

OcNOS®
**Open Compute
Network Operating System
Version 6.3.5**

OpenConfig Command Reference

June 2024



© 2024 IP Infusion Inc. All Rights Reserved.

This documentation is subject to change without notice. The software described in this document and this documentation are furnished under a license agreement or nondisclosure agreement. The software and documentation may be used or copied only in accordance with the terms of the applicable agreement. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or any means electronic or mechanical, including photocopying and recording for any purpose other than the purchaser's internal use without the written permission of IP Infusion Inc.

IP Infusion Inc.
3965 Freedom Circle, Suite 200
Santa Clara, CA 95054
+1 408-400-1900
<http://www.ipinfusion.com/>

For support, questions, or comments via E-mail, contact:

support@ipinfusion.com

Trademarks:

IP Infusion and OcnOS are trademarks or registered trademarks of IP Infusion. All other trademarks, service marks, registered trademarks, or registered service marks are the property of their respective owners.

Use of certain software included in this equipment is subject to the IP Infusion, Inc. End User License Agreement at <http://www.ipinfusion.com/license>. By using the equipment, you accept the terms of the End User License Agreement.

Contents

OpenConfig Command Reference	1
Overview	20
Enable OpenConfig Translation	20
Interfaces	21
Configure interfaces.....	21
Release.....	21
Configuration.....	21
OpenConfig NETCONF Payload.....	21
OcNOS CLI Command.....	22
OcNOS NETCONF Payload	22
Validation with NETCONF get.....	23
Restrictions	25
Configure description.....	25
Release.....	25
Configuration.....	25
OpenConfig NETCONF Payload.....	25
OcNOS CLI Command.....	25
OcNOS NETCONF Payload	25
Validation with NETCONF get.....	26
Restrictions	27
Configure MTU	27
Release.....	27
Configuration.....	27
OpenConfig NETCONF Payload.....	27
OcNOS CLI Command.....	27
OcNOS NETCONF Payload	28
Validation with NETCONF get.....	28
Restrictions	29
Configure ip address - primary	29
Release.....	29
Configuration.....	30
OpenConfig NETCONF Payload.....	30
OcNOS CLI Command.....	30

OcNOS NETCONF Payload	30
Validation with NETCONF get.....	31
Restrictions	32
Configure ip address - secondary	32
Release	32
Configuration.....	32
OpenConfig NETCONF Payload.....	33
OcNOS CLI Command.....	33
OcNOS NETCONF Payload	33
Validation with NETCONF get.....	34
Restrictions	35
Configure ipv6 addresses	36
Release	36
Configuration.....	36
OpenConfig NETCONF Payload.....	36
OcNOS CLI Command.....	37
OcNOS NETCONF Payload	37
Validation with NETCONF get.....	37
Restrictions	39
Configure duplex-mode	39
Release	39
Configuration.....	39
OpenConfig NETCONF Payload.....	39
OcNOS CLI Command.....	39
OcNOS NETCONF Payload	40
Validation with NETCONF get.....	40
Restrictions	41
Default.....	41
Configure port-speed.....	41
Release	41
Configuration.....	41
OpenConfig NETCONF Payload.....	42
OcNOS CLI Command.....	42
OcNOS NETCONF Payload	42

Validation with NETCONF get.....	42
Restrictions	44
Configure ethernet-type	44
Release	44
Configuration.....	44
OpenConfig NETCONF Payload.....	44
OcNOS CLI Command.....	44
OcNOS NETCONF Payload	44
Validation with NETCONF get.....	45
Restrictions	46
Configure subinterface with both primary and secondary address	46
Release	46
Configuration.....	46
OpenConfig NETCONF Payload.....	46
OcNOS CLI Command.....	47
OcNOS NETCONF Payload	47
Validation with NETCONF get.....	48
Restrictions	49
LACP	49
Create a static LAG interface.....	49
Release	49
Configuration.....	49
OpenConfig NETCONF Payload.....	49
OcNOS CLI Command.....	50
OcNOS NETCONF Payload	50
Validation with NETCONF get.....	52
Restrictions	56
Create a dynamic LAG interface.....	57
Release	57
Configuration.....	57
OpenConfig NETCONF Payload.....	57
OcNOS CLI Command.....	58
OcNOS NETCONF Payload	58
Validation with NETCONF get.....	58

Restrictions	60
Tunnel Interfaces	60
Create tunnel interface	60
Release	60
Configuration.....	60
OpenConfig NETCONF Payload.....	60
OcNOS CLI Command.....	61
OcNOS NETCONF Payload	61
Validation with NETCONF get.....	62
Restrictions	63
BGP.....	63
Create BGP instance	63
Release	63
Configuration.....	63
OpenConfig NETCONF Payload.....	63
OcNOS CLI Command.....	64
OcNOS NETCONF Payload	64
Validation with NETCONF get.....	65
Restrictions	66
Create BGP Global with default VRF	66
Release	66
Configuration.....	66
OpenConfig NETCONF Payload.....	66
OcNOS CLI Command.....	69
OcNOS NETCONF Payload	70
Validation with NETCONF get.....	71
Restrictions	77
Create BGP Global with user-defined VRFs.....	77
Release	77
Configuration.....	78
OpenConfig NETCONF Payload.....	78
OcNOS CLI Commands.....	80
OcNOS NETCONF Payload	81
Validation with NETCONF get.....	82

Restrictions	88
Create BGP neighbors.....	89
Release	89
Configuration.....	89
OpenConfig NETCONF Payload	89
OcNOS CLI Command.....	96
OcNOS NETCONF Payload	97
Validation with NETCONF get.....	100
Restrictions	104
Configure eBGP neighbor with TTL.....	105
Release	105
Configuration.....	105
OpenConfig NETCONF Payload	105
OcNOS CLI Command.....	108
OcNOS NETCONF Payload	108
Validation with NETCONF get.....	109
Restrictions	111
Create BGP peer-groups with default VRF	112
Release	112
Configuration.....	112
OpenConfig NETCONF Payload	112
OcNOS CLI Commands	116
OcNOS NETCONF Payload	117
Validation with NETCONF get.....	123
Restrictions	128
Create BGP peer-groups with user-defined VRFs	129
Release	129
Configuration.....	129
OpenConfig NETCONF Payload	129
OcNOS CLI Commands	133
OcNOS NETCONF Payload	134
Validation with NETCONF get.....	137
Restrictions	142
Configure update-source on neighbor	142

Release	142
Configuration.....	142
OpenConfig NETCONF Payload	143
OcNOS CLI Command.....	144
OcNOS NETCONF Payload	144
Validation with NETCONF get.....	144
Restrictions	146
Double link in load balance.....	146
Release	146
Configuration.....	146
OpenConfig NETCONF Payload	146
OcNOS CLI Command.....	149
OcNOS NETCONF Payload	149
Validation with NETCONF get.....	151
Restrictions	155
Delete BGP instance	155
Release	156
Configuration.....	156
OpenConfig NETCONF Payload	156
OcNOS NETCONF Payload	157
Restrictions	157
BGP RIB Counters IPv4	157
Release	157
Configuration.....	157
OpenConfig NETCONF Payload	159
OcNOS CLI Command.....	159
OcNOS NETCONF Payload	159
Validation with NETCONF get.....	166
Restrictions	173
BGP RIB Counters IPv6	173
Release	173
Configuration.....	173
OpenConfig NETCONF Payload	175
OcNOS CLI Command.....	175

OcNOS NETCONF Payload	175
Validation with NETCONF get.....	183
Restrictions	192
OSPFv2.....	193
OcNOS version 4.2.....	193
Create OSPF process	193
OcNOS version 6.3.0.....	198
Create OSPF process	198
LDP	210
Create LDP router.....	210
Release.....	210
Configuration.....	210
OpenConfig NETCONF Payload.....	210
OcNOS CLI Command.....	211
OcNOS NETCONF Payload	211
Validation with NETCONF get.....	212
Restrictions	213
Enable label switching (LDP).....	213
Release.....	213
Configuration.....	213
OpenConfig NETCONF Payload.....	213
OcNOS CLI Command.....	214
OcNOS NETCONF Payload	214
Validation with NETCONF get.....	215
Restrictions	216
Static Routes.....	216
Create a static route	216
Release.....	217
Configuration.....	217
OpenConfig NETCONF Payload.....	217
OcNOS CLI Command.....	219
OcNOS NETCONF Payload	219
Validation with NETCONF get.....	220
Restrictions	223

Create a static route with load balancing	223
Release	223
Configuration	223
OpenConfig NETCONF Payload	223
OcNOS CLI Command	226
OcNOS NETCONF Payload	226
Validation with NETCONF get	227
Restrictions	230
Create a static route with active/standby	230
Release	231
Configuration	231
OpenConfig NETCONF Payload	231
OcNOS CLI Command	232
OcNOS NETCONF Payload	232
Validation with NETCONF get	234
Restrictions	236
Use cases	237
L3VPN	237
Create VRF instance	237
Release	237
Configuration	237
Configure MPLS label mode	240
Release	240
Configuration	240
Create route-targets	243
Release	243
Configuration	244
Create extended community sets	247
Release	247
Configuration	247
Add community set to match criteria for route map	249
Release	249
Configuration	249
Apply routing policy (route map) as import/export	253

Release	253
Configuration.....	253
Configure interfaces to access VPN.....	257
Release	257
Configuration.....	257
Configure BGP with neighbors and route redistribution	262
Release	262
Configuration.....	262
L2VPN	286
Configure VPLS with Ethernet type.....	286
Release	286
Configuration.....	286
Configure VPLS with VLAN type	291
Release	291
Configuration.....	291
Disabling VPLS mac-learning	296
Release	296
Configuration.....	296
Configure VPWS	302
Release	302
Configuration.....	302
Configure VPWS precedence	306
Release	306
Configuration.....	307
OpenConfig state attributes.....	313
Platform	313
FAN.....	313
RAM	327
Hard-disk.....	329
PSU.....	332
Temperature	336
Transceiver	341
EEPROM	419
CPU	429

System	431
Host	431
Release	431
Configuration.....	431
Validation.....	432
Unconfiguration.....	432
Restriction	433
TimeZone Clock.....	433
Release.....	433
Configuration.....	433
Validation	433
Restrictions	434
Rsyslog.....	434
Release.....	434
Configuration.....	434
Validation	435
Restrictions	435
Logging Remote Server.....	435
Release.....	435
Configuration.....	435
OpenConfig NETCONF Payload.....	436
Validation	437
Logging Remote Facility	437
Release.....	438
Configuration.....	438
OpenConfig NETCONF Payload.....	438
Validation	439
Restrictions	440
Alarms	440
Release.....	440
Configuration.....	440
Restrictions	441
OpenConfig VLAN.....	441
Match single tagged VLAN	441

Release	441
Configuration.....	441
Validation with NETCONF get.....	443
Restrictions	443
Match single tagged VLAN range	443
Release	443
Configuration.....	443
Validation with NETCONF get.....	445
Restrictions	446
Match double tagged VLAN.....	446
Release	446
Configuration.....	446
Validation with NETCONF get.....	448
Restrictions	448
Match double tagged with outer and inner VLAN	449
Release	449
Configuration.....	449
Validation with NETCONF get.....	450
Restrictions	451
Ingress-mapping actions.....	451
Release	451
Configuration.....	451
Validation with NETCONF get.....	453
Restrictions	454
Trunk VLANs in interface.....	454
Release	454
Configuration.....	454
Validation with NETCONF get.....	457
Restrictions	460
Trunk interface with native VLAN	460
Release	460
Configuration.....	460
Validation with NETCONF get.....	462
Restrictions	463

Access VLAN in interface	463
Release	463
Configuration.....	463
Validation with NETCONF get.....	466
Restrictions	467
Trunk VLANs in link aggregation interface.....	467
Release	467
Configuration.....	467
Validation with NETCONF get.....	470
Restrictions	471
Trunk LAG with native VLAN	471
Release	471
Configuration.....	471
Validation with NETCONF get.....	474
Restrictions	476
Creation of a cross connect.....	476
Release	476
Configuration.....	476
Validation with NETCONF get.....	479
Restrictions	480
Deletion of a cross connect	480
Release	480
Configuration.....	480
Validation with NETCONF get.....	481
Restrictions	481
Creation of a VLAN bridge.....	481
Release	481
Configuration.....	481
Validation with NETCONF get.....	483
Restrictions	484
OpenConfig LLDP	484
Enable management attributes.....	484
Release	484
Configuration.....	484

