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BGP-4 MIB Implementation Survey

Status of This Memo

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Abstract

This document provides a survey of implementations of BGP-4 that support RFC 1657 MIB agents according to the BGP-4 v1 MIB specification.

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1. Introduction

This document provides a survey of BGP-4 v1 MIB [RFC4274] implementations. After a brief summary, each response is listed. The authors make no claim as to the accuracy of the information provided.

The following organizations reported having BGP-4 MIB implementations: Cisco Systems, Redback Networks, and NextHop Technologies.

2. Survey Summary

This survey asked for information about the implementations of the BGP-4 [RFC4271] that support MIB agents [RFC1657] according to the BGP-4 v1 MIB [RFC4274].

Two or more of the implementations of BGP-4 v1 MIB [RFC4274] each implement all the objects. None of the implementations that responded to the survey implemented the read-write variables (Section 2.2). The two TRAPs as specified are not implemented by two implementations (Section 2.3). The counters' initialized state is zeroed in all implementations, but a reset peer is only reset by the Redback implementation (Section 2.4).

There are 3 agent implementations for the 3 surveyed (Section 2.5). The Simple Network Management Protocol (SNMP) managers used to test the implementations are: Net-SNMP (www.net-snmp.org), Multi Router Traffic Grapher (www.mrtg.org), and the internal Cisco manager.

No interoperability issues related to the Manager specification were found.

2.1. MIB Agent Object Implementation Summary

Cisco	NextHop	Redback	
Y	Y	Y	bgpVersion
Y	Y	Y	bgpLocalAs
Y	Y	Y	bgpPeerIdentifier
Y	Y	Y	bgpPeerState
Y	Y	Y	bgpPeerAdminStatus
Y	Y	Y	bgpPeerNegotiatedVersion
Y	Y	Y	bgpPeerLocalAddr
Y	Y	Y	bgpPeerLocalPort
Y	Y	Y	bgpPeerRemoteAddr
Y	Y	Y	bgpPeerRemotePort
Y	Y	Y	bgpPeerRemoteAs
Y	Y	Y	bgpPeerInUpdates

Y	Y	Y	bgpPeerOutUpdates
Y	Y	Y	bgpPeerInTotalMessages
Y	Y	Y	bgpPeerOutTotalMessages
Y	Y	Y	bgpPeerLastError
Y	Y	Y	bgpPeerFsmEstablishedTransitions
Y	Y	Y	bgpPeerFsmEstablishedTime
Y	Y	Y	bgpPeerConnectRetryInterval
Y	Y	Y	bgpPeerHoldTime
Y	Y	Y	bgpPeerKeepAlive
Y	Y	Y	bgpPeerHoldTimeConfigured
Y	Y	Y	bgpPeerKeepAliveConfigured
Y	Y	Y	bgpPeerMinASOriginationInterval
Y	Y	Y	bgpPeerMinRouteAdvertisementInterval
Y	Y	Y	bgpPeerInUpdateElapsedTime
Y	Y	Y	bgpIdentifier
N	N	N	bgpPathAttrPeer
N	N	N	bgpPathAttrDestNetwork
N	N	N	bgpPathAttrOrigin
N	N	N	bgpPathAttrASPath
N	N	N	bgpPathAttrNextHop
N	N	N	bgpPathAttrInterASMetric
Y	Y	Y	bgp4PathAttrPeer
Y	Y	Y	bgp4PathAttrIpAddrPrefixLen
Y	Y	Y	bgp4PathAttrIpAddrPrefix
Y	Y	Y	bgp4PathAttrOrigin
Y	Y	Y	bgp4PathAttrASPathSegment
Y	Y	Y	bgp4PathAttrNextHop
Y	Y	Y	bgp4PathAttrMultiExitDisc
Y	Y	Y	bgp4PathAttrLocalPref
Y	Y	Y	bgp4PathAttrAtomicAggregate
Y	Y	Y	bgp4PathAttrAggregatorAS
Y	Y	Y	bgp4PathAttrAggregatorAddr
Y	Y	Y	bgp4PathAttrCalcLocalPref
Y	Y	Y	bgp4PathAttrBest
Y	Y	Y	bgp4PathAttrUnknown

Please note that items bgpPathAttrPeer, bgpPathAttrDestNetwork, bgpPathAttrOrigin, bgpPatthAttrASPath, bgpPathAttrNextHop, and bgpPathAttrInterASMetric are deprecated. An answer of Y/N is valid for this status.

2.2. MIB Agent Read-Write Object Implementation Summary

Does your implementation allow managers to write to the following read-write objects? Indicate yes or no (Y or N) for each object:

Cisco	NextHop	Redback	
N	N	N	bgpPeerAdminStatus
N	N	N	bgpPeerConnectRetryInterval
N	N	N	bgpPeerHoldTimeConfigured
N	N	N	bgpPeerKeepAliveConfigured
N	N	N	bgpPeerMinASOriginationInterval
N	N	N	bgpPeerMinRouteAdvertisementInterval

None of the implementations surveyed supported the read/write variables.

2.3. MIB Agent Trap Implementation Summary

Does your implementation include each of the following notifications? Indicate yes or no (Y or N) for each notification:

Cisco	NextHop	Redback	
Y	N	N	bgpEstablished
Y	N	Y*1	bgpBackwardTransition

*1 - Redback only supports the transition from Established to Idle.

2.4. MIB Agent BGP Peer Reset state

Two questions were asked about the bgpPeerInUpdates, bgpPeerOutUpdates, bgpPeerInTotalMessages and bgpPeerOutTotalMessages.

The first was "Do you initialize these counters to zero?", and the second was "Do you reset these counters to zero when a configured peer enter the established state?"

Cisco	NextHop	Redback	
Y	Y	Y	initialize to zero
N	N	Y	reset to zero when configured peer Enters established state

2.5. MIB Manager Interactions

```
   Managers:
      BGP MIB agent:
         Cisco  NextHop  Redback
           Y      Y        N     independent implementation
           -      -        C     (P or C)public or commercial

         Redback code based on SNMP Research EMANATE

      SNMP Manager Interaction
         Cisco  NextHop    Redback
          cisco  Net-SNMP   MRTG SNMP  Managers tested with
           -     Y           Y         Manager implemented independently
                                        from agent
           -     Y           Y         Read access to BGP-4 MIB
                                           variables.
           N     N           N         Write access to BGP-4 MIB
                                           variables.
           -     N           Y         Sending and receiving BGP-4 MIB
                                           notifications.
           Y     Y           Y         Tested using SNMPv1/v2c.
           Y     N           Y         Tested using SNMPv3.


         "-"  indicates cisco did not answer these questions.

         NextHop SNMP agent support is via SNMP Multiplex (SMUX)
         interface.

         MRTG SNMP is found at www.mrtg.org.  Net-SNMP (UC Davis tools)
         found at www.net-snmp.org.

      SNMP Manager-Agent Interoperability issues

         Cisco  NextHop    Redback
           N      N           N        Interoperability issues
```

3. Survey Forms

3.1. Cisco Systems

Agent Implementation Checklist

This section should be completed by individuals or companies who have implemented RFC 1657 [RFC1657] support in an SNMP agent.

Is your BGP-4 MIB agent an independent implementation? Or is it based on public domain or commercial code? If it is not independent, what code base was used?

- Cisco's BGP-4 MIB agent is implemented on commercial Cisco Internetwork Operating System (IOS).

Have you done any interoperability testing with managers that implement the BGP-4 MIB? If so, which manager implementations have been used with your agent?

- (this portion was not returned by Cisco)

For each manager with which you have interoperated, which of the following features were tested? Duplicate this section for each manager, and indicate yes or no (Y/N) for each feature:

- (this portion was not returned by Cisco)

Manager Implementation Used: <Name>
Original Manager Code Base (if known): <Name>
(Y/N) Manager implemented independently from your agent?
(Y/N) Read access to BGP-4 MIB variables.
(Y/N) Write access to BGP-4 MIB variables.
(Y/N) Sending and receiving BGP-4 MIB notifications.
(Y/N) Tested using SNMPv1/v2c.
(Y/N) Tested using SNMPv3.

Are there any unresolved interoperability issues, between your BGP-4 MIB agent and any BGP-4 MIB manager, that may indicate problems in the specification? If so, please provide technical details.

- (this portion was not returned by cisco)

(Y) Does your agent support SNMPv3?

