Troubleshoot Routing Protocols

For supported software information, click here.

This article discusses how to troubleshoot routing protocol issues.

Default Routing Preferences

The following tables lists the default values for route preferences, also referred to as administrative distances. The route with the lowest preference is the most likely to become the active route.

Route Source	Default Preference
Connected	0
Static	1
EBGP	20
OSPF internal	30
OSPF external	110
RIP	120
IBGP	200

Troubleshoot Routing Tables

This section provides examples of CLI commands to troubleshoot issues related to routing tables.

View the Routing Daemon Routing Table (RIB)

```
versa@cli> show route
Routes for Routing instance : global
Codes: E1 - OSPF external type 1, E2 - OSPF external type 2
IA - inter area, iA - intra area,
L1 - IS-IS level-1, L2 - IS-IS level-2
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
```

```
* - candidate default
Prot   Dest Address/Mask Next-hop       Age        Interface name
----   ----------------- --------       -------    ----------------
OSPF   0.0.0.0/0         192.168.201.15 00:02:31   vni-0/0
OSPF   0.0.0.0/0         192.168.202.15 00:02:31   vni-0/1
OSPF   1.2.0.0/16        192.168.201.15 00:02:31   vni-0/0
OSPF   1.2.0.0/16        192.168.202.15 00:02:31   vni-0/1
static 1.2.3.0/24        0.0.0.0        00:02:58   Indirect
OSPF   1.2.3.0/24        192.168.201.15 00:02:31   vni-0/0
OSPF   1.2.3.0/24        192.168.202.15 00:02:31   vni-0/1
OSPF   1.10.11.12/32     192.168.201.15 00:02:31   vni-0/0
OSPF   1.10.11.12/32     192.168.202.15 00:02:31   vni-0/1
OSPF   9.10.11.12/32     192.168.201.15 00:02:31   vni-0/0
OSPF   9.10.11.12/32     192.168.202.15 00:02:31   vni-0/1
OSPF   9.10.12.0/24      192.168.201.15 00:02:31   vni-0/0
OSPF   9.10.12.0/24      192.168.202.15 00:02:31   vni-0/1
OSPF   192.168.201.0/24  0.0.0.0        00:02:37   vni-0/0
conn   192.168.201.0/24  192.168.201.14 00:03:08   vni-0/0
local  192.168.201.14/32 0.0.0.0        00:03:08   directly connected
OSPF   192.168.202.0/24  0.0.0.0        00:02:37   vni-0/1
conn   192.168.202.0/24  192.168.202.14 00:03:08   vni-0/1
local  192.168.202.14/32 0.0.0.0        00:03:08   directly connected
OSPF   192.168.203.0/24  0.0.0.0        00:02:37   vni-0/2
conn   192.168.203.0/24  192.168.203.7  00:03:08   vni-0/2
local  192.168.203.7/32  0.0.0.0        00:03:08   directly connected
OSPF   192.168.204.0/24  0.0.0.0        00:02:37   vni-0/3
conn   192.168.204.0/24  192.168.204.7  00:03:08   vni-0/3
local  192.168.204.7/32  0.0.0.0        00:03:08   directly connected
```

View the Routing Daemon RIB for a Routing Instance

```
admin@versa-cli> show route routing-instance lan-vrf
Routes for Routing instance : lan-vrf  AFI: ipv4
Codes: E1 - OSPF external type 1, E2 - OSPF external type 2
IA - inter area, iA - intra area,
L1 - IS-IS level-1, L2 - IS-IS level-2
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
+ - Active Route
Prot  Type  Dest Address/Mask   Next-hop    Age         Interface name
----  ----  ------------------- -------     --------    --------------------------
conn  N/A   +1.1.1.0/24         0.0.0.0     19:51:10    tvi-0/41.0
local N/A   +1.1.1.2/32         0.0.0.0     19:51:10    directly connected
BGP   N/A   +192.168.17.0/24    21.21.22.2  19:50:26    Indirect
BGP   N/A   +192.168.18.0/24    21.21.22.2  19:50:26    Indirect
BGP   N/A   +192.168.45.0/24    21.21.22.2  19:50:26    Indirect
CLI Command to view routes advertised by BGP
admin@versa-cli> show route advertising-protocol bgp
Routes for Routing instance : global
Prefix/Mask     Next-hop       MED      Lclpref   AS path
-----------     --------       -------  --------  ----------
1.2.3.0/24      192.168.202.14 0        0         5
1.2.3.0/24      192.168.201.14 0        0         5
```