Restrictions	485
Configure chassis-id	485
Release	485
Configuration.....	485
Restrictions	486
Configure suppress advertisement	486
Release	486
Configuration.....	487
Restrictions	488
Configure system name	488
Release	488
Configuration.....	488
Restrictions	489
Enable LLDP on an interface	489
Release	489
Configuration.....	489
Restrictions	490
LLDP get attributes	490
Counters	490
Interface counters	491
Neighbors.....	492
Neighbors name and description.....	495
Neighbors chassis-id, type and ttl	498
Neighbors port-id, type and description.....	500
Neighbors custom TLVs type/subtype.....	503
Neighbors custom TLVs.....	508
Neighbors capabilities	513
OpenConfig ACL	516
Enable management attributes	516
Release	516
Configuration.....	516
OpenConfig NETCONF Payload	516
OcNOS CLI command	517
OcNOS NETCONF Payload	517

Validation with NETCONF get.....	518
Restrictions	518
Create IPv4 entries	519
Release	519
Configuration.....	519
OcNOS CLI command	520
OcNOS NETCONF Payload	520
Validation with NETCONF get.....	521
Restrictions	521
Create IPv6 entries	522
Release	522
Configuration.....	522
OcNOS CLI command	523
OcNOS NETCONF Payload	523
Validation with NETCONF get.....	523
Restrictions	524
Create interfaces egress for IPv4/IPv6	524
Release	524
Configuration.....	524
OpenConfig NETCONF Payload.....	524
OcNOS CLI command	525
OcNOS NETCONF Payload	525
Validation with NETCONF get.....	526
Restrictions	526
Create interfaces ingress for IPv4/IPv6	526
Release	527
Configuration.....	527
OpenConfig NETCONF Payload.....	527
Restrictions	529
Create interfaces egress for L2	529
Release	529
Configuration.....	529
Restrictions	531
Release	531

Configuration.....	531
Restrictions	533
OpenConfig QoS.....	533
Enable QoS on OcNOS	533
Release.....	533
Configuration.....	534
OcNOS CLI command	534
OcNOS NETCONF Payload	534
Validation with NETCONF get.....	534
Restrictions	534
Enable QoS Profile on OcNOS	534
Release.....	534
Configuration.....	534
OcNOS CLI command	535
OcNOS NETCONF Payload	535
Validation with NETCONF get.....	535
Restrictions	535
Create Classifiers profiles.....	535
Release.....	535
Configuration.....	535
OpenConfig NETCONF Payload.....	535
OcNOS CLI command	537
OcNOS NETCONF Payload	538
Validation with NETCONF get.....	540
Restrictions	542
Create Forwarding-groups profiles	542
Release.....	542
Configuration.....	542
OcNOS CLI command	542
OcNOS NETCONF Payload	542
Restrictions	543
Create Queues entries.....	543
Release.....	543
Configuration.....	543

Restrictions	545
Create Scheduler-policies entries	545
Release	545
Configuration.....	545
OcNOS CLI command	546
OcNOS NETCONF Payload	546
Validation with NETCONF get.....	548
Restrictions	549
Create interfaces classifier association.....	549
Release	550
Configuration.....	550
OcNOS CLI command	551
OcNOS NETCONF Payload	552
Validation with NETCONF get.....	553
Restrictions	555
Create interfaces scheduler-policies association.....	555
Release	555
Configuration.....	555
OcNOS CLI command	557
OcNOS NETCONF Payload	557
Validation with NETCONF get.....	559
Restrictions	561
EVPN-MPLS	561
Configure EVPN-VPLS type	561
Release	561
Initial Configuration:	561
Configuration:.....	562
OcNOS CLI command	562
OcNOS NETCONF Payload	562
OpenConfig NETCONF Payload.....	564
Validation with NETCONF get.....	570
Restrictions	581
Configure EVPN-VPWS type	581
Release	581

Initial Configuration:	582
Configuration:.....	582
OcNOS CLI command	582
OcNOS NETCONF Payload	582
OpenConfig NETCONF Payload.....	585
Validation with NETCONF get.....	590
Restrictions	601

Overview

This document describes the OpenConfig configurations/state attributes supported by OcnOS SP and OTN versions 4.2, 5.0, 5.1, 6.1 and 6.2 and the limitations which apply to some of the paths.

Enable OpenConfig Translation

The OpenConfig feature is disabled by default and must be enabled using the following CLI command on the OcnOS shell.

```
OcnOS# cml NETCONF translation (disable|openconfig)
```

Or the equivalent NETCONF RPC:

```
<NETCONF-translation xmlns="http://ipinfusion.com/ns/zebmcli">  
  <status>disable|openconfig</status>  
</NETCONF-translation>
```

Once enabled, the user is still able to get data in OcnOS format, by specifying the required namespace:

```
yangcli ocnos@localhost> sget-config /ipi-interface:interfaces  
source=running
```

This will generate the following RPC:

```
<get-config xmlns="urn:ietf:params:xml:ns:NETCONF:base:1.0">  
  <source>  
    <running/>  
  </source>  
  <filter type="subtree">  
    <interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface"/>  
  </filter>  
</get-config>
```

To get OpenConfig data, the corresponding namespace must be given:

```
yangcli ocnos@localhost> sget-config /oc-if:interfaces source=running  
  
<get-config xmlns="urn:ietf:params:xml:ns:NETCONF:base:1.0">  
  <source>  
    <running/>  
  </source>  
  <filter type="subtree">  
    <interfaces xmlns="http://openconfig.net/yang/interfaces"/>  
  </filter>  
</get-config>
```

If no filter is provided and OpenConfig is enabled, all supported OpenConfig models will be retrieved in OpenConfig format. The OcnOS models for which no translation is supported will be retrieved in OcnOS format.

Interfaces

Configure interfaces

Release

This configuration was introduced in OcnOS version 5.0.

Configuration

Use this set of XML config to configure an interface.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <enabled>true</enabled>
      <mtu>1450</mtu>
      <description>Test desc for the interface</description>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X88A8</tpid>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <config>
        <duplex-mode>FULL</duplex-mode>
        <auto-negotiate>false</auto-negotiate>
        <port-speed xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-eth:SPEED_1GB</port-
speed>
      </config>
    </ethernet>
    <subinterfaces>
      <subinterface>
        <index>2</index>
        <config>
          <index>2</index>
          <description>Test subinterface double tagged</description>
          <enabled>true</enabled>
        </config>
        <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
          <addresses>
            <address>
              <ip>30.1.1.1</ip>
              <config>
                <ip>30.1.1.1</ip>
                <prefix-length>24</prefix-length>
              </config>
            </address>
          </addresses>
        </ipv4>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

```
        </config>
      </address>
    <address>
      <ip>40.10.10.10</ip>
      <config>
        <ip>40.10.10.10</ip>
        <prefix-length>24</prefix-length>
      </config>
    </address>
  </addresses>
</ipv4>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
```

OcNOS CLI Command

```
interface xe10
description "Test desc for the interface"
speed 1g
duplex full
mtu 1450
switchport dot1q ethertype 0x88A8
no shutdown
```

```
interface xe10.2
description "Test subinterface double tagged"
ip address 30.1.1.1/24
ip address 40.10.10.10/24 secondary
no shutdown
encapsulation dot1ad 10 inner-dot1q 200
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <enabled>>true</enabled>
      <mtu>1450</mtu>
      <description>Test desc for the interface</description>
    </config>
    <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-extended">
      <config>
        <dot1q-ether-type>0x88A8</dot1q-ether-type>
      </config>
    </extended>
    <ethernet xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-ethernet">
      <config>
        <duplex-mode>full</duplex-mode>
        <port-speed>1g</port-speed>
```

```
        </config>
    </ethernet>
</interface>
<interface>
    <name>xe10.2</name>
    <config>
        <name>xe10.2</name>
        <description>Test subinterface double tagged</description>
        <enabled>true</enabled>
    </config>
    <ipv4 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-ip">
        <secondary-addresses>
            <ip-address>40.10.10.10/24</ip-address>
            <config>
                <ip-address>40.10.10.10/24</ip-address>
            </config>
        </secondary-addresses>
        <config>
            <primary-ip-addr>30.1.1.1/24</primary-ip-addr>
        </config>
    </ipv4>
</interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <mtu>1450</mtu>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <description>Test desc for the interface</description>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <state>
      <name>xe10</name>
      <mtu>1450</mtu>
      <tpid xmlns="http://openconfig.net/yang/vlan-
types">TPID_0X8100</tpid>
      <description>Test desc for the interface</description>
      <logical>false</logical>
      <last-change>0</last-change>
      <oper-status>DOWN</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>10010</ifindex>
      <counters>
        <last-clear>0</last-clear>
        <out-errors>0</out-errors>
        <out-discards>0</out-discards>
        <out-multicast-pkts>0</out-multicast-pkts>
      </counters>
    </state>
  </interface>
</interfaces>
```

```
<out-broadcast-pkts>0</out-broadcast-pkts>
<out-unicast-pkts>0</out-unicast-pkts>
<out-pkts>0</out-pkts>
<out-octets>0</out-octets>
<in-fcs-errors>0</in-fcs-errors>
<in-errors>0</in-errors>
<in-discards>0</in-discards>
<in-multicast-pkts>0</in-multicast-pkts>
<in-broadcast-pkts>0</in-broadcast-pkts>
<in-unicast-pkts>0</in-unicast-pkts>
<in-pkts>0</in-pkts>
<in-octets>0</in-octets>
</counters>
<type
  xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
</state>
<ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
  <config>
    <duplex-mode>FULL</duplex-mode>
    <auto-negotiate>>false</auto-negotiate>
    <port-speed
eth="http://openconfig.net/yang/interfaces/ethernet">oc-eth:SPEED_1GB</port-
speed>
    </config>
    <state>
      <duplex-mode>FULL</duplex-mode>
      <port-speed
eth="http://openconfig.net/yang/interfaces/ethernet">oc-eth:SPEED_1GB</port-
speed>
      <negotiated-port-speed
        xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_1GB</negotiated-port-speed>
      <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
      <hw-mac-address>b86a.9729.abc5</hw-mac-address>
    </state>
  </ethernet>
  <subinterfaces>
    <subinterface>
      <index>0</index>
      <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
        <config>
          <mtu>1450</mtu>
        </config>
      </ipv4>
      <config>
        <index>0</index>
      </config>
      <ipv6 xmlns="http://openconfig.net/yang/interfaces/ip">
        <config>
          <mtu>1450</mtu>
        </config>
      </ipv6>
    </subinterface>
```



```
</subinterfaces>  
</interface>  
</interfaces>
```

Restrictions

/interfaces/interface/name

This leaf has been restricted to have at most 32 characters.

As a general restriction, interface names must have valid OcNOS names, like: (eth, xe, ce, so, po, etc), as this is not configurable.