Does your BGP-4 MIB agent implement the following objects? Indicate yes or no (Y or N) for each object:

```
(Y)        bgpVersion
(Y)        bgpLocalAs
(Y)        bgpPeerIdentifier
(Y)        bgpPeerState
(Y)        bgpPeerAdminStatus
(Y)        bgpPeerNegotiatedVersion
(Y)        bgpPeerLocalAddr
(Y)        bgpPeerLocalPort
(Y)        bgpPeerRemoteAddr
(Y)        bgpPeerRemotePort
(Y)        bgpPeerRemoteAs
(Y)        bgpPeerInUpdates
(Y)        bgpPeerOutUpdates
(Y)        bgpPeerInTotalMessages
(Y)        bgpPeerOutTotalMessages
(Y)        bgpPeerLastError
(Y)        bgpPeerFsmEstablishedTransitions
(Y)        bgpPeerFsmEstablishedTime
(Y)        bgpPeerConnectRetryInterval
(Y)        bgpPeerHoldTime
(Y)        bgpPeerKeepAlive
(Y)        bgpPeerHoldTimeConfigured
(Y)        bgpPeerKeepAliveConfigured
(Y)        bgpPeerMinASOriginationInterval
(Y)        bgpPeerMinRouteAdvertisementInterval
(Y)        bgpPeerInUpdateElapsedTime
(Y)        bgpIdentifier
(N)        bgpPathAttrPeer
(N)        bgpPathAttrDestNetwork
(N)        bgpPathAttrOrigin
(N)        bgpPathAttrASPath
(N)        bgpPathAttrNextHop
(N)        bgpPathAttrInterASMetric
(Y)        bgp4PathAttrPeer
(Y)        bgp4PathAttrIpAddrPrefixLen
(Y)        bgp4PathAttrIpAddrPrefix
(Y)        bgp4PathAttrOrigin
(Y)        bgp4PathAttrASPathSegment
(Y)        bgp4PathAttrNextHop
(Y)        bgp4PathAttrMultiExitDisc
(Y)        bgp4PathAttrLocalPref
(Y)        bgp4PathAttrAtomicAggregate
(Y)        bgp4PathAttrAggregatorAS
(Y)        bgp4PathAttrAggregatorAddr
(Y)        bgp4PathAttrCalcLocalPref
```

(Y) bgp4PathAttrBest
(Y) bgp4PathAttrUnknown

Does your implementation allow managers to write to the following read-write objects? Indicate yes or no (Y or N) for each object:

(N) bgpPeerAdminStatus
(N) bgpPeerConnectRetryInterval
(N) bgpPeerHoldTimeConfigured
(N) bgpPeerKeepAliveConfigured
(N) bgpPeerMinASOriginationInterval
(N) bgpPeerMinRouteAdvertisementInterval

Does your implementation include each of the following notifications? Indicate yes or no (Y or N) for each notification:

(Y) bgpEstablished
(Y) bgpBackwardTransition

Does your implementation initialize bgpPeerInUpdates, bgpPeerOutUpdates, bgpPeerInTotalMessages, and bgpPeerOutTotalMessages counters to zero?

Yes.

Does your implementation reset the bgpPeerInUpdates, bgpPeerOutUpdates, bgpPeerInTotalMessages, and bgpPeerOutTotalMessages counters to zero when a configured peer enters the established state?

No.

3.2. NextHop Technologies

Agent Implementation Checklist

This section should be completed by individuals or companies who have implemented RFC 1657 [RFC1657] support in an SNMP agent.

Is your BGP-4 MIB agent an independent implementation? Or is it based on public domain or commercial code? If it is not independent, what code base was used?

- Independent implementation.

Have you done any interoperability testing with managers that implement the BGP-4 MIB? If so, which manager implementations have been used with your agent?

- Yes.

For each manager with which you have interoperated, which of the following features were tested? Duplicate this section for each manager, and indicate yes or no (Y/N) for each feature:

Manager Implementation Used: <Name>

- UC Davis SNMP Tools (Net-SNMP)

Original Manager Code Base (if known): UC Davis SNMP
(Y) Manager implemented independently from your agent?
(Y) Read access to BGP-4 MIB variables.
(na) Write access to BGP-4 MIB variables.
(na) Sending and receiving BGP-4 MIB notifications.
(Y) Tested using SNMPv1/v2c.
(N) Tested using SNMPv3.

Are there any unresolved interoperability issues, between your BGP-4 MIB agent and any BGP-4 MIB manager, that may indicate problems in the specification? If so, please provide technical details.

(Y/N) Does your agent support SNMPv3?

- N/A. Access to agent is provided via SMUX.

Does your BGP-4 MIB agent implement the following objects? Indicate yes or no (Y or N) for each object:

(Y) bgpVersion
(Y) bgpLocalAs
(Y) bgpPeerIdentifier
(Y) bgpPeerState
(Y) bgpPeerAdminStatus
(Y) bgpPeerNegotiatedVersion
(Y) bgpPeerLocalAddr
(Y) bgpPeerLocalPort
(Y) bgpPeerRemoteAddr
(Y) bgpPeerRemotePort
(Y) bgpPeerRemoteAs
(Y) bgpPeerInUpdates
(Y) bgpPeerOutUpdates
(Y) bgpPeerInTotalMessages

(Y) bgpPeerOutTotalMessages
(Y) bgpPeerLastError
(Y) bgpPeerFsmEstablishedTransitions
(Y) bgpPeerFsmEstablishedTime
(Y) bgpPeerConnectRetryInterval
(Y) bgpPeerHoldTime
(Y) bgpPeerKeepAlive
(Y) bgpPeerHoldTimeConfigured
(Y) bgpPeerKeepAliveConfigured
(Y) bgpPeerMinASOriginationInterval
(Y) bgpPeerMinRouteAdvertisementInterval
(Y) bgpPeerInUpdateElapsedTime
(Y) bgpIdentifier
(N) bgpPathAttrPeer
(N) bgpPathAttrDestNetwork
(N) bgpPathAttrOrigin
(N) bgpPathAttrASPath
(N) bgpPathAttrNextHop
(N) bgpPathAttrInterASMetric
(Y) bgp4PathAttrPeer
(Y) bgp4PathAttrIpAddrPrefixLen
(Y) bgp4PathAttrIpAddrPrefix
(Y) bgp4PathAttrOrigin
(Y) bgp4PathAttrASPathSegment
(Y) bgp4PathAttrNextHop
(Y) bgp4PathAttrMultiExitDisc
(Y) bgp4PathAttrLocalPref
(Y) bgp4PathAttrAtomicAggregate
(Y) bgp4PathAttrAggregatorAS
(Y) bgp4PathAttrAggregatorAddr
(Y) bgp4PathAttrCalcLocalPref
(Y) bgp4PathAttrBest
(Y) bgp4PathAttrUnknown

Does your implementation allow managers to write to the following read-write objects? Indicate yes or no (Y or N) for each object:

(N) bgpPeerAdminStatus
(N) bgpPeerConnectRetryInterval
(N) bgpPeerHoldTimeConfigured
(N) bgpPeerKeepAliveConfigured
(N) bgpPeerMinASOriginationInterval
(N) bgpPeerMinRouteAdvertisementInterval

Does your implementation include each of the following notifications? Indicate yes or no (Y or N) for each notification:

(N) bgpEstablished
(N) bgpBackwardTransition

Does your implementation initialize bgpPeerInUpdates, bgpPeerOutUpdates, bgpPeerInTotalMessages, and bgpPeerOutTotalMessages counters to zero?

Yes.

Does your implementation reset the bgpPeerInUpdates, bgpPeerOutUpdates, bgpPeerInTotalMessages, and bgpPeerOutTotalMessages counters to zero when a configured peer enters the established state?

No.

3.3. Redback Networks

Agent Implementation Checklist

This section should be completed by individuals or companies who have implemented RFC 1657 [RFC1657] support in an SNMP agent.

Is your BGP-4 MIB agent an independent implementation? Or is it based on public domain or commercial code? If it is not independent, what code base was used?

- No, it is based on SNMP Research EMANATE

Have you done any interoperability testing with managers that implement the BGP-4 MIB? If so, which manager implementations have been used with your agent?

- We have done interoperability testing with SNMP managers from MRTG.

For each manager with which you have interoperated, which of the following features were tested? Duplicate this section for each manager, and indicate yes or no (Y/N) for each feature:

Manager Implementation Used: MRTG (www.mrtg.org)
Original Manager Code Base (if known):
(Y) Manager implemented independently from your agent?
(Y) Read access to BGP-4 MIB variables.