View Routes Received by BGP

```
versa@versa-cli(config)% run show route receive-protocol bgp
Routes for Routing instance : global
Prefix/Mask     Next-hop        MED  Lclpref  AS path
-----------     --------        ---  -------  ----------------
0.0.0.0/0       192.168.202.15 0    100      6 6 6 6
1.2.0.0/16      192.168.202.15 0    100      6 6 6 6
1.2.3.0/24      192.168.202.15 0    100      6 6 6 6
1.10.11.12/32   192.168.202.15 0    100      6 6 6 6
9.10.11.12/32   192.168.202.15 0    100      6 6 6 6
9.10.12.0/24    192.168.202.15 0    100      6 6 6 6
128.0.0.0/1
0.0.0.0/0       192.168.201.15 0    100      6 6 6 6
1.2.0.0/16      192.168.201.15 0    100      6 6 6 6
1.2.3.0/24      192.168.201.15 0    100      6 6 6 6
1.10.11.12/32   192.168.201.15 0    100      6 6 6 6
9.10.11.12/32   192.168.201.15 0    100      6 6 6 6
9.10.12.0/24    192.168.201.15 0    100      6 6 6 6
128.0.0.0/1
```

View Routes Received by BGP from a Neighbor

```
versa@versa-cli(config)% run show route receive-protocol bgp neighbor-address 192.168.201.15
Routes for Routing instance : global
Prefix/Mask     Next-hop        MED  Lclpref  AS path
-----------     --------        ---  -------  ----------------
0.0.0.0/0       192.168.201.15 0    100      6 6 6 6
1.2.0.0/16      192.168.201.15 0    100      6 6 6 6
1.2.3.0/24      192.168.201.15 0    100      6 6 6 6
1.10.11.12/32   192.168.201.15 0    100      6 6 6 6
9.10.11.12/32   192.168.201.15 0    100      6 6 6 6
9.10.12.0/24    192.168.201.15 0    100      6 6 6 6
128.0.0.0/1
```

View VPN IPv4 (Layer 3 VPN) Routes Received by BGP from a Neighbor

```
admin@versa-cli> show route table l3vpn.ipv4.unicast receive-protocol bgp neighbor-address 21.21.20.2
Routes for Routing instance : global  AFI: ipv4
%  No entries found.
Routes for Routing instance : grt-vrf  AFI: ipv4
%  No entries found.
Routes for Routing instance : lan-vrf  AFI: ipv4
%  No entries found.
Routes for Routing instance : log-vrf  AFI: ipv4
%  No entries found.
Routes for Routing instance : mgmt2  AFI: ipv4
Routing entry for 192.168.17.0/24
Route Distinguisher  : 1L:2
```


Updated: Wed, 23 Oct 2024 08:07:06 GMT

```
Peer Address        : 21.21.20.2
 VPN Label          : 25600
 Community          : [ 808:808 1105:1105 ]
 Extended community  : [ target:3L:4 ]
 Next-hop           : 21.21.22.2
 MED                : 0
 Local Preference   : 300
 Origin             : Igp
 AS Path            : N/A
Routing entry for 192.168.18.0/24
 Route Distinguisher : 1L:2
 Peer Address        : 21.21.20.2
 VPN Label          : 25600
 Community          : [ 808:808 1105:1105 ]
 Extended community  : [ target:3L:4 ]
 Next-hop           : 21.21.22.2
 MED                : 0
 Local Preference   : 300
 Origin             : Igp
 AS Path            : N/A
```

View Routes Advertised by BGP to a Neighbor

```
versa@versa-cli(config)% run show route advertising-protocol bgp neighbor-address 192.168.201.15
Routes for Routing instance : global
Prefix/Mask     Next-hop       MED  Lclpref  AS path
-----------     --------       ---  -------  ----------------
1.2.3.0/24      192.168.201.14 0    0        5
[ok][2014-12-08 10:25:34]
[edit]
versa@rams-test2-cli(config)% run show route advertising-protocol bgp neighbor-address 192.168.202.15
Routes for Routing instance : global
Prefix/Mask     Next-hop       MED  Lclpref  AS path
-----------     --------       ---  -------  ----------------
1.2.3.0/24      192.168.202.14 0    0        5
```