Configure description

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

Use this XML config to assign a description to a given interface.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">  
  <interface>  
    <name>xe10</name>  
    <config>  
      <name>xe10</name>  
      <enabled>true</enabled>  
      <description>Test desc for the interface</description>  
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-  
type">ianaift:ethernetCsmacd</type>  
    </config>  
  </interface>  
</interfaces>
```

OcNOS CLI Command

```
interface xe10  
description "Test desc for the interface"  
no shutdown
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">  
  <interface>  
    <name>xe10</name>  
    <config>
```

```
        <name>xe10</name>
        <enabled>true</enabled>
        <description>Test desc for the interface</description>
    </config>
</interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <description>Test desc for the interface</description>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <state>
      <name>xe10</name>
      <tpid xmlns="http://openconfig.net/yang/vlan-
types">TPID_0X8100</tpid>
      <description>Test desc for the interface</description>
      <logical>false</logical>
      <last-change>0</last-change>
      <oper-status>DOWN</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>10010</ifindex>
      <counters>
        <last-clear>0</last-clear>
        <out-errors>0</out-errors>
        <out-discards>0</out-discards>
        <out-multicast-pkts>0</out-multicast-pkts>
        <out-broadcast-pkts>0</out-broadcast-pkts>
        <out-unicast-pkts>0</out-unicast-pkts>
        <out-pkts>0</out-pkts>
        <out-octets>0</out-octets>
        <in-fcs-errors>0</in-fcs-errors>
        <in-errors>0</in-errors>
        <in-discards>0</in-discards>
        <in-multicast-pkts>0</in-multicast-pkts>
        <in-broadcast-pkts>0</in-broadcast-pkts>
        <in-unicast-pkts>0</in-unicast-pkts>
        <in-pkts>0</in-pkts>
        <in-octets>0</in-octets>
      </counters>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </state>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <state>
```

```
        <negotiated-port-speed
          xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_10GB</negotiated-port-speed>
          <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
          <hw-mac-address>b86a.97c3.6447</hw-mac-address>
        </state>
      </ethernet>
    <subinterfaces>
      <subinterface>
        <index>0</index>
        <config>
          <index>0</index>
        </config>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

Restrictions

/interfaces/interface/name

This leaf has been restricted to have at most 32 characters.

Configure MTU

Release

This configuration was introduced in OcnOS version 4.2.

Configuration

Use this XML config to set the Maximum Transmission Unit (MTU) for an interface.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <enabled>>true</enabled>
      <mtu>1450</mtu>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
  </interface>
</interfaces>
```

OcnOS CLI Command



```
interface xe10
mtu 1450
no shutdown
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <enabled>>true</enabled>
      <mtu>1450</mtu>
    </config>
  </interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <mtu>1450</mtu>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <state>
      <name>xe10</name>
      <mtu>1450</mtu>
      <tpid xmlns="http://openconfig.net/yang/vlan-
types">TPID_0X8100</tpid>
      <logical>>false</logical>
      <last-change>0</last-change>
      <oper-status>DOWN</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>10010</ifindex>
      <counters>
        <last-clear>0</last-clear>
        <out-errors>0</out-errors>
        <out-discards>0</out-discards>
        <out-multicast-pkts>0</out-multicast-pkts>
        <out-broadcast-pkts>0</out-broadcast-pkts>
        <out-unicast-pkts>0</out-unicast-pkts>
        <out-pkts>0</out-pkts>
        <out-octets>0</out-octets>
        <in-fcs-errors>0</in-fcs-errors>
        <in-errors>0</in-errors>
        <in-discards>0</in-discards>
        <in-multicast-pkts>0</in-multicast-pkts>
```

```
<in-broadcast-pkts>0</in-broadcast-pkts>
<in-unicast-pkts>0</in-unicast-pkts>
<in-pkts>0</in-pkts>
<in-octets>0</in-octets>
</counters>
<type
  xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
</state>
<ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
  <state>
    <negotiated-port-speed
      xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_10GB</negotiated-port-speed>
    <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
    <hw-mac-address>b86a.97c3.6447</hw-mac-address>
  </state>
</ethernet>
<subinterfaces>
  <subinterface>
    <index>0</index>
    <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
      <config>
        <mtu>1450</mtu>
      </config>
    </ipv4>
    <config>
      <index>0</index>
    </config>
    <ipv6 xmlns="http://openconfig.net/yang/interfaces/ip">
      <config>
        <mtu>1450</mtu>
      </config>
    </ipv6>
  </subinterface>
</subinterfaces>
</interface>
</interfaces>
```

Restrictions

/interfaces/interface/name

This leaf has been restricted to have at most 32 characters.

/interfaces/interface/config/mtu

This leaf can only be used to configure the physical interface.

Configure ip address - primary

Release



This configuration was introduced in OcNOS version 4.2.

Configuration

Use this XML config to specify that an IP address and prefix length will be used by this interface.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <enabled>true</enabled>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>0</index>
        <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
          <addresses>
            <address>
              <ip>30.1.1.1</ip>
              <config>
                <ip>30.1.1.1</ip>
                <prefix-length>24</prefix-length>
              </config>
            </address>
          </addresses>
        </ipv4>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

OcNOS CLI Command

```
interface xe10
 ip address 30.1.1.1/24
 no shutdown
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <enabled>true</enabled>
    </config>
  </interface>
</interfaces>
```

```
</config>
<ipv4 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-ip">
  <config>
    <primary-ip-addr>30.1.1.1/24</primary-ip-addr>
  </config>
</ipv4>
</interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <state>
      <name>xe10</name>
      <tpid xmlns="http://openconfig.net/yang/vlan-
types">TPID_0X8100</tpid>
      <logical>false</logical>
      <last-change>0</last-change>
      <oper-status>DOWN</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>10010</ifindex>
      <counters>
        <last-clear>0</last-clear>
        <out-errors>0</out-errors>
        <out-discards>0</out-discards>
        <out-multicast-pkts>0</out-multicast-pkts>
        <out-broadcast-pkts>0</out-broadcast-pkts>
        <out-unicast-pkts>0</out-unicast-pkts>
        <out-pkts>0</out-pkts>
        <out-octets>0</out-octets>
        <in-fcs-errors>0</in-fcs-errors>
        <in-errors>0</in-errors>
        <in-discards>0</in-discards>
        <in-multicast-pkts>0</in-multicast-pkts>
        <in-broadcast-pkts>0</in-broadcast-pkts>
        <in-unicast-pkts>0</in-unicast-pkts>
        <in-pkts>0</in-pkts>
        <in-octets>0</in-octets>
      </counters>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </state>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <state>
```

```
    <negotiated-port-speed
      xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_10GB</negotiated-port-speed>
    <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
    <hw-mac-address>b86a.97c3.6447</hw-mac-address>
  </state>
</ethernet>
<subinterfaces>
  <subinterface>
    <index>0</index>
    <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
      <addresses>
        <address>
          <ip>30.1.1.1</ip>
          <config>
            <ip>30.1.1.1</ip>
            <prefix-length>24</prefix-length>
          </config>
          <state>
            <ip>30.1.1.1</ip>
            <prefix-length>24</prefix-length>
          </state>
        </address>
      </addresses>
    </ipv4>
  <config>
    <index>0</index>
  </config>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
```

Restrictions

/interfaces/interface/name

This leaf has been restricted to have at most 32 characters.

/interfaces/interface/subinterfaces/subinterface/ipv4/addresses/address

The first entry on that list will be used as the primary address, as OpenConfig does not have this concept.

Configure ip address - secondary

Release

This configuration was introduced in OcNOS version 4.2.

Configuration



Use this XML config to specify that a secondary IP address and prefix length will be used by this interface. The secondary address cannot be configured in the absence of a primary IP address.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>0</index>
        <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
          <addresses>
            <address>
              <ip>10.10.10.1</ip>
              <config>
                <ip>10.10.10.1</ip>
                <prefix-length>24</prefix-length>
              </config>
            </address>
            <address>
              <ip>11.11.11.1</ip>
              <config>
                <ip>11.11.11.1</ip>
                <prefix-length>24</prefix-length>
              </config>
            </address>
          </addresses>
        </ipv4>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

OcNOS CLI Command

```
interface xe10
 ip address 10.10.10.1/24
 ip address 11.11.11.1/24 secondary
 no shutdown
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe10</name>
```



```
<config>
  <name>xe10</name>
</config>
<ipv4 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-ip">
  <secondary-addresses>
    <ip-address>11.11.11.1/24</ip-address>
    <config>
      <ip-address>11.11.11.1/24</ip-address>
    </config>
  </secondary-addresses>
  <config>
    <primary-ip-addr>10.10.10.1/24</primary-ip-addr>
  </config>
</ipv4>
</interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <state>
      <name>xe10</name>
      <tpid xmlns="http://openconfig.net/yang/vlan-
types">TPID_0X8100</tpid>
      <logical>false</logical>
      <last-change>0</last-change>
      <oper-status>DOWN</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>10010</ifindex>
      <counters>
        <last-clear>0</last-clear>
        <out-errors>0</out-errors>
        <out-discards>0</out-discards>
        <out-multicast-pkts>0</out-multicast-pkts>
        <out-broadcast-pkts>0</out-broadcast-pkts>
        <out-unicast-pkts>0</out-unicast-pkts>
        <out-pkts>0</out-pkts>
        <out-octets>0</out-octets>
        <in-fcs-errors>0</in-fcs-errors>
        <in-errors>0</in-errors>
        <in-discards>0</in-discards>
        <in-multicast-pkts>0</in-multicast-pkts>
        <in-broadcast-pkts>0</in-broadcast-pkts>
        <in-unicast-pkts>0</in-unicast-pkts>
        <in-pkts>0</in-pkts>
      </counters>
    </state>
  </interface>
</interfaces>
```

```
        <in-octets>0</in-octets>
    </counters>
    <type
        xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </state>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
        <state>
            <negotiated-port-speed
                xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_10GB</negotiated-port-speed>
                <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
                <hw-mac-address>b86a.97c3.6447</hw-mac-address>
            </state>
        </ethernet>
    <subinterfaces>
        <subinterface>
            <index>0</index>
            <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
                <addresses>
                    <address>
                        <ip>10.10.10.1</ip>
                        <config>
                            <ip>10.10.10.1</ip>
                            <prefix-length>24</prefix-length>
                        </config>
                        <state>
                            <ip>10.10.10.1</ip>
                            <prefix-length>24</prefix-length>
                        </state>
                    </address>
                    <address>
                        <ip>11.11.11.1</ip>
                        <config>
                            <ip>11.11.11.1</ip>
                            <prefix-length>24</prefix-length>
                        </config>
                        <state>
                            <ip>11.11.11.1</ip>
                            <prefix-length>24</prefix-length>
                        </state>
                    </address>
                </addresses>
            </ipv4>
            <config>
                <index>0</index>
            </config>
        </subinterface>
    </subinterfaces>
</interface>
</interfaces>
```

Restrictions

/interfaces/interface/name



This leaf has been restricted to have at most 32 characters.

/interfaces/interface/subinterfaces/subinterface/ipv4/addresses/address

All leaves of this list that was not the first entry will be considered as secondaries addresses.

Configure ipv6 addresses

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

Use this XML config to set the IPv6 addresses of an interface.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xel1</name>
    <config>
      <name>xel1</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>0</index>
        <ipv6 xmlns="http://openconfig.net/yang/interfaces/ip">
          <addresses>
            <address>
              <ip>ad0f::ac0f:ab0f</ip>
              <config>
                <ip>ad0f::ac0f:ab0f</ip>
                <prefix-length>64</prefix-length>
              </config>
            </address>
            <address>
              <ip>ae0f::ad0f:ac0f</ip>
              <config>
                <ip>ae0f::ad0f:ac0f</ip>
                <prefix-length>64</prefix-length>
              </config>
            </address>
            <address>
              <ip>f0ca:bebe::cafe</ip>
              <config>
                <ip>f0ca:bebe::cafe</ip>
                <prefix-length>64</prefix-length>
              </config>
            </address>
          </addresses>
        </ipv6>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

```
    </addresses>
  </ipv6>
</config>
  <index>0</index>
</config>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
```

OcNOS CLI Command

```
interface xe11
  ipv6 address ad0f::ac0f:ab0f/64
  ipv6 address ae0f::ad0f:ac0f/64
  ipv6 address f0ca:bebe::cafe/64
  no shutdown
!
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe11</name>
    <config>
      <name>xe11</name>
    </config>
    <ipv6 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-ip">
      <addresses>
        <ipv6-address>ad0f::ac0f:ab0f/64</ipv6-address>
        <config>
          <ipv6-address>ad0f::ac0f:ab0f/64</ipv6-address>
        </config>
      </addresses>
      <addresses>
        <ipv6-address>ae0f::ad0f:ac0f/64</ipv6-address>
        <config>
          <ipv6-address>ae0f::ad0f:ac0f/64</ipv6-address>
        </config>
      </addresses>
      <addresses>
        <ipv6-address>f0ca:bebe::cafe/64</ipv6-address>
        <config>
          <ipv6-address>f0ca:bebe::cafe/64</ipv6-address>
        </config>
      </addresses>
    </ipv6>
  </interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
```