(N) Write access to BGP-4 MIB variables.
(Y) Sending and receiving BGP-4 MIB notifications.
(Y) Tested using SNMPv1/v2c.
(Y) Tested using SNMPv3.

Are there any unresolved interoperability issues between your BGP-4 MIB agent and any BGP-4 MIB manager that may indicate problems in the specification? If so, please provide technical details.

No, there are not any unresolved interoperability issues.

(Y) Does your agent support SNMPv3?

Does your BGP-4 MIB agent implement the following objects? Indicate yes or no (Y or N) for each object:

(Y) bgpVersion
(Y) bgpLocalAs
(Y) bgpPeerIdentifier
(Y) bgpPeerState
(Y) bgpPeerAdminStatus
(Y) bgpPeerNegotiatedVersion
(Y) bgpPeerLocalAddr
(Y) bgpPeerLocalPort
(Y) bgpPeerRemoteAddr
(Y) bgpPeerRemotePort
(Y) bgpPeerRemoteAs
(Y) bgpPeerInUpdates
(Y) bgpPeerOutUpdates
(Y) bgpPeerInTotalMessages
(Y) bgpPeerOutTotalMessages
(Y) bgpPeerLastError
(Y) bgpPeerFsmEstablishedTransitions
(Y) bgpPeerFsmEstablishedTime
(Y) bgpPeerConnectRetryInterval
(Y) bgpPeerHoldTime
(Y) bgpPeerKeepAlive
(Y) bgpPeerHoldTimeConfigured
(Y) bgpPeerKeepAliveConfigured
(Y) bgpPeerMinASOriginationInterval
(Y) bgpPeerMinRouteAdvertisementInterval
(Y) bgpPeerInUpdateElapsedTime
(Y) bgpIdentifier

(N) bgpPathAttrPeer
(N) bgpPathAttrDestNetwork
(N) bgpPathAttrOrigin

(N) bgpPathAttrASPath
(N) bgpPathAttrNextHop
(N) bgpPathAttrInterASMetric

(Y) bgp4PathAttrPeer
(Y) bgp4PathAttrIpAddrPrefixLen
(Y) bgp4PathAttrIpAddrPrefix
(Y) bgp4PathAttrOrigin
(Y) bgp4PathAttrASPathSegment
(Y) bgp4PathAttrNextHop
(Y) bgp4PathAttrMultiExitDisc
(Y) bgp4PathAttrLocalPref
(Y) bgp4PathAttrAtomicAggregate
(Y) bgp4PathAttrAggregatorAS
(Y) bgp4PathAttrAggregatorAddr
(Y) bgp4PathAttrCalcLocalPref
(Y) bgp4PathAttrBest
(Y) bgp4PathAttrUnknown

Does your implementation allow managers to write to the following read-write objects? Indicate yes or no (Y or N) for each object:

(N) bgpPeerAdminStatus
(N) bgpPeerConnectRetryInterval
(N) bgpPeerHoldTimeConfigured
(N) bgpPeerKeepAliveConfigured
(N) bgpPeerMinASOriginationInterval
(N) bgpPeerMinRouteAdvertisementInterval

Does your implementation include each of the following notifications? Indicate yes or no (Y or N) for each notification:

(Y) bgpEstablished
(Y) bgpBackwardTransition
- transition from Established to Idle only.

Does your implementation initialize bgpPeerInUpdates, bgpPeerOutUpdates, bgpPeerInTotalMessages, and bgpPeerOutTotalMessages counters to zero?

Yes.

Does your implementation reset the bgpPeerInUpdates, bgpPeerOutUpdates, bgpPeerInTotalMessages, and bgpPeerOutTotalMessages counters to zero when a configured peer enters the established state?

Yes.

4. MIB Walks

The following MIB walks were provided by the respondents, as identified.