View VPN IPv4 (Layer 3 VPN) Routes sent by BGP to a Neighbor

```
admin@versa-cli> show route table l3vpn.ipv4.unicast advertising-protocol bgp neighbor-address 21.21.20.2
Routes for Routing instance : global  AFI: ipv4
%  No entries found.
Routes for Routing instance : grt-vrf  AFI: ipv4
%  No entries found.
Routes for Routing instance : lan-vrf  AFI: ipv4
%  No entries found.
Routes for Routing instance : log-vrf  AFI: ipv4
%  No entries found.
Routes for Routing instance : mgmt2  AFI: ipv4
Routing entry for 192.168.19.0/24
```

```
Route Distinguisher : 1L:2
Peer Address        : 21.21.20.2
VPN Label           : 25600
Community           : [ N/A ]
Extended community  : [ N/A ]
Next-hop            : 21.21.23.2
MED                 : 0
Local Preference    : 300
Origin              : Igp
AS Path             : N/A
Routing entry for 192.168.20.0/24
Route Distinguisher : 1L:2
Peer Address        : 21.21.20.2
VPN Label           : 25600
Community           : [ N/A ]
Extended community  : [ N/A ]
Next-hop            : 21.21.23.2
MED                 : 0
Local Preference    : 300
Origin              : Igp
AS Path             : N/A
```

Troubleshoot BGP

This section provides examples of CLI commands to troubleshoot issues related to BGP.

View BGP Summary Information for All Routing Instances

```
versa@versa-cli> show bgp summary
routing-instance: global
BGP instance 2
router-id : 192.168.202.14
ipv4 unicast statistics:
iBGP routes in     : 0
eBGP routes in     : 8
 Eligible routes   : 10
 Ineligible routes : 0
 Active routes     : 9
 Advertised routes : 4
 Suppressed routes : 0
 ipv6 unicast statistics:
 iBGP routes in    : 0
 eBGP routes in    : 0
 Eligible routes   : 0
 Ineligible routes : 0
 Active routes     : 0
 Advertised routes : 0
 Suppressed routes : 0
Neighbor        V   AS  MsgRcvd   MsgSent   Up/Down        State/PfxRcd  PfxSent
192.168.201.15  4   6   334       334       02:28:47       8             2
```

```
192.168.202.15   4   6   334       334       02:28:32       0          2
```

View BGP Summary Information for a Routing Instance

```
versa@versa-cli> show bgp summary instance global
routing-instance: global
BGP instance 2
router-id : 192.168.202.14
ipv4 unicast statistics:
iBGP routes in     : 0
eBGP routes in     : 8
 Eligible routes   : 10
 Ineligible routes : 0
 Active routes     : 9
 Advertised routes : 4
 Suppressed routes : 0
ipv6 unicast statistics:
 iBGP routes in    : 0
 eBGP routes in    : 0
 Eligible routes   : 0
 Ineligible routes : 0
 Active routes  : 0
 Advertised routes : 0
 Suppressed routes : 0
Neighbor          V    AS MsgRcvd       MsgSent Up/Down State/PfxRcd  PfxSent
192.168.201.15    4    6    336         336     02:29:44       8          2
192.168.202.15    4    6    336         336     02:29:29       0          2
```

View Information for BGP Peer Groups for All Routing Instances

```
versa@versa-cli> show bgp group brief
routing-instance: global
BGP instance: 2
Group Type: External                Local AS: 5
 Name: g1
 Options: < PEER-AS >
 peer-as: 6
 Total peers: 2     Established: 2
 192.168.201.15+60719
 192.168.202.15+54389
```

View Information for BGP Peer Groups for a Routing Instance

```
versa@versa-cli> show bgp group brief global
routing-instance: global
BGP instance: 2
Group Type: External                Local AS: 5
Name: g1
Options: < PEER-AS >
```

```
peer-as: 6
Total peers: 2     Established: 2
192.168.201.15+60719
192.168.202.15+54389
```