```
<name>xe10</name>
<config>
  <name>xe10</name>
  <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
  <type
  xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
</config>
<state>
  <name>xe10</name>
  <tpid xmlns="http://openconfig.net/yang/vlan-
types">TPID_0X8100</tpid>
  <logical>false</logical>
  <last-change>0</last-change>
  <oper-status>DOWN</oper-status>
  <admin-status>UP</admin-status>
  <ifindex>10010</ifindex>
  <counters>
    <last-clear>0</last-clear>
    <out-errors>0</out-errors>
    <out-discards>0</out-discards>
    <out-multicast-pkts>0</out-multicast-pkts>
    <out-broadcast-pkts>0</out-broadcast-pkts>
    <out-unicast-pkts>0</out-unicast-pkts>
    <out-pkts>0</out-pkts>
    <out-octets>0</out-octets>
    <in-fcs-errors>0</in-fcs-errors>
    <in-errors>0</in-errors>
    <in-discards>0</in-discards>
    <in-multicast-pkts>0</in-multicast-pkts>
    <in-broadcast-pkts>0</in-broadcast-pkts>
    <in-unicast-pkts>0</in-unicast-pkts>
    <in-pkts>0</in-pkts>
    <in-octets>0</in-octets>
  </counters>
  <type
  xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
</state>
<ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
  <config>
    <duplex-mode>FULL</duplex-mode>
  </config>
  <state>
    <duplex-mode>FULL</duplex-mode>
    <negotiated-port-speed
  xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_10GB</negotiated-port-speed>
    <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
    <hw-mac-address>b86a.97c3.6447</hw-mac-address>
  </state>
</ethernet>
<subinterfaces>
  <subinterface>
```



```
<index>0</index>
<config>
  <index>0</index>
</config>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
```

Restrictions

/interfaces/interface/name

This leaf has been restricted to have at most 32 characters.

Configure duplex-mode

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

Use this XML config to set the duplex mode for an interface.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <enabled>true</enabled>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <config>
        <duplex-mode>FULL</duplex-mode>
      </config>
    </ethernet>
  </interface>
</interfaces>
```

OcNOS CLI Command

```
interface xe10
duplex full
no shutdown
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <enabled>true</enabled>
    </config>
    <ethernet xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
ethernet">
      <config>
        <duplex-mode>full</duplex-mode>
      </config>
    </ethernet>
  </interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <type
        xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
      </config>
      <state>
        <name>xe10</name>
        <logical>false</logical>
        <last-change>0</last-change>
        <oper-status>DOWN</oper-status>
        <admin-status>UP</admin-status>
        <ifindex>10010</ifindex>
        <counters>
          <last-clear>0</last-clear>
          <out-errors>0</out-errors>
          <out-discards>0</out-discards>
          <out-multicast-pkts>0</out-multicast-pkts>
          <out-broadcast-pkts>0</out-broadcast-pkts>
          <out-unicast-pkts>0</out-unicast-pkts>
          <out-pkts>0</out-pkts>
          <out-octets>0</out-octets>
          <in-fcs-errors>0</in-fcs-errors>
          <in-errors>0</in-errors>
          <in-discards>0</in-discards>
          <in-multicast-pkts>0</in-multicast-pkts>
          <in-broadcast-pkts>0</in-broadcast-pkts>
          <in-unicast-pkts>0</in-unicast-pkts>
          <in-pkts>0</in-pkts>
          <in-octets>0</in-octets>
        </counters>
      </state>
    </interface>
  </interfaces>
```



```
      xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </state>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <config>
        <auto-negotiate>false</auto-negotiate>
        <port-speed
          xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-eth:SPEED_1GB</port-
speed>
          </config>
        <state>
          <port-speed
            xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-eth:SPEED_1GB</port-
speed>
            <negotiated-port-speed
              xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_1GB</negotiated-port-speed>
              <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
              <hw-mac-address>b86a.9729.abc5</hw-mac-address>
            </state>
          </ethernet>
        <subinterfaces>
          <subinterface>
            <index>0</index>
            <config>
              <index>0</index>
            </config>
          </subinterface>
        </subinterfaces>
      </interface>
    </interfaces>
```

Restrictions

/interfaces/interface/name

This leaf has been restricted to have at most 32 characters.

Default

By default, duplex mode is *full*.

Configure port-speed

Release

This configuration was introduced in OcNOS version 4.2.

Configuration



Use this xml config to set the link speed of the interface.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <enabled>true</enabled>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <config>
        <auto-negotiate>false</auto-negotiate>
        <port-speed xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-eth:SPEED_1GB</port-
speed>
      </config>
    </ethernet>
  </interface>
</interfaces>
```

OcNOS CLI Command

```
interface xe10
speed 1g
no shutdown
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <enabled>true</enabled>
    </config>
    <ethernet xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
ethernet">
      <config>
        <port-speed>1g</port-speed>
      </config>
    </ethernet>
  </interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
```

```

<config>
  <name>xe10</name>
  <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
  <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
</config>
<state>
  <name>xe10</name>
  <tpid xmlns="http://openconfig.net/yang/vlan-
types">TPID_0X8100</tpid>
  <logical>false</logical>
  <last-change>0</last-change>
  <oper-status>DOWN</oper-status>
  <admin-status>UP</admin-status>
  <ifindex>10010</ifindex>
  <counters>
    <last-clear>0</last-clear>
    <out-errors>0</out-errors>
    <out-discards>0</out-discards>
    <out-multicast-pkts>0</out-multicast-pkts>
    <out-broadcast-pkts>0</out-broadcast-pkts>
    <out-unicast-pkts>0</out-unicast-pkts>
    <out-pkts>0</out-pkts>
    <out-octets>0</out-octets>
    <in-fcs-errors>0</in-fcs-errors>
    <in-errors>0</in-errors>
    <in-discards>0</in-discards>
    <in-multicast-pkts>0</in-multicast-pkts>
    <in-broadcast-pkts>0</in-broadcast-pkts>
    <in-unicast-pkts>0</in-unicast-pkts>
    <in-pkts>0</in-pkts>
    <in-octets>0</in-octets>
  </counters>
  <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
</state>
  <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
    <state>
      <negotiated-port-speed
xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_10GB</negotiated-port-speed>
      <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
      <hw-mac-address>b86a.9729.abc5</hw-mac-address>
    </state>
  </ethernet>
  <subinterfaces>
    <subinterface>
      <index>0</index>
      <config>
        <index>0</index>
      </config>
    </subinterface>

```

```
</subinterfaces>  
</interface>  
</interfaces>
```

Restrictions

/interfaces/interface/name

This leaf has been restricted to have at most 32 characters.

/interfaces/interface/ethernet/config/port-speed

This leaf can be used only if the auto-negotiate leaf (../auto-negotiate) is set to false.

Configure ethernet-type

Release

This configuration was introduced in OcNOS version 5.0.

Configuration

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">  
  <interface>  
    <name>xe10</name>  
    <config>  
      <name>xe10</name>  
      <enabled>true</enabled>  
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-  
type">ianaift:ethernetCsmacd</type>  
    </config>  
    <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-  
types="http://openconfig.net/yang/vlan-types">oc-vlan-  
types:TPID_0X88A8</tpid>  
  </interface>  
</interfaces>
```

OcNOS CLI Command

```
interface xe10  
switchport dot1q ethertype 0x88a8  
no shutdown
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">  
  <interface>  
    <name>xe10</name>
```

```

<config>
  <name>xe10</name>
  <enabled>>true</enabled>
</config>
<extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-extended">
  <config>
    <dot1q-ether-type>0x88a8</dot1q-ether-type>
  </config>
</extended>
</interface>
</interfaces>

```

Validation with NETCONF get

```

<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <state>
      <name>xe10</name>
      <tpid xmlns="http://openconfig.net/yang/vlan-
types">TPID_0X88a8</tpid>
      <logical>>false</logical>
      <last-change>0</last-change>
      <oper-status>DOWN</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>10010</ifindex>
      <counters>
        <last-clear>0</last-clear>
        <out-errors>0</out-errors>
        <out-discards>0</out-discards>
        <out-multicast-pkts>0</out-multicast-pkts>
        <out-broadcast-pkts>0</out-broadcast-pkts>
        <out-unicast-pkts>0</out-unicast-pkts>
        <out-pkts>0</out-pkts>
        <out-octets>0</out-octets>
        <in-fcs-errors>0</in-fcs-errors>
        <in-errors>0</in-errors>
        <in-discards>0</in-discards>
        <in-multicast-pkts>0</in-multicast-pkts>
        <in-broadcast-pkts>0</in-broadcast-pkts>
        <in-unicast-pkts>0</in-unicast-pkts>
        <in-pkts>0</in-pkts>
        <in-octets>0</in-octets>
      </counters>
    </state>
  </interface>
</interfaces>

```

```
      xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </state>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <state>
        <negotiated-port-speed
          xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_10GB</negotiated-port-speed>
          <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
          <hw-mac-address>b86a.9729.abc5</hw-mac-address>
        </state>
      </ethernet>
    <subinterfaces>
      <subinterface>
        <index>0</index>
        <config>
          <index>0</index>
        </config>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

Restrictions

/interfaces/interface/name

This leaf has been restricted to have at most 32 characters.

Configure subinterface with both primary and secondary address

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

Use this XML config to specify both an IP address and a secondary address with their prefix length that will be used by this subinterface.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
    </config>
  <subinterfaces>
```



```
<subinterface>
  <index>10</index>
  <config>
    <index>10</index>
  </config>
  <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
    <addresses>
      <address>
        <ip>20.21.22.23</ip>
        <config>
          <ip>20.21.22.23</ip>
          <prefix-length>24</prefix-length>
        </config>
      </address>
      <address>
        <ip>24.25.26.27</ip>
        <config>
          <ip>24.25.26.27</ip>
          <prefix-length>24</prefix-length>
        </config>
      </address>
    </addresses>
  </ipv4>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
```

OcNOS CLI Command

```
interface xe10.10
 ip address 20.21.22.23/24
 ip address 24.25.26.27/24 secondary
!
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe10.10</name>
    <config>
      <name>xe10.10</name>
    </config>
    <ipv4 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-ip">
      <secondary-addresses>
        <ip-address>24.25.26.27/24</ip-address>
        <config>
          <ip-address>24.25.26.27/24</ip-address>
        </config>
      </secondary-addresses>
      <config>
        <primary-ip-addr>20.21.22.23/24</primary-ip-addr>
      </config>
    </ipv4>
  </interface>
```

</interfaces>

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
    </config>
    <subinterfaces>
      <subinterface>
        <index>10</index>
        <config>
          <index>10</index>
        </config>
        <state>
          <name>xe10.10</name>
          <logical>true</logical>
          <oper-status>DOWN</oper-status>
          <ifindex>20500490</ifindex>
          <counters>
            <last-clear>0</last-clear>
            <out-pkts>0</out-pkts>
            <out-octets>0</out-octets>
            <in-pkts>0</in-pkts>
            <in-octets>0</in-octets>
          </counters>
        </state>
        <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
          <addresses>
            <address>
              <ip>20.21.22.23</ip>
              <config>
                <ip>20.21.22.23</ip>
                <prefix-length>24</prefix-length>
              </config>
              <state>
                <ip>20.21.22.23</ip>
                <prefix-length>24</prefix-length>
              </state>
            </address>
            <address>
              <ip>24.25.26.27</ip>
              <config>
                <ip>24.25.26.27</ip>
                <prefix-length>24</prefix-length>
              </config>This configuration was introduced
              <state>
                <ip>24.25.26.27</ip>
                <prefix-length>24</prefix-length>
              </state>
            </address>
          </addresses>
        </ipv4>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```



```
</subinterfaces>  
</interface>  
</interfaces>
```

Restrictions

/interfaces/interface/name

This leaf has been restricted to have at most 32 characters.

/interfaces/interface/subinterfaces/subinterface/ipv4/addresses/address

The first entry on that list will be used as the primary address, as OpenConfig does not have this concept.

