bgp-route-common;
}
}
list bgp-peer-list{
  key "bgp-peer-name";
  container peer-session-address{
    leaf local-ipv4-address{
      type inet:ipv4-prefix;
    }
    leaf remote-ipv4-address{
      type inet:ipv4-prefix;
    }
  }
}
uses bgp-peer-common;
container bgp-rib-in{
  list bgp-rib-in-list{
    key "ipv4-route ipv4-prefix-length route-distinguisher";
    leaf ipv4-route{
      type inet:ipv4-prefix;
    }
    leaf ipv4-prefix-length{
      type uint8;
    }
    leaf mpls-label{
      type mpls-label-def;
    }
    leaf route-distinguisher{
      type route-distinguisher-def;
    }
    uses bgp-route-common;
  }
}
}
container bgp-rib-out{
  list bgp-rib-out-list{
```



```
    key "ipv4-route ipv4-prefix-length route-distinguisher";
    leaf ipv4-route{
        type inet:ipv4-prefix;
    }
    leaf ipv4-prefix-length{
        type uint8;
    }
    leaf mpls-label{
        type mpls-label-def;
    }
    leaf route-distinguisher{
        type route-distinguisher-def;
    }
    uses bgp-route-common;
}
}
```

```
list bgp-ipv4-l3vpn-instance-list {
    key "bgp-l3vpn-instance-name";
    leaf bgp-l3vpn-instance-name {
        type string;
    }
    uses bgp-instance-common;
    container bgp-local-rib{
        list bgp-route-list{
            key "ipv4-route ipv4-prefix-length";
            leaf ipv4-route{
                type inet:ipv4-prefix;
            }
            leaf ipv4-prefix-length{
                type uint8;
            }
            uses bgp-route-common;
        }
    }
}
list bgp-peer-list{
    key "bgp-peer-name";
    container peer-session-address{
        leaf local-ipv4-address{
            type inet:ipv4-prefix;
        }
        leaf remote-ipv4-address{
            type inet:ipv4-prefix;
        }
    }
}
```



```
    }
  }
  uses bgp-peer-common;
  container bgp-rib-in{
    list bgp-rib-in-list{
      key "ipv4-route ipv4-prefix-length";
      leaf ipv4-route{
        type inet:ipv4-prefix;
      }
      leaf ipv4-prefix-length{
        type uint8;
      }
      uses bgp-route-common;
    }
  }
  container bgp-rib-out{
    list bgp-rib-out-list{
      key "ipv4-route ipv4-prefix-length";
      leaf ipv4-route{
        type inet:ipv4-prefix;
      }
      leaf ipv4-prefix-length{
        type uint8;
      }
      uses bgp-route-common;
    }
  }
}

/*ipv6*/
container bgp-ipv6-uni-instance {
  uses bgp-instance-common;
  container bgp-local-rib{
    list bgp-route-list{
      key "ipv6-route ipv6-prefix-length";
      leaf ipv6-route{
        type inet:ipv6-prefix;
      }
      leaf ipv6-prefix-length{
        type uint8;
      }
      uses bgp-route-common;
    }
  }
  list bgp-peer-list{
    key "bgp-peer-name";
    container peer-session-address{
```



```
    leaf local-ipv6-address{
      type inet:ipv6-prefix;
    }
    leaf remote-ipv6-address{
      type inet:ipv6-prefix;
    }
  }
  uses bgp-peer-common;
  container bgp-rib-in{
    list bgp-rib-in-list{
      key "ipv6-route ipv6-prefix-length";
      leaf ipv6-route{
        type inet:ipv6-prefix;
      }
      leaf ipv6-prefix-length{
        type uint8;
      }
      uses bgp-route-common;
    }
  }
  container bgp-rib-out{
    list bgp-rib-out-list{
      key "ipv6-route ipv6-prefix-length";
      leaf ipv6-route{
        type inet:ipv6-prefix;
      }
      leaf ipv6-prefix-length{
        type uint8;
      }
      uses bgp-route-common;
    }
  }
}

container bgp-labeled-ipv6-instance {
  uses bgp-instance-commom;
  container bgp-local-rib{
    list bgp-route-list{
      key "ipv6-route ipv6-prefix-length mpls-label";
      leaf ipv6-route{
        type inet:ipv6-prefix;
      }
      leaf ipv6-prefix-length{
        type uint8;
      }
      leaf mpls-label{
        type mpls-label-def;
      }
    }
  }
}
```