View All BGP Neighbors for All Routing Instances

```
versa@versa-cli> show bgp neighbor detail
routing-instance: global
BGP instance: 2
Peer: 192.168.201.15+179 AS 6  Local: 192.168.201.14+60719 AS 5
Type: External State: Established Up for: 02:24:29
Last State: Openconfirm   Last Event: RecvKeepAlive
Holdtime: 90
 Peer ID: 192.168.201.156  Local ID: 192.168.202.14
 Keepalive Interval: 30
 BFD: disabled, down
 NLRI advertised by peer: inet-unicast
 NLRI for this session:   inet-unicast
 Peer supports Refresh functionality
 Peer supports Restarter functionality
 Peer supports 4 byte AS extension (peer-as 6)
 Input messages:  Total 325  Updates 2    Refreshes 0
 Output messages: Total 335  Updates 2    Refreshes 0
routing-instance: global
BGP instance: 2
Peer: 192.168.202.15+179 AS 6  Local: 192.168.202.14+54389 AS 5
 Type: External State: Established Up for: 02:24:14
 Last State: Openconfirm   Last Event: RecvKeepAlive
routing-instance: global
BGP instance: 2
Peer: 192.168.201.15+179 AS 6  Local: 192.168.201.14+60719 AS 5
 Type: External State: Established Up for: 02:24:29
 Last State: Openconfirm   Last Event: RecvKeepAlive
 Holdtime: 90
 Peer ID: 192.168.201.156  Local ID: 192.168.202.14
 Keepalive Interval: 30
 BFD: disabled, down
 NLRI advertised by peer: inet-unicast
 NLRI for this session:   inet-unicast
 Peer supports Refresh functionality
 Peer supports Restarter functionality
 Peer supports 4 byte AS extension (peer-as 6)
 Input messages:  Total 325  Updates 2    Refreshes 0
 Output messages: Total 335  Updates 2    Refreshes 0
routing-instance: global
BGP instance: 2
Peer: 192.168.202.15+179 AS 6  Local: 192.168.202.14+54389 AS 5
 Type: External State: Established Up for: 02:24:14
 Last State: Openconfirm   Last Event: RecvKeepAlive
 Holdtime: 90
 Peer ID: 192.168.201.156  Local ID: 192.168.202.14
```

```
Keepalive Interval: 30
BFD: disabled, down
NLRI advertised by peer: inet-unicast
NLRI for this session:   inet-unicast
Peer supports Refresh functionality
Peer supports Restarter functionality
Peer supports 4 byte AS extension (peer-as 6)
Input messages:  Total 325  Updates 2    Refreshes 0
Output messages: Total 335  Updates 1    Refreshes 0
```

View All BGP Neighbors for a Routing Instance

```
versa@versa-cli> show bgp neighbor detail global
routing-instance: global
BGP instance: 2
Peer: 192.168.201.15+179 AS 6  Local: 192.168.201.14+60719 AS 5
Type: External State: Established Up for: 02:25:51
Last State: Openconfirm   Last Event: RecvKeepAlive
Holdtime: 90
Peer ID: 192.168.201.156  Local ID: 192.168.202.14
Keepalive Interval: 30
BFD: disabled, down
NLRI advertised by peer: inet-unicast
NLRI for this session:   inet-unicast
Peer supports Refresh functionality
Peer supports Restarter functionality
Peer supports 4 byte AS extension (peer-as 6)
Input messages:  Total 328  Updates 2    Refreshes 0
Output messages: Total 338  Updates 2    Refreshes 0
routing-instance: global
BGP instance: 2
Peer: 192.168.202.15+179 AS 6  Local: 192.168.202.14+54389 AS 5
Type: External State: Established Up for: 02:25:36
Last State: Openconfirm   Last Event: RecvKeepAlive
Holdtime: 90
Peer ID: 192.168.201.156  Local ID: 192.168.202.14
Keepalive Interval: 30
BFD: disabled, down
NLRI advertised by peer: inet-unicast
NLRI for this session:   inet-unicast
Peer supports Refresh functionality
Peer supports Restarter functionality
Peer supports 4 byte AS extension (peer-as 6)
Input messages:  Total 328  Updates 2    Refreshes 0
Output messages: Total 339  Updates 1    Refreshes 0
```

View a BGP Neighbor for a Routing Instance

```
versa@versa-cli> show bgp neighbor detail global 192.168.202.15
routing-instance: global
```

```
BGP instance: 2
Peer: 192.168.202.15+179 AS 6  Local: 192.168.202.14+54389 AS 5
Type: External State: Established Up for: 02:26:46
 Last State: Openconfirm   Last Event: RecvKeepAlive
 Holdtime: 90
 Peer ID: 192.168.201.156  Local ID: 192.168.202.14
 Keepalive Interval: 30
 BFD: disabled, down
 NLRI advertised by peer: inet-unicast
 NLRI for this session:   inet-unicast
 Peer supports Refresh functionality
 Peer supports Restarter functionality
 Peer supports 4 byte AS extension (peer-as 6)
 Input messages:  Total 330  Updates 2    Refreshes 0
 Output messages: Total 341  Updates 1    Refreshes 0
```

Troubleshoot OSPF

This section provides examples of CLI commands to troubleshoot issues related to OSPF.