/interfaces/interface/subinterfaces/subinterface/index:

Although OcNOS CLI allows subinterface name in the form <ifname>.<id>.<id>, it is not supported by OpenConfig.

Hence, when using OpenConfig translation, only the subinterface name in the format <ifname>.<id> must be used

LACP

Create a static LAG interface

Release

This configuration was introduced in OcNOS version 5.0.

Configuration

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">  
  <interface>  
    <name>sa10</name>  
    <config>  
      <name>sa10</name>  
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-  
type">ianaift:ieee8023adLag</type>  
    </config>  
    <aggregation xmlns="http://openconfig.net/yang/interfaces/aggregate">  
      <config>  
        <min-links>2</min-links>  
        <lag-type>STATIC</lag-type>  
      </config>  
    </aggregation>  
  </interface>
```



```
<interface>
  <name>xe6</name>
  <config>
    <name>xe6</name>
    <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
  </config>
  <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
    <config>
      <aggregate-id
xmlns="http://openconfig.net/yang/interfaces/aggregate">sa10</aggregate-id>
      <lacp-mode xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-if-
deviations">ACTIVE</lacp-mode>
    </config>
  </ethernet>
</interface>
<interface>
  <name>xe7</name>
  <config>
    <name>xe7</name>
    <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
  </config>
  <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
    <config>
      <aggregate-id
xmlns="http://openconfig.net/yang/interfaces/aggregate">sa10</aggregate-id>
      <lacp-mode xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-if-
deviations">ACTIVE</lacp-mode>
    </config>
  </ethernet>
</interface>
</interfaces>
<lacp xmlns="http://openconfig.net/yang/lacp">
  <config>
    <system-priority>2</system-priority>
  </config>
</lacp>
```

OcNOS CLI Command

```
lacp system-priority 2
!
interface sa10
  port-channel min-links 2
!
interface xe6
  static-channel-group 10
!
interface xe7
  static-channel-group 10
!
```

OcNOS NETCONF Payload



```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>sa10</name>
    <config>
      <name>sa10</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ieee8023adLag</type>
    </config>
    <aggregation xmlns="http://openconfig.net/yang/interfaces/aggregate">
      <config>
        <min-links>2</min-links>
        <lag-type>STATIC</lag-type>
      </config>
    </aggregation>
  </interface>
  <interface>
    <name>xe6</name>
    <config>
      <name>xe6</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <config>
        <aggregate-id
xmlns="http://openconfig.net/yang/interfaces/aggregate">sa10</aggregate-id>
        <lacp-mode xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
oc-if-deviations">ACTIVE</lacp-mode>
      </config>
    </ethernet>
  </interface>
  <interface>
    <name>xe7</name>
    <config>
      <name>xe7</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <config>
        <aggregate-id
xmlns="http://openconfig.net/yang/interfaces/aggregate">sa10</aggregate-id>
        <lacp-mode xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
oc-if-deviations">ACTIVE</lacp-mode>
      </config>
    </ethernet>
  </interface>
</interfaces>
<lacp xmlns="http://openconfig.net/yang/lacp">
  <config>
    <system-priority>2</system-priority>
  </config>
</lacp>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>sa10</name>
    <config>
```

```
        <name>sa10</name>
    </config>
    <aggregator xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
aggregate">
        <config>
            <min-links>2</min-links>
        </config>
    </aggregator>
</interface>
<interface>
    <name>xe6</name>
    <config>
        <name>xe6</name>
    </config>
    <ethernet xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
ethernet">
        <config />
    </ethernet>
    <member-aggregation xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
if-aggregate">
        <config>
            <agg-type>static</agg-type>
            <aggregate-id>10</aggregate-id>
            <lacp-mode>active</lacp-mode>
        </config>
    </member-aggregation>
</interface>
<interface>
    <name>xe7</name>
    <config>
        <name>xe7</name>
    </config>
    <ethernet xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
ethernet">
        <config />
    </ethernet>
    <member-aggregation xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
if-aggregate">
        <config>
            <agg-type>static</agg-type>
            <aggregate-id>10</aggregate-id>
            <lacp-mode>active</lacp-mode>
        </config>
    </member-aggregation>
</interface>
</interfaces>
<lacp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lacp">
    <global>
        <config>
            <system-priority>2</system-priority>
        </config>
    </global>
</lacp>
```

Validation with NETCONF get

```

<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>sa10</name>
    <config>
      <name>sa10</name>
      <type
        xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ieee8023adLag</type>
      </config>
      <state>
        <name>sa10</name>
        <logical>false</logical>
        <last-change>35600</last-change>
        <oper-status>UP</oper-status>
        <admin-status>UP</admin-status>
        <ifindex>200010</ifindex>
        <counters>
          <last-clear>0</last-clear>
          <out-errors>0</out-errors>
          <out-discards>0</out-discards>
          <out-multicast-pkts>7</out-multicast-pkts>
          <out-broadcast-pkts>0</out-broadcast-pkts>
          <out-unicast-pkts>0</out-unicast-pkts>
          <out-pkts>7</out-pkts>
          <out-octets>774</out-octets>
          <in-fcs-errors>0</in-fcs-errors>
          <in-errors>0</in-errors>
          <in-discards>0</in-discards>
          <in-multicast-pkts>7</in-multicast-pkts>
          <in-broadcast-pkts>0</in-broadcast-pkts>
          <in-unicast-pkts>0</in-unicast-pkts>
          <in-pkts>3852605</in-pkts>
          <in-octets>130989214</in-octets>
        </counters>
        <type
          xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ieee8023adLag</type>
        </state>
      <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
        <state>
          <negotiated-port-speed
            xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_UNKNOWN</negotiated-port-speed>
            <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
            <hw-mac-address>b86a.9729.abf2</hw-mac-address>
          </state>
        </ethernet>
      <subinterfaces>
        <subinterface>
          <index>0</index>
          <config>
            <index>0</index>
          </config>
        </subinterface>
      </subinterfaces>
      <aggregation xmlns="http://openconfig.net/yang/interfaces/aggregate">

```

```
<config>
  <min-links>2</min-links>
  <lag-type>STATIC</lag-type>
</config>
<state>
  <min-links>2</min-links>
  <lag-type>STATIC</lag-type>
</state>
</aggregation>
</interface>
</interfaces>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe6</name>
    <config>
      <name>xe6</name>
      <type
        xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
      </config>
      <state>
        <name>xe6</name>
        <logical>>false</logical>
        <last-change>35600</last-change>
        <oper-status>UP</oper-status>
        <admin-status>UP</admin-status>
        <ifindex>10006</ifindex>
        <counters>
          <last-clear>0</last-clear>
          <out-errors>0</out-errors>
          <out-discards>0</out-discards>
          <out-multicast-pkts>0</out-multicast-pkts>
          <out-broadcast-pkts>0</out-broadcast-pkts>
          <out-unicast-pkts>0</out-unicast-pkts>
          <out-pkts>0</out-pkts>
          <out-octets>0</out-octets>
          <in-fcs-errors>0</in-fcs-errors>
          <in-errors>0</in-errors>
          <in-discards>0</in-discards>
          <in-multicast-pkts>7</in-multicast-pkts>
          <in-broadcast-pkts>0</in-broadcast-pkts>
          <in-unicast-pkts>0</in-unicast-pkts>
          <in-pkts>7</in-pkts>
          <in-octets>814</in-octets>
        </counters>
        <type
          xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
        </state>
        <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
          <state>
            <negotiated-port-speed
              xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_10GB</negotiated-port-speed>
            <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
            <hw-mac-address>b86a.9729.abc1</hw-mac-address>
```

```

    <aggregate-id
xmlns="http://openconfig.net/yang/interfaces/aggregate">sa10</aggregate-id>
    </state>
    <config>
      <aggregate-id
xmlns="http://openconfig.net/yang/interfaces/aggregate">sa10</aggregate-id>
      <lacp-mode xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-if-
deviations">ACTIVE</lacp-mode>
    </config>
  </ethernet>
  <subinterfaces>
    <subinterface>
      <index>0</index>
      <config>
        <index>0</index>
      </config>
    </subinterface>
  </subinterfaces>
</interface>
</interfaces>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe7</name>
    <config>
      <name>xe7</name>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <state>
      <name>xe7</name>
      <logical>false</logical>
      <last-change>15300</last-change>
      <oper-status>UP</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>10007</ifindex>
      <counters>
        <last-clear>0</last-clear>
        <out-errors>0</out-errors>
        <out-discards>0</out-discards>
        <out-multicast-pkts>7</out-multicast-pkts>
        <out-broadcast-pkts>0</out-broadcast-pkts>
        <out-unicast-pkts>0</out-unicast-pkts>
        <out-pkts>7</out-pkts>
        <out-octets>774</out-octets>
        <in-fcs-errors>0</in-fcs-errors>
        <in-errors>0</in-errors>
        <in-discards>0</in-discards>
        <in-multicast-pkts>0</in-multicast-pkts>
        <in-broadcast-pkts>0</in-broadcast-pkts>
        <in-unicast-pkts>0</in-unicast-pkts>
        <in-pkts>4193454</in-pkts>
        <in-octets>142577504</in-octets>
      </counters>
    </state>
    <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>

```

```

    </state>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <state>
        <negotiated-port-speed
          xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_1GB</negotiated-port-speed>
          <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
          <hw-mac-address>b86a.9729.abc2</hw-mac-address>
          <aggregate-id
xmlns="http://openconfig.net/yang/interfaces/aggregate">sa10</aggregate-id>
          </state>
          <config>
            <aggregate-id
xmlns="http://openconfig.net/yang/interfaces/aggregate">sa10</aggregate-id>
            <lacp-mode xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-if-
deviations">ACTIVE</lacp-mode>
            </config>
          </ethernet>
          <subinterfaces>
            <subinterface>
              <index>0</index>
              <config>
                <index>0</index>
              </config>
            </subinterface>
          </subinterfaces>
        </interface>
      </interfaces>
      <lacp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lacp">
        <global>
          <config>
            <system-priority>2</system-priority>
          </config>
          <state>
            <system-priority>2</system-priority>
            <system-id>b8-6a-97-82-11-ba</system-id>
          </state>
        </global>
      </lacp>

```

Restrictions

/interfaces/interface/name

For static LAG interface, the interface name should start with the text 'sa' followed by a number, for example, "sa3".

/interfaces/interface/aggregation/config/min-links

This leaf has its types changes to uint8.

/lacp/interfaces/interface/config/lacp-mode

This leaf was not supported.

Create a dynamic LAG interface

Release

This configuration was introduced in OcNOS version 5.0.

Configuration

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe10</name>
    <config>
      <name>xe10</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">/oc-
if:interfaces/oc-if:interface/oc-if:config/oc-if:name
      <config>
        <lacp-mode xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
oc-if-deviations">ACTIVE</lacp-mode>
        <aggregate-id
xmlns="http://openconfig.net/yang/interfaces/aggregate">po2</aggregate-id>
        </config>
      </ethernet>
    </interface>
  <interface>
    <name>po2</name>
    <config>
      <name>po2</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ieee8023adLag</type>
    </config>
    <aggregation xmlns="http://openconfig.net/yang/interfaces/aggregate">
      <config>
        <min-links>2</min-links>
        <lag-type>LACP</lag-type>
      </config>
    </aggregation>
  </interface>
</interfaces>
<lacp xmlns="http://openconfig.net/yang/lacp">
  <config>
    <system-priority>2</system-priority>
  </config>
  <interfaces>
    <interface>
      <name>xe10</name>
    </interface>
  </interfaces>
</lacp>
```



```
</interfaces>  
</lacp>
```

OcNOS CLI Command

```
lacp system-priority 2  
!  
interface po2  
  port-channel min-links 2  
!  
interface xe10  
  channel-group 2 mode active  
!
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">  
  <interface>  
    <name>xe10</name>  
    <config>  
      <name>xe10</name>  
    </config>  
    <member-aggregation xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-  
if-aggregate">  
      <config>  
        <lacp-mode>active</lacp-mode>  
        <aggregate-id>2</aggregate-id>  
        <agg-type>lacp</agg-type>  
      </config>  
    </member-aggregation>  
  </interface>  
  <interface>  
    <name>po2</name>  
    <config>  
      <name>po2</name>  
    </config>  
    <aggregator xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-  
aggregate">  
      <config>  
        <min-links>2</min-links>  
      </config>  
    </aggregator>  
  </interface>  
</interfaces>  
<lacp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lacp">  
  <global>  
    <config>  
      <system-priority>2</system-priority>  
    </config>  
  </global>  
</lacp>
```