4.1. Cisco Systems

```
BGP4-MIB::bgpVersion.0
    = Hex-STRING: 10
BGP4-MIB::bgpLocalAs.0
    = INTEGER: 65000
BGP4-MIB::bgpPeerIdentifier.10.10.1.29
    = IpAddress: 10.10.2.229
BGP4-MIB::bgpPeerIdentifier.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgpPeerState.10.10.1.29
    = INTEGER: established(6)
BGP4-MIB::bgpPeerState.11.10.128.3
    = INTEGER: established(6)
BGP4-MIB::bgpPeerAdminStatus.10.10.1.29
    = INTEGER: start(2)
BGP4-MIB::bgpPeerAdminStatus.11.10.128.3
    = INTEGER: start(2)
BGP4-MIB::bgpPeerNegotiatedVersion.10.10.1.29
    = INTEGER: 4
BGP4-MIB::bgpPeerNegotiatedVersion.11.10.128.3
    = INTEGER: 4
BGP4-MIB::bgpPeerLocalAddr.10.10.1.29
    = IpAddress: 11.10.128.4
BGP4-MIB::bgpPeerLocalAddr.11.10.128.3
    = IpAddress: 11.10.128.4
BGP4-MIB::bgpPeerLocalPort.10.10.1.29
    = INTEGER: 11014
BGP4-MIB::bgpPeerLocalPort.11.10.128.3
    = INTEGER: 11013
BGP4-MIB::bgpPeerRemoteAddr.10.10.1.29
    = IpAddress: 10.10.1.29
BGP4-MIB::bgpPeerRemoteAddr.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgpPeerRemotePort.10.10.1.29
    = INTEGER: 179
```

```
BGP4-MIB::bgpPeerRemotePort.11.10.128.3
    = INTEGER: 179
BGP4-MIB::bgpPeerRemoteAs.10.10.1.29
    = INTEGER: 2
BGP4-MIB::bgpPeerRemoteAs.11.10.128.3
    = INTEGER: 65000
BGP4-MIB::bgpPeerInUpdates.10.10.1.29
    = Counter32: 54
BGP4-MIB::bgpPeerInUpdates.11.10.128.3
    = Counter32: 5
BGP4-MIB::bgpPeerOutUpdates.10.10.1.29
    = Counter32: 3
BGP4-MIB::bgpPeerOutUpdates.11.10.128.3
    = Counter32: 54
BGP4-MIB::bgpPeerInTotalMessages.10.10.1.29
    = Counter32: 12998
BGP4-MIB::bgpPeerInTotalMessages.11.10.128.3
    = Counter32: 12949
BGP4-MIB::bgpPeerOutTotalMessages.10.10.1.29
    = Counter32: 12947
BGP4-MIB::bgpPeerOutTotalMessages.11.10.128.3
    = Counter32: 12998
BGP4-MIB::bgpPeerLastError.10.10.1.29
    = Hex-STRING: 00 00
BGP4-MIB::bgpPeerLastError.11.10.128.3
    = Hex-STRING: 00 00
BGP4-MIB::bgpPeerFsmEstablishedTransitions.10.10.1.29
    = Counter32: 1
BGP4-MIB::bgpPeerFsmEstablishedTransitions.11.10.128.3
    = Counter32: 1
BGP4-MIB::bgpPeerFsmEstablishedTime.10.10.1.29
    = Gauge32: 776416
BGP4-MIB::bgpPeerFsmEstablishedTime.11.10.128.3
    = Gauge32: 776416
BGP4-MIB::bgpPeerConnectRetryInterval.10.10.1.29
    = INTEGER: 60
BGP4-MIB::bgpPeerConnectRetryInterval.11.10.128.3
    = INTEGER: 60
BGP4-MIB::bgpPeerHoldTime.10.10.1.29
    = INTEGER: 180
BGP4-MIB::bgpPeerHoldTime.11.10.128.3
    = INTEGER: 180
BGP4-MIB::bgpPeerKeepAlive.10.10.1.29
    = INTEGER: 60
BGP4-MIB::bgpPeerKeepAlive.11.10.128.3
    = INTEGER: 60
BGP4-MIB::bgpPeerHoldTimeConfigured.10.10.1.29
    = INTEGER: 180
```

```
BGP4-MIB::bgpPeerHoldTimeConfigured.11.10.128.3
    = INTEGER: 180
BGP4-MIB::bgpPeerKeepAliveConfigured.10.10.1.29
    = INTEGER: 60
BGP4-MIB::bgpPeerKeepAliveConfigured.11.10.128.3
    = INTEGER: 60
BGP4-MIB::bgpPeerMinASOriginationInterval.10.10.1.29
    = INTEGER: 0
BGP4-MIB::bgpPeerMinASOriginationInterval.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgpPeerMinRouteAdvertisementInterval.10.10.1.29
    = INTEGER: 0
BGP4-MIB::bgpPeerMinRouteAdvertisementInterval.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgpPeerInUpdateElapsedTime.10.10.1.29
    = Gauge32: 103451
BGP4-MIB::bgpPeerInUpdateElapsedTime.11.10.128.3
    = Gauge32: 776416
BGP4-MIB::bgpIdentifier.0
    = IpAddress: 11.10.128.4
BGP4-MIB::bgp4PathAttrPeer.10.10.1.21.32.10.10.1.29
    = IpAddress: 10.10.1.29
BGP4-MIB::bgp4PathAttrPeer.10.10.1.22.32.10.10.1.29
    = IpAddress: 10.10.1.29
BGP4-MIB::bgp4PathAttrPeer.10.10.1.23.32.10.10.1.29
    = IpAddress: 10.10.1.29
BGP4-MIB::bgp4PathAttrPeer.10.10.1.29.32.10.10.1.29
    = IpAddress: 10.10.1.29
BGP4-MIB::bgp4PathAttrPeer.10.10.1.32.32.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrPeer.10.10.1.33.32.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrPeer.10.10.1.34.32.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrPeer.10.10.1.61.32.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrPeer.10.10.1.62.32.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrPeer.10.10.2.0.24.10.10.1.29
    = IpAddress: 10.10.1.29
BGP4-MIB::bgp4PathAttrPeer.10.10.3.0.24.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrPeer.10.10.6.0.24.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.1.21.32.10.10.1.29
    = INTEGER: 32
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.1.22.32.10.10.1.29
    = INTEGER: 32
```

```
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.1.23.32.10.10.1.29
    = INTEGER: 32
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.1.29.32.10.10.1.29
    = INTEGER: 32
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.1.32.32.11.10.128.3
    = INTEGER: 32
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.1.33.32.11.10.128.3
    = INTEGER: 32
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.1.34.32.11.10.128.3
    = INTEGER: 32
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.1.61.32.11.10.128.3
    = INTEGER: 32
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.1.62.32.11.10.128.3
    = INTEGER: 32
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.2.0.24.10.10.1.29
    = INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.3.0.24.11.10.128.3
    = INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.10.10.6.0.24.11.10.128.3
    = INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.1.21.32.10.10.1.29
    = IpAddress: 10.10.1.21
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.1.22.32.10.10.1.29
    = IpAddress: 10.10.1.22
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.1.23.32.10.10.1.29
    = IpAddress: 10.10.1.23
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.1.29.32.10.10.1.29
    = IpAddress: 10.10.1.29
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.1.32.32.11.10.128.3
    = IpAddress: 10.10.1.32
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.1.33.32.11.10.128.3
    = IpAddress: 10.10.1.33
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.1.34.32.11.10.128.3
    = IpAddress: 10.10.1.34
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.1.61.32.11.10.128.3
    = IpAddress: 10.10.1.61
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.1.62.32.11.10.128.3
    = IpAddress: 10.10.1.62
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.2.0.24.10.10.1.29
    = IpAddress: 10.10.2.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.3.0.24.11.10.128.3
    = IpAddress: 10.10.3.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.10.10.6.0.24.11.10.128.3
    = IpAddress: 10.10.6.0
BGP4-MIB::bgp4PathAttrOrigin.10.10.1.21.32.10.10.1.29
    = INTEGER: igp(1)
BGP4-MIB::bgp4PathAttrOrigin.10.10.1.22.32.10.10.1.29
    = INTEGER: igp(1)
```

```
BGP4-MIB::bgp4PathAttrOrigin.10.10.1.23.32.10.10.1.29
    = INTEGER: igp(1)
BGP4-MIB::bgp4PathAttrOrigin.10.10.1.29.32.10.10.1.29
    = INTEGER: igp(1)
BGP4-MIB::bgp4PathAttrOrigin.10.10.1.32.32.11.10.128.3
    = INTEGER: igp(1)
BGP4-MIB::bgp4PathAttrOrigin.10.10.1.33.32.11.10.128.3
    = INTEGER: igp(1)
BGP4-MIB::bgp4PathAttrOrigin.10.10.1.34.32.11.10.128.3
    = INTEGER: igp(1)
BGP4-MIB::bgp4PathAttrOrigin.10.10.1.61.32.11.10.128.3
    = INTEGER: igp(1)
BGP4-MIB::bgp4PathAttrOrigin.10.10.1.62.32.11.10.128.3
    = INTEGER: igp(1)
BGP4-MIB::bgp4PathAttrOrigin.10.10.2.0.24.10.10.1.29
    = INTEGER: igp(1)
BGP4-MIB::bgp4PathAttrOrigin.10.10.3.0.24.11.10.128.3
    = INTEGER: igp(1)
BGP4-MIB::bgp4PathAttrOrigin.10.10.6.0.24.11.10.128.3
    = INTEGER: igp(1)
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.1.21.32.10.10.1.29
    = Hex-STRING: 02 01 00 02
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.1.22.32.10.10.1.29
    = Hex-STRING: 02 01 00 02
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.1.23.32.10.10.1.29
    = Hex-STRING: 02 01 00 02
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.1.29.32.10.10.1.29
    = Hex-STRING: 02 01 00 02
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.1.32.32.11.10.128.3
    = Hex-STRING: 02 01 00 03
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.1.33.32.11.10.128.3
    = Hex-STRING: 02 01 00 03
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.1.34.32.11.10.128.3
    = Hex-STRING: 02 01 00 03
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.1.61.32.11.10.128.3
    = Hex-STRING: 02 02 00 03 00 06
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.1.62.32.11.10.128.3
    = Hex-STRING: 02 02 00 03 00 06
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.2.0.24.10.10.1.29
    = Hex-STRING: 02 01 00 02
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.3.0.24.11.10.128.3