View OSPF Interfaces

```
versa@versa-cli> show ospf interface brief
Codes for operation state (State):
BDR - backup designated router; DR - designated router;
ODR - other designated router; PTP - point to point
dwn - down; lbk - loopback; wtg - waiting
Interface     Area        DR ID             BDR ID          State
---------     ----        -----             ------          -----
vni-0/0       0.0.0.0     192.168.201.15    192.168.201.14    BDR
vni-0/1       0.0.0.0     192.168.202.15    192.168.202.14    BDR
vni-0/2       0.0.0.1     192.168.203.8     192.168.203.7     BDR
vni-0/3       0.0.0.1     192.168.204.8     192.168.204.7     BDR
```

View OSPF Neighbors

```
versa@versa-cli> show ospf neighbor detail
State codes: atmpt - attempt, exchg - exchange, exst - exchange start,
        load  - loading, 2-way - two-way, full - full
Op codes: gdown - going down, gup - going up
Intf address   Interface       State        Neighbor ID      Pri       Op
------------   --------------  -----------  --------------   -------   -----
192.168.201.15 vni-0/0         full         192.168.201.156  128       up
 Area: 0.0.0.0
 Admin state: up
 Relationship state with neighbor: full
 Options: 0x52; Re-transmission queue length: 0
 Number of neighbor relationship state changes or error: 5
 Permanence: dynamic; Hellos suppressed: no; Requested LSAs: 0
```

```
 Dead timer due in: 00:00:35 (hrs:mins:secs:n/a)
 Hitless restart status: not helping
 Remaining hitless restart interval: none
 Hitless restart result: none
192.168.202.15  vni-0/1   full   192.168.201.156  128   up
 Area: 0.0.0.0
 Admin state: up
 Relationship state with neighbor: full
 Options: 0x52; Re-transmission queue length: 0
 Number of neighbor relationship state changes or error: 6
 Permanence: dynamic; Hellos suppressed: no; Requested LSAs: 0
 Dead timer due in: 00:00:34 (hrs:mins:secs:n/a)
 Hitless restart status: not helping
 Remaining hitless restart interval: none
 Hitless restart result: none
192.168.203.8   vni-0/2   full   192.168.203.8 1  up
 Area: 0.0.0.1
 Admin state: up
 Relationship state with neighbor: full
 Options: 0x42; Re-transmission queue length: 0
 Number of neighbor relationship state changes or error: 6
 Permanence: dynamic; Hellos suppressed: no; Requested LSAs: 0
 Dead timer due in: 00:00:32 (hrs:mins:secs:n/a)
 Hitless restart status: not helping
 Remaining hitless restart interval: none
 Hitless restart result: none
192.168.204.8   vni-0/3   full   192.168.203.8 1  up
 Area: 0.0.0.1
 Admin state: up
 Relationship state with neighbor: full
 Options: 0x42; Re-transmission queue length: 0
 Number of neighbor relationship state changes or error: 6
 Permanence: dynamic; Hellos suppressed: no; Requested LSAs: 0
 Dead timer due in: 00:00:32 (hrs:mins:secs:n/a)
 Hitless restart status: not helping
```

```
versa@versa-cli> show ospf neighbor brief
State codes: atmpt - attempt, exchg - exchange, exst - exchange start,
        load  - loading, 2-way - two-way, full - full
Op codes: gdown - going down, gup - going up
Intf address   Interface State  Neighbor ID      Pri     Op
------------   --------- -----  -----------      ------  -------
192.168.201.15 vni-0/0   full   192.168.201.156  128     up
192.168.202.15 vni-0/1   full   192.168.201.156  128     up
192.168.203.8  vni-0/2   full   192.168.203.8 1          up
192.168.204.8  vni-0/3   full   192.168.203.8 1          up
```

View OSPF Protocol Overview

```
versa@versa-cli> show ospf overview brief
Router ID    Version Admin Op status Instance
---------    ------- ----- --------- --------
```

```
192.168.201.155 2    en up     1

versa@versa-cli> show ospf database ?
Possible completions:
 area     - OSPF area ID
 area-opq - Opaque area-scope link-state advertisements
 asbr     - Summary AS boundary router link-state advertisements
 external - External link-state advertisements
 instance - OSPF instance ID
 network  - Network link-state advertisements
 nssa     - Not-so-stubby area link-state advertisements
 router   - Router link-state advertisements
 summary  - Summary link-state advertisements
```