Validation with NETCONF get

```
<rpc-reply xmlns="urn:ietf:params:xml:ns:NETCONF:base:1.0">
  <data>
    <interfaces xmlns="http://openconfig.net/yang/interfaces">
      <interface>
        <name>po2</name>
        <config>
          <name>po2</name>
          <type
            xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
            type">ianaift:ieee8023adLag</type>
          </config>
          <state>
            <name>po2</name>
            <logical>false</logical>
            <last-change>0</last-change>
            <oper-status>DOWN</oper-status>
            <admin-status>UP</admin-status>
            <ifindex>100002</ifindex>
            <counters>
              <last-clear>0</last-clear>
              <out-errors>0</out-errors>
              <out-discards>0</out-discards>
              <out-multicast-pkts>37</out-multicast-pkts>
              <out-broadcast-pkts>0</out-broadcast-pkts>
              <out-unicast-pkts>0</out-unicast-pkts>
              <out-pkts>37</out-pkts>
              <out-octets>4736</out-octets>
              <in-fcs-errors>0</in-fcs-errors>
              <in-errors>0</in-errors>
              <in-discards>0</in-discards>
              <in-multicast-pkts>0</in-multicast-pkts>
              <in-broadcast-pkts>0</in-broadcast-pkts>
              <in-unicast-pkts>0</in-unicast-pkts>
              <in-pkts>0</in-pkts>
              <in-octets>0</in-octets>
            </counters>
            <type
              xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
              type">ianaift:ieee8023adLag</type>
            </state>
          <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
            <state>
              <negotiated-port-speed
                xmlns:oc-
                eth="http://openconfig.net/yang/interfaces/ethernet">oc-
                eth:SPEED_UNKNOWN</negotiated-port-speed>
              <negotiated-duplex-mode>HALF</negotiated-duplex-mode>
              <hw-mac-address>b86a.9729.abf2</hw-mac-address>
            </state>
          </ethernet>
        </subinterfaces>
        <subinterface>
          <index>0</index>
          <config>
            <index>0</index>
          </config>
        </subinterface>
      </interface>
    </interfaces>
  </data>
</rpc-reply>
```

```
</subinterfaces>
<aggregation xmlns="http://openconfig.net/yang/interfaces/aggregate">
  <config>
    <min-links>2</min-links>
    <lag-type>LACP</lag-type>
  </config>
  <state>
    <min-links>2</min-links>
    <lag-type>LACP</lag-type>
  </state>
</aggregation>
</interface>
</interfaces>
</data>
</rpc-reply>
```

Restrictions

/interfaces/interface/name

For dynamic LAG interface, the interface name should start with the text 'po' followed by a number, for example, "po2".

/interfaces/interface/aggregation/config/min-links

This leaf has its types changes to uint8.

/lacp/interfaces/interface/config/lacp-mode

This leaf was not supported.

Tunnel Interfaces

Create tunnel interface

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>Tunnel130</name>
    <config>
      <name>Tunnel130</name>
```



```
<type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:tunnel</type>
</config>
<tunnel xmlns="http://openconfig.net/yang/interfaces/tunnel">
  <ipv4>
    <addresses>
      <address>
        <ip>40.1.1.1</ip>
        <config>
          <ip>40.1.1.1</ip>
          <prefix-length>24</prefix-length>
        </config>
      </address>
    </addresses>
  </ipv4>
  <config>
    <src>20.2.2.1</src>
    <dst>20.2.2.2</dst>
    <ttl>250</ttl>
  </config>
</tunnel>
</interface>
</interfaces>
```

OcNOS CLI Command

```
interface Tunnel30
ip address 40.1.1.1/24
tunnel source 20.2.2.1
tunnel destination 20.2.2.2
tunnel ttl 250
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>Tunnel30</name>
    <config>
      <name>Tunnel30</name>
    </config>
    <tunnel xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
extended">
      <config>
        <src>20.2.2.1</src>
        <dst>20.2.2.2</dst>
        <ttl>250</ttl>
      </config>
    </tunnel>
    <ipv4 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-ip">
      <secondary-addresses>
        <ip-address>40.1.1.1/24</ip-address>
        <config>
          <ip-address>40.1.1.1/24</ip-address>
        </config>
      </secondary-addresses>
```



```
</ipv4>  
</interface>  
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">  
  <interface>  
    <name>Tunnel30</name>  
    <config>  
      <name>Tunnel30</name>  
      <type  
        xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-  
type">ianaift:tunnel</type>  
      </config>  
      <state>  
        <name>Tunnel30</name>  
        <logical>false</logical>  
        <last-change>0</last-change>  
        <oper-status>DOWN</oper-status>  
        <admin-status>UP</admin-status>  
        <ifindex>0</ifindex>  
        <type  
          xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-  
type">ianaift:tunnel</type>  
        </state>  
        <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">  
          <state>  
            <negotiated-port-speed  
              xmlns:oc-  
eth="http://openconfig.net/yang/interfaces/ethernet">oc-  
eth:SPEED_UNKNOWN</negotiated-port-speed>  
              <negotiated-duplex-mode>HALF</negotiated-duplex-mode>  
              <hw-mac-address>0000.0000.0000</hw-mac-address>  
            </state>  
          </ethernet>  
          <tunnel xmlns="http://openconfig.net/yang/interfaces/tunnel">  
            <ipv4>  
              <addresses>  
                <address>  
                  <ip>40.1.1.1</ip>  
                  <config>  
                    <ip>40.1.1.1</ip>  
                    <prefix-length>24</prefix-length>  
                  </config>  
                  <state>  
                    <ip>40.1.1.1</ip>  
                    <prefix-length>24</prefix-length>  
                  </state>  
                </address>  
              </addresses>  
            </ipv4>  
            <config>  
              <src>20.2.2.1</src>  
              <dst>20.2.2.2</dst>  
              <ttl>250</ttl>
```

```
</config>
<state>
  <src>20.2.2.1</src>
  <dst>20.2.2.2</dst>
  <ttl>250</ttl>
</state>
</tunnel>
</interface>
</interfaces>
```

Restrictions

/interfaces/interface/name

Tunnel interfaces must start with “Tunnel” followed by a number, for example, “Tunnel30”.

/interfaces/interface/tunnel/config/dst **/interfaces/interface/tunnel/config/src**

For tunnel src and dst parameters, IPv6 is not supported.

/interfaces/interface/tunnel/config/ttl

The type of this leaf was changed from “uint8” to “uint16”.

/interfaces/interface/tunnel/ipv4/addresses/address/config/ip

The first configured address will be considered the primary IP address. It is not possible to delete the primary address without deleting the other addresses.

BGP

Create BGP instance

Release

This configuration was introduced in OcnOS version 4.2.

Configuration

Use this XML config to start a BGP process with the associated. autonomous system number and router-id.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
```

```
<protocols>
  <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
    <identifier>oc-pol-types:BGP</identifier>
    <name>100</name>
    <config>
      <identifier>oc-pol-types:BGP</identifier>
      <name>100</name>
      <enabled>true</enabled>
    </config>
    <bgp>
      <global>
        <config>
          <as>100</as>
          <router-id>1.2.3.4</router-id>
        </config>
      </global>
    </bgp>
  </protocol>
</protocols>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
router bgp 100
  bgp router-id 1.2.3.4
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>default</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>default</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>default</vrf-name>
      </config>
    </vrf>
  </network-instance>
</network-instances>
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>100</bgp-as>
    <config>
      <bgp-as>100</bgp-as>
      <router-id>1.2.3.4</router-id>
    </config>
  </bgp-instance>
</bgp>
```


Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <state>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
    </state>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <config>
            <identifier
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
              <name>DIRECTLY_CONNECTED</name>
              <enabled>true</enabled>
            </config>
            <state>
              <identifier
                xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
                <name>DIRECTLY_CONNECTED</name>
                <enabled>true</enabled>
              </state>
            </protocol>
            <protocol>
              <identifier
                xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
                <name>100</name>
                <config>
                  <identifier
                    xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
                    <name>100</name>
                    <enabled>true</enabled>
                  </config>
                <bgp>
                  <global>
                    <config>
                      <as>100</as>
                    </config>
                  </global>
                </bgp>
              </protocol>
            </protocols>
          </state>
        </protocol>
      </state>
    </network-instance>
  </network-instances>
```

```
        <router-id>1.2.3.4</router-id>
    </config>
    <state>
        <as>100</as>
    </state>
    <global>
        <state>
            <router-id>1.2.3.4</router-id>
        </state>
    </global>
</bgp>
<state>
    <enabled>true</enabled>
    <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
    <name>100</name>
</state>
</protocol>
</protocols>
</network-instance>
</network-instances>
```

Restrictions

/network-instances/network-instance/protocols/protocol/name

For BGP instances this leaf must have the same number of the `/network-instances/network-instance/protocols/protocol/bgp/global/config/as`.

Create BGP Global with default VRF

Release

This configuration was introduced in OcNOS version 6.2.

Configuration

Use the payloads indicate in this chapter to configure BGP Global with default VRF data from the Open Config perspective.

The **AFI-SAFI** container is needed to be available on the configuration applied to help configure address-families.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
```



```
    xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
    <enabled>true</enabled>
  </config>
</protocols>
  <protocol>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <config>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <enabled>true</enabled>
        </config>
      </protocol>
    </protocol>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGPP</identifier>
      <name>100</name>
      <bgp>
        <global>
          <afi-safis>
            <afi-safi>
              <afi-safi-name
                xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                <config>
                  <afi-safi-name
                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                    <enabled>true</enabled>
                  </config>
                  <add-paths>
                    <config>
                      <receive>true</receive>
                      <send>true</send>
                      <send-max>2</send-max>
                    </config>
                  </add-paths>
                  <use-multiple-paths>
                    <ibgp>
                      <config>
                        <maximum-paths>7</maximum-paths>
                      </config>
                    </ibgp>
                  </use-multiple-paths>
                </afi-safi>
              </afi-safis>
            <confederation>
              <config>
                <member-as>48</member-as>
                <identifier>600</identifier>
              </config>
            </confederation>
          </global>
        </bgp>
      </protocol>
    </protocol>
  </config>
</types>
```

```
</confederation>
<config>
  <as>100</as>
  <router-id>1.2.3.4</router-id>
</config>
<route-selection-options>
  <config>
    <enable-aigp>>false</enable-aigp>
    <ignore-as-path-length>>true</ignore-as-path-length>
    <external-compare-router-id>>true</external-compare-router-id>
  </config>
</route-selection-options>
<graceful-restart>
  <config>
    <restart-time>100</restart-time>
    <stale-routes-time>300.00</stale-routes-time>
    <helper-only>>false</helper-only>
  </config>
</graceful-restart>
</global>
<neighbors>
  <neighbor>
    <neighbor-address>10.1.1.2</neighbor-address>
    <afi-safis>
      <afi-safi>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        <config>
          <afi-safi-name
            xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
            <enabled>>true</enabled>
          </config>
        </afi-safi>
      </afi-safis>
    <config>
      <enabled>>true</enabled>
      <neighbor-address>10.1.1.2</neighbor-address>
      <peer-as>100</peer-as>
    </config>
  </neighbor>
</neighbors>
</bgp>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGPP</identifier>
    <name>100</name>
    <enabled>>true</enabled>
  </config>
</protocol>
</protocols>
<tables>
  <table>
    <protocol
```



```
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          </config>
        </table>
      </table>
    <table>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
        <config>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
            </config>
          </table>
        </table>
      <table>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          <config>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
              <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
              </config>
            </table>
          </tables>
        </network-instance>
      </network-instances>
```