    = Hex-STRING: 02 01 00 03
BGP4-MIB::bgp4PathAttrASPathSegment.10.10.6.0.24.11.10.128.3
    = Hex-STRING: 02 01 00 03
BGP4-MIB::bgp4PathAttrNextHop.10.10.1.21.32.10.10.1.29
    = IpAddress: 10.10.1.29
BGP4-MIB::bgp4PathAttrNextHop.10.10.1.22.32.10.10.1.29
    = IpAddress: 10.10.1.29
```

```
BGP4-MIB::bgp4PathAttrNextHop.10.10.1.23.32.10.10.1.29
    = IpAddress: 10.10.1.29
BGP4-MIB::bgp4PathAttrNextHop.10.10.1.29.32.10.10.1.29
    = IpAddress: 10.10.1.29
BGP4-MIB::bgp4PathAttrNextHop.10.10.1.32.32.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrNextHop.10.10.1.33.32.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrNextHop.10.10.1.34.32.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrNextHop.10.10.1.61.32.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrNextHop.10.10.1.62.32.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrNextHop.10.10.2.0.24.10.10.1.29
    = IpAddress: 10.10.1.29
BGP4-MIB::bgp4PathAttrNextHop.10.10.3.0.24.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrNextHop.10.10.6.0.24.11.10.128.3
    = IpAddress: 11.10.128.3
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.1.21.32.10.10.1.29
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.1.22.32.10.10.1.29
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.1.23.32.10.10.1.29
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.1.29.32.10.10.1.29
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.1.32.32.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.1.33.32.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.1.34.32.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.1.61.32.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.1.62.32.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.2.0.24.10.10.1.29
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.3.0.24.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrMultiExitDisc.10.10.6.0.24.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrLocalPref.10.10.1.21.32.10.10.1.29
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrLocalPref.10.10.1.22.32.10.10.1.29
    = INTEGER: -1
```

```
BGP4-MIB::bgp4PathAttrLocalPref.10.10.1.23.32.10.10.1.29
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrLocalPref.10.10.1.29.32.10.10.1.29
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrLocalPref.10.10.1.32.32.11.10.128.3
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrLocalPref.10.10.1.33.32.11.10.128.3
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrLocalPref.10.10.1.34.32.11.10.128.3
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrLocalPref.10.10.1.61.32.11.10.128.3
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrLocalPref.10.10.1.62.32.11.10.128.3
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrLocalPref.10.10.2.0.24.10.10.1.29
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrLocalPref.10.10.3.0.24.11.10.128.3
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrLocalPref.10.10.6.0.24.11.10.128.3
    = INTEGER: -1
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.1.21.32.10.10.1.29
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.1.22.32.10.10.1.29
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.1.23.32.10.10.1.29
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.1.29.32.10.10.1.29
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.1.32.32.11.10.128.3
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.1.33.32.11.10.128.3
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.1.34.32.11.10.128.3
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.1.61.32.11.10.128.3
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.1.62.32.11.10.128.3
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.2.0.24.10.10.1.29
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.3.0.24.11.10.128.3
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.10.10.6.0.24.11.10.128.3
    = INTEGER: lessSpecificRrouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.1.21.32.10.10.1.29
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.1.22.32.10.10.1.29
    = INTEGER: 0
```

```
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.1.23.32.10.10.1.29
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.1.29.32.10.10.1.29
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.1.32.32.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.1.33.32.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.1.34.32.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.1.61.32.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.1.62.32.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.2.0.24.10.10.1.29
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.3.0.24.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAS.10.10.6.0.24.11.10.128.3
    = INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.1.21.32.10.10.1.29
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.1.22.32.10.10.1.29
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.1.23.32.10.10.1.29
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.1.29.32.10.10.1.29
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.1.32.32.11.10.128.3
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.1.33.32.11.10.128.3
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.1.34.32.11.10.128.3
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.1.61.32.11.10.128.3
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.1.62.32.11.10.128.3
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.2.0.24.10.10.1.29
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.3.0.24.11.10.128.3
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrAggregatorAddr.10.10.6.0.24.11.10.128.3
    = IpAddress: 0.0.0.0
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.1.21.32.10.10.1.29
    = INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.1.22.32.10.10.1.29
    = INTEGER: 100
```

```
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.1.23.32.10.10.1.29
    = INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.1.29.32.10.10.1.29
    = INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.1.32.32.11.10.128.3
    = INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.1.33.32.11.10.128.3
    = INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.1.34.32.11.10.128.3
    = INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.1.61.32.11.10.128.3
    = INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.1.62.32.11.10.128.3
    = INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.2.0.24.10.10.1.29
    = INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.3.0.24.11.10.128.3
    = INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.10.10.6.0.24.11.10.128.3
    = INTEGER: 100
BGP4-MIB::bgp4PathAttrBest.10.10.1.21.32.10.10.1.29
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrBest.10.10.1.22.32.10.10.1.29
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrBest.10.10.1.23.32.10.10.1.29
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrBest.10.10.1.29.32.10.10.1.29
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrBest.10.10.1.32.32.11.10.128.3
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrBest.10.10.1.33.32.11.10.128.3
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrBest.10.10.1.34.32.11.10.128.3
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrBest.10.10.1.61.32.11.10.128.3
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrBest.10.10.1.62.32.11.10.128.3
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrBest.10.10.2.0.24.10.10.1.29
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrBest.10.10.3.0.24.11.10.128.3
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrBest.10.10.6.0.24.11.10.128.3
    = INTEGER: true(2)
BGP4-MIB::bgp4PathAttrUnknown.10.10.1.21.32.10.10.1.29
    = ""
BGP4-MIB::bgp4PathAttrUnknown.10.10.1.22.32.10.10.1.29
    = ""
```

```
BGP4-MIB::bgp4PathAttrUnknown.10.10.1.23.32.10.10.1.29
    = ""
BGP4-MIB::bgp4PathAttrUnknown.10.10.1.29.32.10.10.1.29
    = ""
BGP4-MIB::bgp4PathAttrUnknown.10.10.1.32.32.11.10.128.3
    = ""
BGP4-MIB::bgp4PathAttrUnknown.10.10.1.33.32.11.10.128.3
    = ""
BGP4-MIB::bgp4PathAttrUnknown.10.10.1.34.32.11.10.128.3
    = ""
BGP4-MIB::bgp4PathAttrUnknown.10.10.1.61.32.11.10.128.3
    = ""
BGP4-MIB::bgp4PathAttrUnknown.10.10.1.62.32.11.10.128.3
    = ""
BGP4-MIB::bgp4PathAttrUnknown.10.10.2.0.24.10.10.1.29
    = ""
BGP4-MIB::bgp4PathAttrUnknown.10.10.3.0.24.11.10.128.3
    = ""
BGP4-MIB::bgp4PathAttrUnknown.10.10.6.0.24.11.10.128.3
    = ""
```