View the OSPF LSA Database

```
versa@versa-cli> show ospf database
OSPF Router with ID (192.168.201.155) Instance ID (1)
Area 0.0.0.0;
Type       LSA ID         ADV Router      Sequence    Age(secs)    Checksum
---------- ----------     ---------------  ---------   ----------   ------------
Router     192.168.201.155 192.168.201.155  0x80000004  83          0x0000CEC7
Router     192.168.201.156 192.168.201.156  0x80000369  89          0x00002EDC
Network    192.168.201.15  192.168.201.156  0x80000001  89          0x00002267
Network    192.168.202.15  192.168.201.156  0x80000001  97          0x00001771
Summary    192.168.203.0   192.168.201.155  0x80000001  92          0x0000CB8C
Summary    192.168.204.0   192.168.201.155  0x80000001  92          0x0000C096
AS-Summary 192.168.203.8   192.168.201.155  0x80000001  86          0x00006DE1
A-Opaque   1.0.0.1         192.168.201.155  0x80000001  96          0x00000738
Area 0.0.0.1;
Type       LSA ID          ADV Router       Sequence       Age(secs)      Checksum
---------- ---------------  ---------------  -------------  -------------  -------------
Router     192.168.201.155  192.168.201.155   0x80000003     91           0x00005F4C
Router     192.168.203.8    192.168.203.8     0x8000185C     92           0x00009EBD
Network    192.168.203.8    192.168.203.8     0x80000001     97           0x00009F34
Network    192.168.204.8    192.168.203.8     0x80000001     97           0x0000943E
Summary    192.168.201.0    192.168.201.155   0x80000001     92           0x0000E178
Summary    192.168.202.0    192.168.201.155   0x80000001     92           0x0000D682
AS-Summary 192.168.201.156  192.168.201.155   0x80000001     86           0x0000B507
A-Opaque   1.0.0.1          192.168.201.155   0x80000001     96           0x00000738
A-Opaque   1.0.0.1          192.168.203.8     0x800000F0     1102         0x00006D76
```

```
versa@versa-cli> show ospf database area 0.0.0.0
OSPF Router with ID (192.168.201.155) Instance ID (1)
Area 0.0.0.0;
Type        LSA ID          ADV Router        Sequence      Age(secs)      Checksum
--------    -------------    ---------------   -----------  -------------  -----------------
Router      192.168.201.155   192.168.201.155    0x80000004  96           0x0000CEC7
Router      192.168.201.156   192.168.201.156    0x80000369  102          0x00002EDC
Network     192.168.201.15    192.168.201.156    0x80000001  102          0x00002267
Network     192.168.202.15    192.168.201.156    0x80000001  110          0x00001771
Summary     192.168.203.0     192.168.201.155    0x80000001  105          0x0000CB8C
```

```
Summary     192.168.204.0     192.168.201.155    0x80000001  105          0x0000C096
AS-Summary  192.168.203.8     192.168.201.155    0x80000001  99           0x00006DE1
A-Opaque    1.0.0.1           192.168.201.155    0x80000001  109          0x00000738
```

```
versa@versa-cli> show ospf database external
OSPF Router with ID (192.168.201.155) Instance ID (1)
Type      LSA ID      ADV Router        Sequence       Age(secs)       Checksum
----      ---------   ----------------  -------------  --------------  --------------
External  0.0.0.0     192.168.201.156   0x80000094     902             0x00009DB1
External  1.2.0.0     192.168.201.156   0x80000094     152             0x000078D3
External  1.2.3.0     192.168.201.156   0x80000093     2777            0x000059F0
External  1.10.11.12  192.168.201.156   0x80000093     2027            0x00002806
External  9.10.11.12  192.168.201.156   0x80000093     1653            0x0000BF66
External  9.10.12.0   192.168.201.156   0x80000093     1278            0x00002D04
External  128.0.0.0   192.168.201.156   0x80000052     2403            0x00001D73
```

```
versa@versa-cli> show ospf database router
OSPF Router with ID (192.168.201.155) Instance ID (1)
Area 0.0.0.0;
Type      LSA ID           ADV Router       Sequence   Age(secs)   Checksum
----      ----------       ----------       --------   ---------   ------------
Router    192.168.201.155  192.168.201.155  0x80000004 125         0x0000CEC7
Router    192.168.201.156  192.168.201.156  0x80000369 131         0x00002EDC
Area 0.0.0.1;
Type     LSA ID           ADV Router       Sequence    Age(secs)    Checksum
----     -----------      --------------   ----------  -----------  ----------------
Router   192.168.201.155   192.168.201.155  0x80000003  133          0x00005F4C
Router   192.168.203.8     192.168.203.8    0x8000185C  134          0x00009EBD
[ok][2014-12-08 10:22:28]
```

```
versa@versa-cli> show ospf database summary
OSPF Router with ID (192.168.201.155) Instance ID (1)
Area 0.0.0.0;
Type      LSA ID       ADV Router       Sequence      Age(secs)      Checksum
-------   ------------ ---------------  ------------  -------------  ------------
Summary  192.168.203.0  192.168.201.155  0x80000001    137            0x0000CB8C
Summary  192.168.204.0  192.168.201.155  0x80000001    137            0x0000C096
Area 0.0.0.1;
Type     LSA ID       ADV Router       Sequence      Age(secs)  Checksum
-------  -----------   ---------------  ------------  ---------  -------------
Summary  192.168.201.0  192.168.201.155  0x80000001    137       0x0000E178
Summary  192.168.202.0  192.168.201.155  0x80000001    137       0x0000D682
```

```
versa@rams-test2-cli> show ospf database instance 1
OSPF Router with ID (192.168.201.155) Instance ID (1)
Area 0.0.0.0;
Type       LSA ID          ADV Router        Sequence        Age(secs)     Checksum
----       -----------     ---------------   -------------   ------------  -------------
Router     192.168.201.155  192.168.201.155   0x80000004      142           0x0000CEC7
Router     192.168.201.156  192.168.201.156   0x80000369      148           0x00002EDC
Network    192.168.201.15   192.168.201.156   0x80000001      148           0x00002267
Network    192.168.202.15   192.168.201.156   0x80000001      156           0x00001771
Summary    192.168.203.0    192.168.201.155   0x80000001      151           0x0000CB8C
Summary    192.168.204.0    192.168.201.155   0x80000001      151           0x0000C096
```

```
AS-Summary  192.168.203.8    192.168.201.155    0x80000001      145          0x00006DE1
A-Opaque    1.0.0.1          192.168.201.155    0x80000001      155          0x00000738
Area 0.0.0.1;
Type        LSA ID           ADV Router         Sequence        Age(secs)    Checksum
----------  ----------       ----------------   --------------  -----------  --------------
Router      192.168.201.155  192.168.201.155    0x80000003      150          0x00005F4C
Router      192.168.203.8    192.168.203.8      0x8000185C      151          0x00009EBD
Network     192.168.203.8    192.168.203.8      0x80000001      156          0x00009F34
Network     192.168.204.8    192.168.203.8      0x80000001      156          0x0000943E
Summary     192.168.201.0    192.168.201.155    0x80000001      151          0x0000E178
Summary     192.168.202.0    192.168.201.155    0x80000001      151          0x0000D682
AS-Summary  192.168.201.156  192.168.201.155    0x80000001      145          0x0000B507
A-Opaque    1.0.0.1          192.168.201.155    0x80000001      155          0x00000738
A-Opaque    1.0.0.1          192.168.203.8      0x800000F0      1161         0x00006D76
```