OcNOS CLI Command

```
router bgp 100
  bgp router-id 1.2.3.4
  bgp confederation identifier 600
  bgp confederation peers 48
```



```
bgp bestpath as-path ignore
bgp bestpath aigp ignore
bgp bestpath compare-routerid
bgp graceful-restart restart-time 100
bgp graceful-restart stalepath-time 300
bgp graceful-restart graceful-reset
neighbor 10.1.1.2 remote-as 100
!
address-family ipv4 unicast
bgp additional-paths send-receive
bgp additional-paths select best 2
max-paths ibgp 7
neighbor 10.1.1.2 activate
exit-address-family
!
```

OcNOS NETCONF Payload

```
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>100</bgp-as>
    <config>
      <bgp-as>100</bgp-as>
      <router-id>1.2.3.4</router-id>
      <ignore-aigp-for-bestpath/>
    </config>
    <graceful-restart>
      <config>
        <restart-time>100</restart-time>
        <stale-path-max-retention-time>300</stale-path-max-retention-time>
        <graceful-reset/>
      </config>
    </graceful-restart>
    <route-selection>
      <config>
        <ignore-as-path-length/>
        <external-compare-router-id/>
      </config>
    </route-selection>
    <address-family>
      <afi>ipv4</afi>
      <safi>unicast</safi>
      <config>
        <afi>ipv4</afi>
        <safi>unicast</safi>
        <additional-paths-best-select-count>2</additional-paths-best-select-
count>
        <additional-paths-mode>receive send</additional-paths-mode>
      </config>
      <maximum-paths>
        <config>
          <ibgp-max-path>7</ibgp-max-path>
        </config>
      </maximum-paths>
    </address-family>
  </peer>
```

```
<peer-address>10.1.1.2</peer-address>
<address-family>
  <afi>ipv4</afi>
  <safi>unicast</safi>
  <config>
    <afi>ipv4</afi>
    <safi>unicast</safi>
    <activate/>
  </config>
</address-family>
<config>
  <confederation-identifier>600</confederation-identifier>
  <peer-address>10.1.1.2</peer-address>
  <peer-as>100</peer-as>
  <peer-as-number>48</peer-as-number>
</config>
</peer>
</bgp-instance>
</bgp>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <state>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </state>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <enabled>true</enabled>
        </config>
        <state>
          <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
```

```
<name>DIRECTLY_CONNECTED</name>
<enabled>>true</enabled>
</state>
</protocol>
<protocol>
  <identifier>
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
    <name>100</name>
    <bgp>
      <global>
        <afi-safis>
          <afi-safi>
            <afi-safi-name>
              xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
              <config>
                <afi-safi-name>
                  xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                  <enabled>true</enabled>
                </config>
                <state>
                  <afi-safi-name>
                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                    <enabled>true</enabled>
                  </state>
                  <add-paths>
                    <config>
                      <receive>true</receive>
                      <send>true</send>
                      <send-max>2</send-max>
                    </config>
                    <state>
                      <receive>true</receive>
                      <send>true</send>
                      <send-max>2</send-max>
                    </state>
                  </add-paths>
                  <use-multiple-paths>
                    <ibgp>
                      <config>
                        <maximum-paths>7</maximum-paths>
                      </config>
                      <state>
                        <maximum-paths>7</maximum-paths>
                      </state>
                    </ibgp>
                  </use-multiple-paths>
                </afi-safi>
              </afi-safis>
            <confederation>
              <config>
                <member-as>48</member-as>
                <identifier>600</identifier>
              </config>
```



```
<state>
  <member-as>48</member-as>
  <identifier>600</identifier>
</state>
</confederation>
<config>
  <as>100</as>
  <router-id>1.2.3.4</router-id>
</config>
<route-selection-options>
  <config>
    <enable-aigp>>false</enable-aigp>
    <ignore-as-path-length>>true</ignore-as-path-length>
    <external-compare-router-id>>true</external-compare-router-id>
  </config>
  <state>
    <enable-aigp>>false</enable-aigp>
    <ignore-as-path-length>>true</ignore-as-path-length>
    <external-compare-router-id>>true</external-compare-router-id>
  </state>
</route-selection-options>
<state>
  <as>100</as>
  <router-id>1.2.3.4</router-id>
  <total-prefixes>0</total-prefixes>
</state>
<graceful-restart>
  <config>
    <restart-time>100</restart-time>
    <stale-routes-time>300.00</stale-routes-time>
    <helper-only>>false</helper-only>
  </config>
  <state>
    <restart-time>100</restart-time>
    <stale-routes-time>300.00</stale-routes-time>
    <helper-only>>false</helper-only>
  </state>
</graceful-restart>
</global>
<neighbors>
  <neighbor>
    <neighbor-address>10.1.1.2</neighbor-address>
    <afi-safis>
      <afi-safi>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        <config>
          <afi-safi-name
            xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
          <enabled>>true</enabled>
        </config>
        <state>
          <afi-safi-name
            xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
```

```
        <enabled>true</enabled>
      </state>
    </afi-safi>
  </afi-safis>
  <config>
    <enabled>true</enabled>
    <neighbor-address>10.1.1.2</neighbor-address>
    <peer-as>100</peer-as>
  </config>
  <state>
    <enabled>true</enabled>
    <neighbor-address>10.1.1.2</neighbor-address>
    <peer-as>100</peer-as>
  </state>
</neighbor>
</neighbors>
</bgp>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
    <name>100</name>
    <enabled>true</enabled>
  </config>
  <state>
    <enabled>true</enabled>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
      <name>100</name>
    </state>
  </protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          </config>
        <state>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
            </state>
```

```
</table>
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
  <address-family
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
  <config>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
      </config>
    <state>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
        </state>
      </table>
    <table>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          </config>
        <state>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
            </state>
          </table>
        </tables>
      <interfaces>
        <interface>
          <id>eth0</id>
          <config>
            <id>eth0</id>
            <interface>eth0</interface>
          </config>
```

```
</interface>
<interface>
  <id>eth1</id>
  <config>
    <id>eth1</id>
    <interface>eth1</interface>
  </config>
</interface>
<interface>
  <id>eth2</id>
  <config>
    <id>eth2</id>
    <interface>eth2</interface>
  </config>
</interface>
<interface>
  <id>eth3</id>
  <config>
    <id>eth3</id>
    <interface>eth3</interface>
  </config>
</interface>
<interface>
  <id>eth4</id>
  <config>
    <id>eth4</id>
    <interface>eth4</interface>
  </config>
</interface>
<interface>
  <id>eth5</id>
  <config>
    <id>eth5</id>
    <interface>eth5</interface>
  </config>
</interface>
<interface>
  <id>eth6</id>
  <config>
    <id>eth6</id>
    <interface>eth6</interface>
  </config>
</interface>
<interface>
  <id>eth7</id>
  <config>
    <id>eth7</id>
    <interface>eth7</interface>
  </config>
</interface>
<interface>
  <id>eth8</id>
  <config>
    <id>eth8</id>
    <interface>eth8</interface>
  </config>
</interface>
```

```
<interface>
  <id>lo</id>
  <config>
    <id>lo</id>
    <interface>lo</interface>
  </config>
</interface>
</interfaces>
</network-instance>
</network-instances>
```

Restrictions

- On the first time `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global` paths are configured, those configuration need that respective **AFI-SAFI** configuration must be present to indicate **AFI** type:
`/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global/afi-safis`

this information is necessary for the OcNOS model to generate the following paths:

```
/ipi-bgp:bgp/bgp-instance/address-family
/ipi-bgp:bgp/bgp-instance/peer-group/address-families
/ipi-bgp:bgp/bgp-instance/address-family-vrf
```

- After the `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global` paths are configured on equipment, on the further configurations on those paths the user does not need to indicate the **AFI-SAFI**, the translation will look for this information on the equipment database.
- For multiple paths configuration, the Open Config path `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global/use-multiple-paths` is not support, all the multiple paths configurations are done on Open Config path `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global/afi-safis/afi-safi/use-multiple-paths`. This is because the OcNOS datamodel only handle multiple paths is one place.
- The containers `graceful-restart` and `route-selection-options` are configurable only by `network-instance` instance named **"default"**.
- The Open Config attributes:

```
/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global/graceful-restart/state/helper-only
```

```
/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global/route-selection-options/config/enable-aigp
```

Have their logic inverted, so a **"false"** value on open-config means a **"true"** value on OcNOS datamodel.

Create BGP Global with user-defined VRFs

Release

This configuration was introduced in OcNOS version 6.2.

Configuration

Use the payloads indicate in this chapter to configure BGP Global with user-defined VRF data from the Open Config perspective.

The **AFI-SAFI** container is needed to be available on the configuration applied to help configure address-families.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
            <name>DIRECTLY_CONNECTED</name>
            <enabled>true</enabled>
          </config>
        </protocol>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
        <name>100</name>
        <bgp>
          <global>
            <config>
              <as>100</as>
              <router-id>1.2.3.4</router-id>
            </config>
            <route-selection-options>
              <config>
                <enable-aigp>false</enable-aigp>
                <ignore-as-path-length>true</ignore-as-path-length>
                <external-compare-router-id>true</external-compare-router-id>
              </config>
            </route-selection-options>
            <graceful-restart>
              <config>
```

```
        <restart-time>100</restart-time>
        <stale-routes-time>300.00</stale-routes-time>
        <helper-only>>false</helper-only>
    </config>
</graceful-restart>
</global>
</bgp>
<config>
    <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
        <name>100</name>
        <enabled>>true</enabled>
    </config>
</protocol>
</protocols>
</network-instance>
<network-instance>
    <name>red</name>
    <config>
        <name>red</name>
        <type
            xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
            <enabled>>true</enabled>
            <enabled-address-families
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</enabled-address-families>
                <enabled-address-families
                    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</enabled-address-families>
                    <route-distinguisher>100:200</route-distinguisher>
                </config>
            <protocols>
                <protocol>
                    <identifier
                        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
                        <name>DIRECTLY_CONNECTED</name>
                    <config>
                        <identifier
                            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
                            <name>DIRECTLY_CONNECTED</name>
                            <enabled>>true</enabled>
                        </config>
                    </protocol>
                <protocol>
                    <identifier
                        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
                        <name>100</name>
                    <bgp>
                        <global>
                            <config>
                                <as>100</as>
                                <router-id>1.2.3.4</router-id>
```

```

</config>
<afi-safis>
  <afi-safi>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
      <enabled>true</enabled>
    </config>
    <use-multiple-paths>
      <ebgp>
        <config>
          <maximum-paths>10</maximum-paths>
        </config>
      </ebgp>
      <ibgp>
        <config>
          <maximum-paths>15</maximum-paths>
        </config>
      </ibgp>
    </use-multiple-paths>
  </afi-safi>
</afi-safis>
<confederation>
  <config>
    <member-as>48</member-as>
    <identifier>600</identifier>
  </config>
</confederation>
</global>
</bgp>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
  <name>100</name>
  <enabled>true</enabled>
</config>
</protocol>
</protocols>
</network-instance>
</network-instances>

```

OcNOS CLI Commands

```

ip vrf red
  rd 100:200
!
router bgp 100
  bgp router-id 1.2.3.4
  bgp bestpath as-path ignore
  bgp bestpath aigp ignore
  bgp bestpath compare-routerid

```




```
bgp graceful-restart restart-time 100
bgp graceful-restart stalepath-time 300
bgp graceful-restart graceful-reset
!
address-family ipv4 vrf red
max-paths ebgp 10
max-paths ibgp 15
bgp confederation identifier 600
bgp confederation peers 48
exit-address-family
!
```

OcNOS NETCONF Payload