4.2. NextHop Technologies

```
BGP4-MIB::bgpVersion.0 = Hex-STRING: 10
BGP4-MIB::bgpLocalAs.0 = INTEGER: 201
BGP4-MIB::bgpPeerIdentifier.10.132.10.14 = IpAddress: 10.132.10.14
BGP4-MIB::bgpPeerState.10.132.10.14 = INTEGER: established(6)
BGP4-MIB::bgpPeerAdminStatus.10.132.10.14 = INTEGER: start(2)
BGP4-MIB::bgpPeerNegotiatedVersion.10.132.10.14 = INTEGER: 4
BGP4-MIB::bgpPeerLocalAddr.10.132.10.14 = IpAddress: 10.132.10.12
BGP4-MIB::bgpPeerLocalPort.10.132.10.14 = INTEGER: 1639
BGP4-MIB::bgpPeerRemoteAddr.10.132.10.14 = IpAddress: 10.132.10.14
BGP4-MIB::bgpPeerRemotePort.10.132.10.14 = INTEGER: 179
BGP4-MIB::bgpPeerRemoteAs.10.132.10.14 = INTEGER: 201
BGP4-MIB::bgpPeerInUpdates.10.132.10.14 = Counter32: 1
BGP4-MIB::bgpPeerOutUpdates.10.132.10.14 = Counter32: 1
BGP4-MIB::bgpPeerInTotalMessages.10.132.10.14 = Counter32: 16
BGP4-MIB::bgpPeerOutTotalMessages.10.132.10.14 = Counter32: 18
BGP4-MIB::bgpPeerLastError.10.132.10.14 = Hex-STRING: 00 00
BGP4-MIB::bgpPeerFsmEstablishedTransitions.10.132.10.14 = Counter32:1
BGP4-MIB::bgpPeerFsmEstablishedTime.10.132.10.14 = Gauge32: 861
BGP4-MIB::bgpPeerConnectRetryInterval.10.132.10.14 = INTEGER: 4
BGP4-MIB::bgpPeerHoldTime.10.132.10.14 = INTEGER: 180
BGP4-MIB::bgpPeerKeepAlive.10.132.10.14 = INTEGER: 60
BGP4-MIB::bgpPeerHoldTimeConfigured.10.132.10.14 = INTEGER: 180
BGP4-MIB::bgpPeerKeepAliveConfigured.10.132.10.14 = INTEGER: 60
BGP4-MIB::bgpPeerMinASOriginationInterval.10.132.10.14 = INTEGER: 1
```

```
BGP4-MIB::bgpPeerMinRouteAdvertisementInterval.10.132.10.14 =
INTEGER: 1
BGP4-MIB::bgpPeerInUpdateElapsedTime.10.132.10.14 = Gauge32: 861
BGP4-MIB::bgpIdentifier.0 = IpAddress: 10.132.10.12
BGP4-MIB::bgp4PathAttrPeer.223.1.0.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.2.0.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.3.0.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.137.137.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.137.138.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.137.139.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.137.140.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.137.141.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.137.142.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.137.143.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.137.144.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.137.145.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrPeer.223.137.146.0.24.10.132.10.14 = IpAddress:
10.132.10.14
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.1.0.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.2.0.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.3.0.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.137.137.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.137.138.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.137.139.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.137.140.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.137.141.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.137.142.0.24.10.132.10.14 =
INTEGER: 24
```

```
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.137.143.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.137.144.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.137.145.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefixLen.223.137.146.0.24.10.132.10.14 =
INTEGER: 24
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.1.0.0.24.10.132.10.14 =
IpAddress: 223.1.0.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.2.0.0.24.10.132.10.14 =
IpAddress: 223.2.0.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.3.0.0.24.10.132.10.14 =
IpAddress: 223.3.0.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.137.137.0.24.10.132.10.14 =
IpAddress: 223.137.137.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.137.138.0.24.10.132.10.14 =
IpAddress: 223.137.138.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.137.139.0.24.10.132.10.14 =
IpAddress: 223.137.139.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.137.140.0.24.10.132.10.14 =
IpAddress: 223.137.140.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.137.141.0.24.10.132.10.14 =
IpAddress: 223.137.141.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.137.142.0.24.10.132.10.14 =
IpAddress: 223.137.142.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.137.143.0.24.10.132.10.14 =
IpAddress: 223.137.143.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.137.144.0.24.10.132.10.14 =
IpAddress: 223.137.144.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.137.145.0.24.10.132.10.14 =
IpAddress: 223.137.145.0
BGP4-MIB::bgp4PathAttrIpAddrPrefix.223.137.146.0.24.10.132.10.14 =
IpAddress: 223.137.146.0
BGP4-MIB::bgp4PathAttrOrigin.223.1.0.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrOrigin.223.2.0.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrOrigin.223.3.0.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrOrigin.223.137.137.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrOrigin.223.137.138.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrOrigin.223.137.139.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrOrigin.223.137.140.0.24.10.132.10.14 = INTEGER:
incomplete(3)
```

```
BGP4-MIB::bgp4PathAttrOrigin.223.137.141.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrOrigin.223.137.142.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrOrigin.223.137.143.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrOrigin.223.137.144.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrOrigin.223.137.145.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrOrigin.223.137.146.0.24.10.132.10.14 = INTEGER:
incomplete(3)
BGP4-MIB::bgp4PathAttrASPathSegment.223.1.0.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrASPathSegment.223.2.0.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrASPathSegment.223.3.0.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrASPathSegment.223.137.137.0.24.10.132.10.14 =
""
BGP4-MIB::bgp4PathAttrASPathSegment.223.137.138.0.24.10.132.10.14 =
""
BGP4-MIB::bgp4PathAttrASPathSegment.223.137.139.0.24.10.132.10.14 =
""
BGP4-MIB::bgp4PathAttrASPathSegment.223.137.140.0.24.10.132.10.14 =
""
BGP4-MIB::bgp4PathAttrASPathSegment.223.137.141.0.24.10.132.10.14 =
""
BGP4-MIB::bgp4PathAttrASPathSegment.223.137.142.0.24.10.132.10.14 =
""
BGP4-MIB::bgp4PathAttrASPathSegment.223.137.143.0.24.10.132.10.14 =
""
BGP4-MIB::bgp4PathAttrASPathSegment.223.137.144.0.24.10.132.10.14 =
""
BGP4-MIB::bgp4PathAttrASPathSegment.223.137.145.0.24.10.132.10.14 =
""
BGP4-MIB::bgp4PathAttrASPathSegment.223.137.146.0.24.10.132.10.14 =
""
BGP4-MIB::bgp4PathAttrNextHop.223.1.0.0.24.10.132.10.14 = IpAddress:
10.132.10.242
BGP4-MIB::bgp4PathAttrNextHop.223.2.0.0.24.10.132.10.14 = IpAddress:
10.132.10.242
BGP4-MIB::bgp4PathAttrNextHop.223.3.0.0.24.10.132.10.14 = IpAddress:
10.132.10.242
BGP4-MIB::bgp4PathAttrNextHop.223.137.137.0.24.10.132.10.14 =
IpAddress: 10.132.10.242
BGP4-MIB::bgp4PathAttrNextHop.223.137.138.0.24.10.132.10.14 =
IpAddress: 10.132.10.242
BGP4-MIB::bgp4PathAttrNextHop.223.137.139.0.24.10.132.10.14 =
IpAddress: 10.132.10.242
```

```
   BGP4-MIB::bgp4PathAttrNextHop.223.137.140.0.24.10.132.10.14 =
   IpAddress: 10.132.10.242
   BGP4-MIB::bgp4PathAttrNextHop.223.137.141.0.24.10.132.10.14 =
   IpAddress: 10.132.10.242
   BGP4-MIB::bgp4PathAttrNextHop.223.137.142.0.24.10.132.10.14 =
   IpAddress: 10.132.10.242
   BGP4-MIB::bgp4PathAttrNextHop.223.137.143.0.24.10.132.10.14 =
   IpAddress: 10.132.10.242
   BGP4-MIB::bgp4PathAttrNextHop.223.137.144.0.24.10.132.10.14 =
   IpAddress: 10.132.10.242
   BGP4-MIB::bgp4PathAttrNextHop.223.137.145.0.24.10.132.10.14 =
   IpAddress: 10.132.10.242
   BGP4-MIB::bgp4PathAttrNextHop.223.137.146.0.24.10.132.10.14 =
   IpAddress: 10.132.10.242
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.1.0.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.2.0.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.3.0.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.137.137.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.137.138.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.137.139.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.137.140.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.137.141.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.137.142.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.137.143.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.137.144.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.137.145.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrMultiExitDisc.223.137.146.0.24.10.132.10.14 =
   INTEGER: -1
   BGP4-MIB::bgp4PathAttrLocalPref.223.1.0.0.24.10.132.10.14 = INTEGER:
   100
   BGP4-MIB::bgp4PathAttrLocalPref.223.2.0.0.24.10.132.10.14 = INTEGER:
   100
   BGP4-MIB::bgp4PathAttrLocalPref.223.3.0.0.24.10.132.10.14 = INTEGER:
   100
   BGP4-MIB::bgp4PathAttrLocalPref.223.137.137.0.24.10.132.10.14 =
   INTEGER: 100
```

```
BGP4-MIB::bgp4PathAttrLocalPref.223.137.138.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrLocalPref.223.137.139.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrLocalPref.223.137.140.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrLocalPref.223.137.141.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrLocalPref.223.137.142.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrLocalPref.223.137.143.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrLocalPref.223.137.144.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrLocalPref.223.137.145.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrLocalPref.223.137.146.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.1.0.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.2.0.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.3.0.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.137.137.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.137.138.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.137.139.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.137.140.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.137.141.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.137.142.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.137.143.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.137.144.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.137.145.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAtomicAggregate.223.137.146.0.24.10.132.10.14 =
INTEGER: lessSpecificRouteNotSelected(1)
BGP4-MIB::bgp4PathAttrAggregatorAS.223.1.0.0.24.10.132.10.14 =
INTEGER: 0
BGP4-MIB::bgp4PathAttrAggregatorAS.223.2.0.0.24.10.132.10.14 =
INTEGER: 0
```

```
   BGP4-MIB::bgp4PathAttrAggregatorAS.223.3.0.0.24.10.132.10.14 =
   INTEGER: 0
   BGP4-MIB::bgp4PathAttrAggregatorAS.223.137.137.0.24.10.132.10.14 =
   INTEGER: 0
   BGP4-MIB::bgp4PathAttrAggregatorAS.223.137.138.0.24.10.132.10.14 =
   INTEGER: 0
   BGP4-MIB::bgp4PathAttrAggregatorAS.223.137.139.0.24.10.132.10.14 =
   INTEGER: 0
   BGP4-MIB::bgp4PathAttrAggregatorAS.223.137.140.0.24.10.132.10.14 =
   INTEGER: 0
   BGP4-MIB::bgp4PathAttrAggregatorAS.223.137.141.0.24.10.132.10.14 =
   INTEGER: 0
   BGP4-MIB::bgp4PathAttrAggregatorAS.223.137.142.0.24.10.132.10.14 =
   INTEGER: 0
   BGP4-MIB::bgp4PathAttrAggregatorAS.223.137.143.0.24.10.132.10.14 =
   INTEGER: 0
   BGP4-MIB::bgp4PathAttrAggregatorAS.223.137.144.0.24.10.132.10.14 =
   INTEGER: 0
   BGP4-MIB::bgp4PathAttrAggregatorAS.223.137.145.0.24.10.132.10.14 =
   INTEGER: 0
   BGP4-MIB::bgp4PathAttrAggregatorAS.223.137.146.0.24.10.132.10.14 =
   INTEGER: 0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.1.0.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.2.0.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.3.0.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.137.137.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.137.138.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.137.139.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.137.140.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.137.141.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.137.142.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.137.143.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.137.144.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.137.145.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
   BGP4-MIB::bgp4PathAttrAggregatorAddr.223.137.146.0.24.10.132.10.14 =
   IpAddress: 0.0.0.0
```

```
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.1.0.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.2.0.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.3.0.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.137.137.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.137.138.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.137.139.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.137.140.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.137.141.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.137.142.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.137.143.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.137.144.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.137.145.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrCalcLocalPref.223.137.146.0.24.10.132.10.14 =
INTEGER: 100
BGP4-MIB::bgp4PathAttrBest.223.1.0.0.24.10.132.10.14 = INTEGER:
false(1)
BGP4-MIB::bgp4PathAttrBest.223.2.0.0.24.10.132.10.14 = INTEGER:
false(1)
BGP4-MIB::bgp4PathAttrBest.223.3.0.0.24.10.132.10.14 = INTEGER:
false(1)
BGP4-MIB::bgp4PathAttrBest.223.137.137.0.24.10.132.10.14 = INTEGER:
true(2)
BGP4-MIB::bgp4PathAttrBest.223.137.138.0.24.10.132.10.14 = INTEGER:
true(2)
BGP4-MIB::bgp4PathAttrBest.223.137.139.0.24.10.132.10.14 = INTEGER:
true(2)
BGP4-MIB::bgp4PathAttrBest.223.137.140.0.24.10.132.10.14 = INTEGER:
true(2)
BGP4-MIB::bgp4PathAttrBest.223.137.141.0.24.10.132.10.14 = INTEGER:
true(2)
BGP4-MIB::bgp4PathAttrBest.223.137.142.0.24.10.132.10.14 = INTEGER:
true(2)
BGP4-MIB::bgp4PathAttrBest.223.137.143.0.24.10.132.10.14 = INTEGER:
true(2)
BGP4-MIB::bgp4PathAttrBest.223.137.144.0.24.10.132.10.14 = INTEGER:
true(2)
```

```
BGP4-MIB::bgp4PathAttrBest.223.137.145.0.24.10.132.10.14 = INTEGER:
true(2)
BGP4-MIB::bgp4PathAttrBest.223.137.146.0.24.10.132.10.14 = INTEGER:
true(2)
BGP4-MIB::bgp4PathAttrUnknown.223.1.0.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.2.0.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.3.0.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.137.137.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.137.138.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.137.139.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.137.140.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.137.141.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.137.142.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.137.143.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.137.144.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.137.145.0.24.10.132.10.14 = ""
BGP4-MIB::bgp4PathAttrUnknown.223.137.146.0.24.10.132.10.14 = ""
```