```
        uses bgp-route-common;
    }
}
list bgp-peer-list{
    key "bgp-peer-name";
    container peer-session-address{
        leaf local-ipv6-address{
            type inet:ipv6-prefix;
        }
        leaf remote-ipv6-address{
            type inet:ipv6-prefix;
        }
    }
}
uses bgp-peer-common;
container bgp-rib-in{
    list bgp-rib-in-list{
        key "ipv6-route ipv6-prefix-length mpls-label";
        leaf ipv6-route{
            type inet:ipv6-prefix;
        }
        leaf ipv6-prefix-length{
            type uint8;
        }
        leaf mpls-label{
            type mpls-label-def;
        }
        uses bgp-route-common;
    }
}
container bgp-rib-out{
    list bgp-rib-out-list{
        key "ipv6-route ipv6-prefix-length mpls-label";
        leaf ipv6-route{
            type inet:ipv6-prefix;
        }
        leaf ipv6-prefix-length{
            type uint8;
        }
        leaf mpls-label{
            type mpls-label-def;
        }
        uses bgp-route-common;
    }
}
}
```



```
container bgp-ipv6-multi-instance {
  uses bgp-instance-commom;
  container bgp-local-rib{
    list bgp-route-list{
      key "ipv6-route ipv6-prefix-length";
      leaf ipv6-route{
        type inet:ipv6-prefix;
      }
      leaf ipv6-prefix-length{
        type uint8;
      }
      uses bgp-route-common;
    }
  }
  list bgp-peer-list{
    key "bgp-peer-name";
    container peer-session-address{
      leaf local-ipv6-address{
        type inet:ipv6-prefix;
      }
      leaf remote-ipv6-address{
        type inet:ipv6-prefix;
      }
    }
  }
  uses bgp-peer-common;
  container bgp-rib-in{
    list bgp-rib-in-list{
      key "ipv6-route ipv6-prefix-length";
      leaf ipv6-route{
        type inet:ipv6-prefix;
      }
      leaf ipv6-prefix-length{
        type uint8;
      }
      uses bgp-route-common;
    }
  }
  container bgp-rib-out{
    list bgp-rib-out-list{
      key "ipv6-route ipv6-prefix-length";
      leaf ipv6-route{
        type inet:ipv6-prefix;
      }
      leaf ipv6-prefix-length{
        type uint8;
      }
      uses bgp-route-common;
    }
  }
}
```



```
    }
  }
}

container bgp-vpnv6-instance {
  uses bgp-instance-commom;
  container bgp-local-rib{
    list bgp-route-list{
      key "ipv6-route ipv6-prefix-length route-distinguisher";
      leaf ipv6-route{
        type inet:ipv6-prefix;
      }
      leaf ipv6-prefix-length{
        type uint8;
      }
      leaf mpls-label{
        type mpls-label-def;
      }
      leaf route-distinguisher{
        type route-distinguisher-def;
      }
      uses bgp-route-common;
    }
  }
  list bgp-peer-list{
    key "bgp-peer-name";
    container peer-session-address{
      leaf local-ipv6-address{
        type inet:ipv6-prefix;
      }
      leaf remote-ipv6-address{
        type inet:ipv6-prefix;
      }
    }
  }
  uses bgp-peer-common;
  container bgp-rib-in{
    list bgp-rib-in-list{
      key "ipv6-route ipv6-prefix-length route-distinguisher";
      leaf ipv6-route{
        type inet:ipv6-prefix;
      }
      leaf ipv6-prefix-length{
        type uint8;
      }
      leaf mpls-label{
        type mpls-label-def;
      }
      leaf route-distinguisher{
```



```
        type route-distinguisher-def;
    }
    uses bgp-route-common;
}
}
container bgp-rib-out{
    list bgp-rib-out-list{
        key "ipv6-route ipv6-prefix-length route-distinguisher";
        leaf ipv6-route{
            type inet:ipv6-prefix;
        }
        leaf ipv6-prefix-length{
            type uint8;
        }
        leaf mpls-label{
            type mpls-label-def;
        }
        leaf route-distinguisher{
            type route-distinguisher-def;
        }
        uses bgp-route-common;
    }
}
}
}
```