Troubleshoot the vstated Routing State

This section provides examples of CLI commands to troubleshoot issues related to the routing state of the vstated daemon.

View the Route Table

List the commands to view routes and route tables:

```
vstated> show
 route          show route [routing-instance instance-name] [destination prefix]
 route-table    show route-table [routing-instance instance-name]
```

List all VRFs and their corresponding route table index:

```
vstated> show route-table
+-------------------------------+--------------------+
| Routing Instance              | RTT Index          |
+-------------------------------+--------------------+
|                       global |   0                |
|                       fabric | 255                |
+-------------------------------+--------------------+
```

List a specific VRF and its corresponding route table index:

```
vstated> show route-table routing-instance global
+-------------------------------+--------------------+
| Routing Instance              | RTT Index          |
+-------------------------------+--------------------+
|                       global |   0                |
+-------------------------------+--------------------+
```

View All Routes for All Routing Instances

```
vstated> show route
Route Table for : global
+--------------------+--------------------+--------------+
|  Destination/Mask  |  NextHop           | IfIndex      |
+--------------------+--------------------+--------------+
|      0.0.0.0/0     |  192.168.201.15    | 257          |
|                    |  192.168.202.15    | 258          |
|     128.0.0.0/1    |  192.168.201.15    | 257          |
|      1.2.0.0/16    |  192.168.201.15    | 257          |
|    200.15.1.0/24   |  192.168.202.14    | 258          |
|      1.2.3.0/24    |        0.0.0.0     |  0           |
|     9.10.12.0/24   |  192.168.201.15    | 257          |
|      8.8.8.8/30    |  192.168.201.15    | 257          |
|    1.10.11.12/32   |  192.168.201.15    | 257          |
|    9.10.11.12/32   |  192.168.201.15    | 257          |
+--------------------+--------------------+--------------+
Route Table for : fabric
+--------------------+--------------------+--------------+
|  Destination/Mask  |  NextHop           | IfIndex      |
+--------------------+--------------------+--------------+
+--------------------+--------------------+--------------+
```