4.3. Redback Networks

```
bgpPeerIdentifier.10.12.49.207 = 2.3.4.5
bgpPeerIdentifier.50.1.1.63 = 2.2.2.63
bgpPeerIdentifier.155.53.1.235 = 155.53.1.235
bgpPeerState.10.12.49.207 = established(6)
bgpPeerState.50.1.1.63 = established(6)
bgpPeerState.155.53.1.235 = established(6)
bgpPeerAdminStatus.10.12.49.207 = start(2)
bgpPeerAdminStatus.50.1.1.63 = start(2)
bgpPeerAdminStatus.155.53.1.235 = start(2)
bgpPeerNegotiatedVersion.10.12.49.207 = 4
bgpPeerNegotiatedVersion.50.1.1.63 = 4
bgpPeerNegotiatedVersion.155.53.1.235 = 4
bgpPeerLocalAddr.10.12.49.207 = 10.12.49.122
bgpPeerLocalAddr.50.1.1.63 = 50.1.1.122
bgpPeerLocalAddr.155.53.1.235 = 10.12.49.122
bgpPeerLocalPort.10.12.49.207 = 65455
bgpPeerLocalPort.50.1.1.63 = 179
bgpPeerLocalPort.155.53.1.235 = 65456
bgpPeerRemoteAddr.10.12.49.207 = 10.12.49.207
bgpPeerRemoteAddr.50.1.1.63 = 50.1.1.63
bgpPeerRemoteAddr.155.53.1.235 = 155.53.1.235
bgpPeerRemotePort.10.12.49.207 = 179
bgpPeerRemotePort.50.1.1.63 = 65529
bgpPeerRemotePort.155.53.1.235 = 179
bgpPeerRemoteAs.10.12.49.207 = 200
bgpPeerRemoteAs.50.1.1.63 = 200
bgpPeerRemoteAs.155.53.1.235 = 14207
bgpPeerInUpdates.10.12.49.207 = 1
```

```
   bgpPeerInUpdates.50.1.1.63 = 0
   bgpPeerInUpdates.155.53.1.235 = 21176
   bgpPeerOutUpdates.10.12.49.207 = 2
   bgpPeerOutUpdates.50.1.1.63 = 2
   bgpPeerOutUpdates.155.53.1.235 = 2
   bgpPeerInTotalMessages.10.12.49.207 = 16
   bgpPeerInTotalMessages.50.1.1.63 = 2
   bgpPeerInTotalMessages.155.53.1.235 = 21189
   bgpPeerOutTotalMessages.10.12.49.207 = 18
   bgpPeerOutTotalMessages.50.1.1.63 = 5
   bgpPeerOutTotalMessages.155.53.1.235 = 18
   bgpPeerLastError.10.12.49.207 = 00 00
   bgpPeerLastError.50.1.1.63 = 04 00
   bgpPeerLastError.155.53.1.235 = 00 00
   bgpPeerFsmEstablishedTransitions.10.12.49.207 = 2
   bgpPeerFsmEstablishedTransitions.50.1.1.63 = 2
   bgpPeerFsmEstablishedTransitions.155.53.1.235 = 2
   bgpPeerFsmEstablishedTime.10.12.49.207 = 669
   bgpPeerFsmEstablishedTime.50.1.1.63 = 19
   bgpPeerFsmEstablishedTime.155.53.1.235 = 669
   bgpPeerConnectRetryInterval.10.12.49.207 = 120
   bgpPeerConnectRetryInterval.50.1.1.63 = 120
   bgpPeerConnectRetryInterval.155.53.1.235 = 120
   bgpPeerHoldTime.10.12.49.207 = 180
   bgpPeerHoldTime.50.1.1.63 = 180
   bgpPeerHoldTime.155.53.1.235 = 180
   bgpPeerKeepAlive.10.12.49.207 = 60
   bgpPeerKeepAlive.50.1.1.63 = 60
   bgpPeerKeepAlive.155.53.1.235 = 60
   bgpPeerHoldTimeConfigured.10.12.49.207 = 180
   bgpPeerHoldTimeConfigured.50.1.1.63 = 180
   bgpPeerHoldTimeConfigured.155.53.1.235 = 180
   bgpPeerKeepAliveConfigured.10.12.49.207 = 60
   bgpPeerKeepAliveConfigured.50.1.1.63 = 60
   bgpPeerKeepAliveConfigured.155.53.1.235 = 60
   bgpPeerMinASOriginationInterval.10.12.49.207 = 15
   bgpPeerMinASOriginationInterval.50.1.1.63 = 15
   bgpPeerMinASOriginationInterval.155.53.1.235 = 15
   bgpPeerMinRouteAdvertisementInterval.10.12.49.207 = 30
   bgpPeerMinRouteAdvertisementInterval.50.1.1.63 = 30
   bgpPeerMinRouteAdvertisementInterval.155.53.1.235 = 30
   bgpPeerInUpdateElapsedTime.10.12.49.207 = 9
   bgpPeerInUpdateElapsedTime.50.1.1.63 = 19
   bgpPeerInUpdateElapsedTime.155.53.1.235 = 3

   ============================================================
   bgpVersion.0 = 08
   bgpLocalAs.0 = 300
```

```
   bgpPeerIdentifier.10.12.49.207 = 2.3.4.5
   bgpPeerIdentifier.50.1.1.63 = 0.0.0.0
   bgpPeerIdentifier.155.53.1.235 = 155.53.1.235
   bgpPeerState.10.12.49.207 = established(6)
   bgpPeerState.50.1.1.63 = connect(2)
   bgpPeerState.155.53.1.235 = established(6)
   bgpPeerAdminStatus.10.12.49.207 = start(2)
   bgpPeerAdminStatus.50.1.1.63 = start(2)
   bgpPeerAdminStatus.155.53.1.235 = start(2)
   bgpPeerNegotiatedVersion.10.12.49.207 = 4
   bgpPeerNegotiatedVersion.50.1.1.63 = 0
   bgpPeerNegotiatedVersion.155.53.1.235 = 4
   bgpPeerLocalAddr.10.12.49.207 = 10.12.49.122
   bgpPeerLocalAddr.50.1.1.63 = 0.0.0.0
   bgpPeerLocalAddr.155.53.1.235 = 10.12.49.122

   bgpPeerLocalPort.10.12.49.207 = 65455
   bgpPeerLocalPort.50.1.1.63 = 0
   bgpPeerLocalPort.155.53.1.235 = 65456
   bgpPeerRemoteAddr.10.12.49.207 = 10.12.49.207
   bgpPeerRemoteAddr.50.1.1.63 = 50.1.1.63
   bgpPeerRemoteAddr.155.53.1.235 = 155.53.1.235
   bgpPeerRemotePort.10.12.49.207 = 179
   bgpPeerRemotePort.50.1.1.63 = 0
   bgpPeerRemotePort.155.53.1.235 = 179
   bgpPeerRemoteAs.10.12.49.207 = 200
   bgpPeerRemoteAs.50.1.1.63 = 200
   bgpPeerRemoteAs.155.53.1.235 = 14207
   bgpPeerInUpdates.10.12.49.207 = 1
   bgpPeerInUpdates.50.1.1.63 = 0
   bgpPeerInUpdates.155.53.1.235 = 21164
   bgpPeerOutUpdates.10.12.49.207 = 2
   bgpPeerOutUpdates.50.1.1.63 = 0
   bgpPeerOutUpdates.155.53.1.235 = 2
   bgpPeerInTotalMessages.10.12.49.207 = 15
   bgpPeerInTotalMessages.50.1.1.63 = 0
   bgpPeerInTotalMessages.155.53.1.235 = 21176
   bgpPeerOutTotalMessages.10.12.49.207 = 17
   bgpPeerOutTotalMessages.50.1.1.63 = 0