```
list bgp-ipv6-l3vpn-instance-list {
    key "bgp-l3vpn-instance-name";
    leaf bgp-l3vpn-instance-name {
        type string;
    }
    uses bgp-instance-common;
    container bgp-local-rib{
        list bgp-route-list{
            key "ipv6-route ipv6-prefix-length";
            leaf ipv6-route{
                type inet:ipv6-prefix;
            }
            leaf ipv6-prefix-length{
                type uint8;
            }
            uses bgp-route-common;
        }
    }
}
list bgp-peer-list{
    key "bgp-peer-name";
```



```
    container peer-session-address{
      leaf local-ipv6-address{
        type inet:ipv6-prefix;
      }
      leaf remote-ipv6-address{
        type inet:ipv6-prefix;
      }
    }
    uses bgp-peer-common;
    container bgp-rib-in{
      list bgp-rib-in-list{
        key "ipv6-route ipv6-prefix-length";
        leaf ipv6-route{
          type inet:ipv6-prefix;
        }
        leaf ipv6-prefix-length{
          type uint8;
        }
        uses bgp-route-common;
      }
    }
    container bgp-rib-out{
      list bgp-rib-out-list{
        key "ipv6-route ipv6-prefix-length";
        leaf ipv6-route{
          type inet:ipv6-prefix;
        }
        leaf ipv6-prefix-length{
          type uint8;
        }
        uses bgp-route-common;
      }
    }
  }
}

container bgp-ipv4-mvpn-instance {
  uses bgp-instance-commom;

  container bgp-local-rib{
    uses bgp-mvpn-rib;
  }

  list bgp-peer-list{
    key "bgp-peer-name";
    container peer-session-address{
      leaf local-ipv4-address{
        type inet:ipv4-prefix;
      }
    }
  }
}
```



```
    }
    leaf remote-ipv4-address{
      type inet:ipv4-prefix;
    }
  }
  uses bgp-peer-common;

  container bgp-rib-in{
    uses bgp-mvpn-rib;
  }
  container bgp-rib-out{
    uses bgp-mvpn-rib;
  }
}

container bgp-ipv6-mvpn-instance {
  uses bgp-instance-commom;

  container bgp-local-rib{
    uses bgp-mvpn-rib;
  }

  list bgp-peer-list{
    key "bgp-peer-name";
    container peer-session-address{
      leaf local-ipv6-address{
        type inet:ipv6-prefix;
      }
      leaf remote-ipv6-address{
        type inet:ipv6-prefix;
      }
    }
    uses bgp-peer-common;

    container bgp-rib-in{
      uses bgp-mvpn-rib;
    }
    container bgp-rib-out{
      uses bgp-mvpn-rib;
    }
  }
}

container bgp-mcast-vpls-instance {
  uses bgp-instance-commom;

  container bgp-local-rib{
```



```
    uses bgp-mcast-vpls-rib;
  }

  list bgp-peer-list{
    key "bgp-peer-name";
    container peer-session-address{
      leaf local-ipv4-address{
        type inet:ipv4-prefix;
      }
      leaf remote-ipv4-address{
        type inet:ipv4-prefix;
      }
    }
    uses bgp-peer-common;

    container bgp-rib-in{
      uses bgp-mcast-vpls-rib;
    }
    container bgp-rib-out{
      uses bgp-mcast-vpls-rib;
    }
  }
}

container bgp-evpn-instance {
  uses bgp-instance-commom;

  container bgp-local-rib{
    uses bgp-evpn-rib;
  }

  list bgp-peer-list{
    key "bgp-peer-name";
    container peer-session-address{
      leaf local-ipv4-address{
        type inet:ipv4-prefix;
      }
      leaf remote-ipv4-address{
        type inet:ipv4-prefix;
      }
    }
    uses bgp-peer-common;

    container bgp-rib-in{
      uses bgp-evpn-rib;
    }
    container bgp-rib-out{
      uses bgp-evpn-rib;
    }
  }
}
```



```
    }  
  }  
}  
  
} //end of "container bgp-protocol"  
  
}  
//<code ends>
```

5. IANA Considerations

This draft includes no request to IANA.

6. Security Considerations

TBD.

7. Informative References

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