View All Routes for a Routing Instance

```
vstated> show route routing-instance global
Route Table for : global
+--------------------+--------------------+--------------+
|  Destination/Mask  |  NextHop           | IfIndex      |
+--------------------+--------------------+--------------+
|      0.0.0.0/0     |  192.168.201.15    | 257          |
|                    |  192.168.202.15    | 258          |
|     128.0.0.0/1    |  192.168.201.15    | 257          |
|      1.2.0.0/16    |  192.168.201.15    | 257          |
|    200.15.1.0/24   |  192.168.202.14    | 258          |
|      1.2.3.0/24    |        0.0.0.0     |  0           |
|     9.10.12.0/24   |  192.168.201.15    | 257          |
|      8.8.8.8/30    |  192.168.201.15    | 257          |
|    1.10.11.12/32   |  192.168.201.15    | 257          |
|    9.10.11.12/32   |  192.168.201.15    | 257          |
+--------------------+--------------------+--------------+
```

List a Specific Route for All Routing Instances

```
vstated> show route destination 8.8.8.8/30
Route Table for : global
+--------------------+--------------------+--------------+
|  Destination/Mask  |  NextHop           | IfIndex      |
+--------------------+--------------------+--------------+
```

```
|      8.8.8.8/30    |   192.168.201.15    | 257           |
+--------------------+---------------------+---------------+
Route Table for : fabric
+--------------------+---------------------+---------------+
|   Destination/Mask   |   NextHop           | IfIndex       |
+--------------------+---------------------+---------------+
+--------------------+---------------------+---------------+
```

Troubleshoot the vsmd Routing State

This section provides examples of CLI commands to troubleshoot issues related to the routing state of the vsmd daemon.

View the Name and Routing Table Index of All Routing Instances

```
vsm-vcsn> show vsm route-table
Name                      table-id
fabric                   255
global                    0

vsm-vcsn> show vsm route-table name global
Name                      table-id
global                   0
```

View All Routes in a Routing Table

```
vsm-vcsn> show vunet route table 0
Routing tables
Internet:
Destination      Gateway         Flags Refs   Use          Mtu       Netif Expire
default          192.168.201.15  UG       0     0          1500      vni-0/0 =>
default          192.168.202.15  UG       0     0          1500      vni-0/1
1.2.0.0/16       192.168.201.15  UG       0     0          1500      vni-0/0
1.2.3.0/24       127.0.0.125     UB       0     0         16384      lo0
1.10.11.12/32    192.168.201.15  UG       0     0          1500      vni-0/0
8.8.8.8/30       192.168.201.15  UG       0     0          1500      vni-0/0
9.10.11.12/32    192.168.201.15  UG       0     0          1500      vni-0/0
9.10.12.0/24     192.168.201.15  UG       0     0          1500      vni-0/0
127.0.0.125      link#1          UH       0     0         16384      lo0
128.0.0.0/1      192.168.201.15  UG       0     0          1500      vni-0/0
192.168.201.0/24 link#257        U        0     0          1500      vni-0/0
192.168.201.14   link#257        UHS      1     0          16384      lo0
192.168.202.0/24 link#258        U        0     0          1500      vni-0/1
192.168.202.14   link#258        UHS      1     0          16384      lo0
200.15.1.0/24    192.168.202.14  UG       0     0          16384      lo0
Internet6:
Destination             Gateway                 Flags Refs   Use  Mtu     Netif Expire
::1                     link#1                  UH       0     0  16384   lo0
fe80::/64               link#1                  U        0     0  16384   lo0
```

```
fe80::1                 link#1                  UHS     0     0  16384   lo0
fe80::/64               link#257                  U       0     0   1500   vni-0/0
fe80::5054:ff:fec0:dd9e   link#257                UHS     0     0  16384   lo0 =>
fe80::5054:ff:fec0:dd9e   link#257                UHS     0     0  16384   lo0
fe80::/64               link#258                  U       0     0   1500   vni-0/1
fe80::5054:ff:fee1:ebbf   link#258               UHS     0     0  16384   lo0 =>
fe80::5054:ff:fee1:ebbf   link#258               UHS     0     0  16384   lo0
ff01::/32               ::1                     U       0     0  16384   lo0
ff01::/32               fe80::5054:ff:fec0:dd9e    U       0     0   1500   vni-0/0
ff01::/32               fe80::5054:ff:fee1:ebbf    U       0     0   1500   vni-0/1
ff02::/32               ::1                     U       0     0  16384   lo0
ff02::/32               fe80::5054:ff:fec0:dd9e    U       0     0   1500   vni-0/0
ff02::/32               fe80::5054:ff:fee1:ebbf    U       0     0   1500
```

Supported Software Information

Releases 20.2 and later support all content described in this article.

Additional Information

Configure Virtual Routers