   bgpPeerOutTotalMessages.155.53.1.235 = 17
   bgpPeerLastError.10.12.49.207 = 00 00
   bgpPeerLastError.50.1.1.63 = 04 00
   bgpPeerLastError.155.53.1.235 = 00 00
   bgpPeerFsmEstablishedTransitions.10.12.49.207 = 2
   bgpPeerFsmEstablishedTransitions.50.1.1.63 = 1
   bgpPeerFsmEstablishedTransitions.155.53.1.235 = 2
   bgpPeerFsmEstablishedTime.10.12.49.207 = 643
   bgpPeerFsmEstablishedTime.50.1.1.63 = 5326
```

```
   bgpPeerFsmEstablishedTime.155.53.1.235 = 643
   bgpPeerConnectRetryInterval.10.12.49.207 = 120
   bgpPeerConnectRetryInterval.50.1.1.63 = 120
   bgpPeerConnectRetryInterval.155.53.1.235 = 120
   bgpPeerHoldTime.10.12.49.207 = 180
   bgpPeerHoldTime.50.1.1.63 = 0
   bgpPeerHoldTime.155.53.1.235 = 180
   bgpPeerKeepAlive.10.12.49.207 = 60
   bgpPeerKeepAlive.50.1.1.63 = 0
   bgpPeerKeepAlive.155.53.1.235 = 60
   bgpPeerHoldTimeConfigured.10.12.49.207 = 180
   bgpPeerHoldTimeConfigured.50.1.1.63 = 180
   bgpPeerHoldTimeConfigured.155.53.1.235 = 180
   bgpPeerKeepAliveConfigured.10.12.49.207 = 60
   bgpPeerKeepAliveConfigured.50.1.1.63 = 60
   bgpPeerKeepAliveConfigured.155.53.1.235 = 60
   bgpPeerMinASOriginationInterval.10.12.49.207 = 15
   bgpPeerMinASOriginationInterval.50.1.1.63 = 15
   bgpPeerMinASOriginationInterval.155.53.1.235 = 15
   bgpPeerMinRouteAdvertisementInterval.10.12.49.207 = 30
   bgpPeerMinRouteAdvertisementInterval.50.1.1.63 = 30
   bgpPeerMinRouteAdvertisementInterval.155.53.1.235 = 30
   bgpPeerInUpdateElapsedTime.10.12.49.207 = 43
   bgpPeerInUpdateElapsedTime.50.1.1.63 = 5506
   bgpPeerInUpdateElapsedTime.155.53.1.235 = 0
   bgpIdentifier.0 = 14.1.1.1
   bgp4PathAttrPeer.1.2.3.0.24.10.12.49.207 = 10.12.49.207
   bgp4PathAttrPeer.4.4.4.122.32.0.0.0.0 = 0.0.0.0
   bgp4PathAttrPeer.6.8.0.0.20.155.53.1.235 = 155.53.1.235
   bgp4PathAttrIpAddrPrefixLen.1.2.3.0.24.10.12.49.207 = 24
   bgp4PathAttrIpAddrPrefixLen.4.4.4.122.32.0.0.0.0 = 32
   bgp4PathAttrIpAddrPrefixLen.6.8.0.0.20.155.53.1.235 = 20
   bgp4PathAttrIpAddrPrefix.1.2.3.0.24.10.12.49.207 = 1.2.3.0
   bgp4PathAttrIpAddrPrefix.4.4.4.122.32.0.0.0.0 = 4.4.4.122
   bgp4PathAttrIpAddrPrefix.6.8.0.0.20.155.53.1.235 = 6.8.0.0
   bgp4PathAttrOrigin.1.2.3.0.24.10.12.49.207 = igp(1)
   bgp4PathAttrOrigin.4.4.4.122.32.0.0.0.0 = igp(1)
   bgp4PathAttrOrigin.6.8.0.0.20.155.53.1.235 = igp(1)
   bgp4PathAttrASPathSegment.1.2.3.0.24.10.12.49.207 = 02 01 00 00 00 c8
   bgp4PathAttrASPathSegment.4.4.4.122.32.0.0.0.0 =
   bgp4PathAttrASPathSegment.6.8.0.0.20.155.53.1.235 =
   02 05  00 00   37 7f  00 00    0f 68  00 00   0b 62  00 00
   02 9c  00 00   05 af
   bgp4PathAttrNextHop.1.2.3.0.24.10.12.49.207 = 10.12.49.207
   bgp4PathAttrNextHop.4.4.4.122.32.0.0.0.0 = 0.0.0.0
   bgp4PathAttrNextHop.6.8.0.0.20.155.53.1.235 = 155.53.1.235
   bgp4PathAttrMultiExitDisc.1.2.3.0.24.10.12.49.207 = 0
   bgp4PathAttrMultiExitDisc.4.4.4.122.32.0.0.0.0 = 0
```

```
bgp4PathAttrMultiExitDisc.6.8.0.0.20.155.53.1.235 = 0
bgp4PathAttrLocalPref.1.2.3.0.24.10.12.49.207 = 100
bgp4PathAttrLocalPref.4.4.4.122.32.0.0.0.0 = 100
bgp4PathAttrLocalPref.6.8.0.0.20.155.53.1.235 = 100
bgp4PathAttrAtomicAggregate.1.2.3.0.24.10.12.49.207 =
   lessSpecificRouteSelected(2)
bgp4PathAttrAtomicAggregate.4.4.4.122.32.0.0.0.0 =
   lessSpecificRouteSelected(2)
bgp4PathAttrAtomicAggregate.6.8.0.0.20.155.53.1.235 =
   lessSpecificRouteSelected(2)
bgp4PathAttrAggregatorAS.1.2.3.0.24.10.12.49.207 = 0
bgp4PathAttrAggregatorAS.4.4.4.122.32.0.0.0.0 = 0
bgp4PathAttrAggregatorAS.6.8.0.0.20.155.53.1.235 = 0
bgp4PathAttrAggregatorAddr.1.2.3.0.24.10.12.49.207 = 0.0.0.0
bgp4PathAttrAggregatorAddr.4.4.4.122.32.0.0.0.0 = 0.0.0.0
bgp4PathAttrAggregatorAddr.6.8.0.0.20.155.53.1.235 = 0.0.0.0
bgp4PathAttrCalcLocalPref.1.2.3.0.24.10.12.49.207 = 100
bgp4PathAttrCalcLocalPref.4.4.4.122.32.0.0.0.0 = 100
bgp4PathAttrCalcLocalPref.6.8.0.0.20.155.53.1.235 = 100
bgp4PathAttrBest.1.2.3.0.24.10.12.49.207 = true(2)
bgp4PathAttrBest.4.4.4.122.32.0.0.0.0 = true(2)
bgp4PathAttrBest.6.8.0.0.20.155.53.1.235 = true(2)
bgp4PathAttrUnknown.1.2.3.0.24.10.12.49.207 =
bgp4PathAttrUnknown.4.4.4.122.32.0.0.0.0 =
bgp4PathAttrUnknown.6.8.0.0.20.155.53.1.235 =
```

5. Security Considerations

This document does not address any security issues.

6. Acknowledgements

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7. Normative References

[RFC1657] Willis, S., Burruss, J., and J. Chu, "Definitions of Managed Objects for the Fourth Version of the Border Gateway Protocol (BGP-4) using SMIv2", RFC 1657, July 1994.

[RFC4271] Rekhter, Y., Li, T., and S. Hares, Eds., "A Border Gateway Protocol 4 (BGP-4)", RFC 4271, January 2006.

[RFC4274] Haas, J. and S. Hares, Eds., "Definitions of Managed Objects for the Fourth Version of Border Gateway Protocol (BGP-4)", RFC 4274, January 2006.

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