```
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>100</bgp-as>
    <config>
      <bgp-as>100</bgp-as>
      <router-id>1.2.3.4</router-id>
      <ignore-aigp-for-bestpath/>
    </config>
    <graceful-restart>
      <config>
        <restart-time>100</restart-time>
        <stale-path-max-retention-time>300</stale-path-max-retention-time>
        <graceful-reset/>
      </config>
    </graceful-restart>
    <route-selection>
      <config>
        <ignore-as-path-length/>
        <external-compare-router-id/>
      </config>
    </route-selection>
    <address-family-vrf>
      <afi>ipv4</afi>
      <safi>unicast</safi>
      <vrf-name>red</vrf-name>
      <confederation>
        <identifier>600</identifier>
        <peer-as-number>48</peer-as-number>
      </confederation>
      <config>
        <afi>ipv4</afi>
        <safi>unicast</safi>
        <vrf-name>red</vrf-name>
      </config>
    <maximum-paths>
      <config>
        <ebgp-max-path>10</ebgp-max-path>
        <ibgp-max-path>15</ibgp-max-path>
      </config>
    </maximum-paths>
  </address-family-vrf>
</bgp-instance>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <state>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </state>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <enabled>true</enabled>
        </config>
        <state>
          <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <enabled>true</enabled>
        </state>
      </protocol>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
        <name>100</name>
        <bgp>
          <global>
            <config>
              <as>100</as>
              <router-id>1.2.3.4</router-id>
            </config>
            <route-selection-options>
              <config>
                <enable-aigp>false</enable-aigp>
              </config>
            </route-selection-options>
          </global>
        </bgp>
      </protocol>
    </protocols>
  </network-instance>
</network-instances>
```

```
        <ignore-as-path-length>true</ignore-as-path-length>
        <external-compare-router-id>true</external-compare-router-id>
    </config>
    <state>
        <enable-aigp>false</enable-aigp>
        <ignore-as-path-length>true</ignore-as-path-length>
        <external-compare-router-id>true</external-compare-router-id>
    </state>
</route-selection-options>
<state>
    <as>100</as>
    <router-id>1.2.3.4</router-id>
    <total-prefixes>0</total-prefixes>
</state>
<graceful-restart>
    <config>
        <restart-time>100</restart-time>
        <stale-routes-time>300.00</stale-routes-time>
        <helper-only>false</helper-only>
    </config>
    <state>
        <restart-time>100</restart-time>
        <stale-routes-time>300.00</stale-routes-time>
        <helper-only>false</helper-only>
    </state>
</graceful-restart>
</global>
</bgp>
<config>
    <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
        <name>100</name>
        <enabled>true</enabled>
    </config>
    <state>
        <enabled>true</enabled>
        <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
            <name>100</name>
        </state>
    </protocol>
</protocols>
<tables>
    <table>
        <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
                <config>
                    <protocol
                        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
                        <address-family
```

```
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
    </config>
    <state>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
        </state>
      </table>
    </table>
    <table>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
        <config>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
            </config>
          <state>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
              <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
              </state>
            </table>
          </table>
        </table>
      <table>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGPP</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          <config>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGPP</protocol>
              <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
              </config>
            </table>
          </tables>
        </network-instance>
      </network-instance>
    </name>red</name>
  </config>
```

```
<name>red</name>
<type
  xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
  <enabled>true</enabled>
  <enabled-address-families
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</enabled-address-families>
  <enabled-address-families
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</enabled-address-families>
  <route-distinguisher>100:200</route-distinguisher>
</config>
<state>
  <name>red</name>
  <type
    xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
    <enabled>true</enabled>
    <enabled-address-families
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</enabled-address-families>
    <enabled-address-families
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</enabled-address-families>
    <route-distinguisher>100:200</route-distinguisher>
  </state>
</protocols>
<protocol>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
  <name>DIRECTLY_CONNECTED</name>
  <config>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
    <name>DIRECTLY_CONNECTED</name>
    <enabled>true</enabled>
  </config>
  <state>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
    <name>DIRECTLY_CONNECTED</name>
    <enabled>true</enabled>
  </state>
</protocol>
<protocol>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
  <name>100</name>
  <bgp>
    <global>
      <config>
        <as>100</as>
```

```
<router-id>1.2.3.4</router-id>
</config>
<afi-safis>
  <afi-safi>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
      <enabled>true</enabled>
    </config>
    <state>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
      </state>
      <use-multiple-paths>
        <ebgp>
          <config>
            <maximum-paths>10</maximum-paths>
          </config>
          <state>
            <maximum-paths>10</maximum-paths>
          </state>
        </ebgp>
        <ibgp>
          <config>
            <maximum-paths>15</maximum-paths>
          </config>
          <state>
            <maximum-paths>15</maximum-paths>
          </state>
        </ibgp>
      </use-multiple-paths>
    </afi-safi>
  </afi-safis>
  <confederation>
    <config>
      <member-as>48</member-as>
      <identifier>600</identifier>
    </config>
    <state>
      <member-as>48</member-as>
      <identifier>600</identifier>
    </state>
  </confederation>
  <state>
    <as>100</as>
    <router-id>1.2.3.4</router-id>
  </state>
</global>
</bgp>
<config>
  <identifier
```

```
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
      <name>100</name>
      <enabled>true</enabled>
    </config>
    <state>
      <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
        <name>100</name>
        <enabled>true</enabled>
      </state>
    </protocol>
  </protocols>
  <tables>
    <table>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          <config>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
              <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
                </config>
            </state>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
              <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
                </state>
            </table>
          </table>
        </table>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
          <config>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
              <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
                </config>
            </state>
            <protocol
```

```

        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
        </state>
    </table>
    <table>
        <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
            <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
            <config>
                <protocol
                    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
                    <address-family
                        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
                    </config>
                <state>
                    <protocol
                        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
                        <address-family
                            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
                        </state>
                    </table>
                </tables>
            </network-instance>
    </network-instances>

```

Restrictions

- The `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global/afi-safis/afi-safi/add-paths` are available only on network-instance instance named **“default”**.
- The container `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global/graceful-restart` are available only on network-instance instance named **“default”**.
- The container `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global/route-selection-options` are available only on network-instance instance named **“default”**.
- On the first time `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global` paths are configured, those configuration needs the respective **AFI-SAFI** configuration that be present to indicate **AFI** type: `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global/afi-safis`

this information is necessary for the OcNOS model to generate the following paths:
`/ipi-bgp:bgp/bg-instance/address-family`

/ipi-bgp:bgp/bgp-instance/peer-group/address-families
/ipi-bgp:bgp/bgp-instance/address-family-vrf

- After the /oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global paths are configured on equipment, on the further configurations on those paths the user does not need to indicate the **AFI-SAFI**, the translation will look for this information on the equipment database.

Create BGP neighbors

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

Use this XML command to configure neighbors in non-default VRF of BGP.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <enabled>true</enabled>
        </config>
      </protocol>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
        <name>123</name>
        <bgp>
          <global>
            <afi-safis>
              <afi-safi>
```

```
<afi-safi-name
  xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
  <config>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
      <enabled>>true</enabled>
    </config>
  </afi-safi>
</afi-safis>
<config>
  <as>123</as>
</config>
</global>
<neighbors>
  <neighbor>
    <neighbor-address>10.1.1.1</neighbor-address>
    <afi-safis>
      <afi-safi>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
          <ipv4-unicast>
            <config>
              <send-default-route>true</send-default-route>
            </config>
            <prefix-limit>
              <config>
                <max-prefixes>5</max-prefixes>
                <warning-threshold-pct>60</warning-threshold-pct>
              </config>
            </prefix-limit>
          </ipv4-unicast>
        </config>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
          <enabled>true</enabled>
        </config>
        <graceful-restart>
          <config>
            <enabled>true</enabled>
          </config>
        </graceful-restart>
      </afi-safi>
    </afi-safis>
  </neighbor>
</neighbors>
  <enabled>true</enabled>
  <remove-private-as
    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:PRIVATE_AS_REMOVE_ALL</remove-private-as>
    <neighbor-address>10.1.1.1</neighbor-address>
    <peer-as>100</peer-as>
    <local-as>300</local-as>
  </config>
</enable-bfd>
```

```
<config>
  <enabled>true</enabled>
</config>
</enable-bfd>
<transport>
  <config>
    <local-address>eth1</local-address>
  </config>
</transport>
<timers>
  <config>
    <keepalive-interval>30.00</keepalive-interval>
    <hold-time>120.00</hold-time>
  </config>
</timers>
<ebgp-multihop>
  <config>
    <multihop-ttl>5</multihop-ttl>
    <enabled>true</enabled>
  </config>
</ebgp-multihop>
</neighbor>
<neighbor>
  <neighbor-address>11.1.1.1</neighbor-address>
  <afi-safis>
    <afi-safi>
      <afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
      <ipv4-unicast>
        <prefix-limit>
          <config>
            <max-prefixes>7</max-prefixes>
            <warning-threshold-pct>70</warning-threshold-pct>
            <prevent-teardown>true</prevent-teardown>
          </config>
        </prefix-limit>
      </ipv4-unicast>
      <apply-policy>
        <config>
          <import-policy>rmap1</import-policy>
          <export-policy>rmap1</export-policy>
        </config>
      </apply-policy>
    </afi-safi>
    <afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
    <enabled>true</enabled>
  </config>
  <add-paths>
    <config>
      <receive>true</receive>
      <send>true</send>
    </config>
  </add-paths>
</afi-safi>
```

```
        </afi-safis>
        <config>
          <enabled>true</enabled>
          <neighbor-address>11.1.1.1</neighbor-address>
          <peer-as>123</peer-as>
        </config>
      </neighbor>
    </neighbors>
  </bgp>
  <config>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
      <name>123</name>
      <enabled>true</enabled>
    </config>
  </protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPv4</address-family>
          </config>
        </table>
      </table>
    <table>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
        <config>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPv6</address-family>
            </config>
          </table>
        </table>
      <table>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
          <address-family
```

```

        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
        <config>
        <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
        <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
        </config>
        </table>
        </tables>
</network-instance>
<network-instance>
    <name>VRF1</name>
    <config>
        <name>VRF1</name>
        <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:L3VRF</type>
        <enabled>true</enabled>
        <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
        <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
        <route-distinguisher>1.2.3.4:56</route-distinguisher>
    </config>
    <protocols>
        <protocol>
            <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</identifier>
            <name>DIRECTLY_CONNECTED</name>
            <config>
                <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</identifier>
                <name>DIRECTLY_CONNECTED</name>
                <enabled>true</enabled>
            </config>
        </protocol>
        <protocol>
            <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-types:BGP</identifier>
            <name>123</name>
            <bgp>
                <global>
                    <config>
                        <as>123</as>
                    </config>
                </global>
                <neighbors>
                    <neighbor>
                        <neighbor-address>20.1.1.2</neighbor-address>
                        <afi-safis>
                            <afi-safi>

```

```

        <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
                <config>
                        <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
                                <enabled>true</enabled>
                        </config>
                        <apply-policy>
                                <config>
                                        <import-policy>rmap2</import-
policy>
                                        <export-policy>rmap2</export-
policy>
                                </config>
                        </apply-policy>
                        <ipv4-unicast>
                                <config>
                                        <send-default-route>true</send-
default-route>
                                </config>
                        </ipv4-unicast>
                </afi-safi>
</afi-safis>
<config>
        <neighbor-address>20.1.1.2</neighbor-address>
        <remove-private-as xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-
types:PRIVATE_AS_REMOVE_ALL</remove-private-as>
                <description>ebgp_VRF1</description>
                <local-as>300</local-as>
                <peer-as>200</peer-as>
        </config>
</neighbor>
<neighbor>
        <neighbor-address>21.1.1.2</neighbor-address>
        <afi-safis>
                <afi-safi>
                        <afi-safi-name
                                xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
                                <ipv4-unicast>
                                        <prefix-limit>
                                                <config>
                                                        <max-prefixes>5</max-prefixes>
                                                        <warning-threshold-pct>80</warning-
threshold-pct>
                                                        <prevent-teardown>true</prevent-teardown>
                                                </config>
                                        </prefix-limit>
                                </ipv4-unicast>
                                                </config>
                                <afi-safi-name
```

```

                                xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
                                <enabled>true</enabled>
                                </config>
                                <graceful-restart>
                                <config>
                                <enabled>true</enabled>
                                </config>
                                </graceful-restart>
                                </afi-safi>
                                </afi-safis>
                                <config>
                                <neighbor-address>21.1.1.2</neighbor-address>
                                <peer-as>123</peer-as>
                                <enabled>true</enabled>
                                </config>
                                </neighbor>
                                </neighbors>
                                </bgp>
                                <config>
                                <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-types:BGPP</identifier>
                                <name>123</name>
                                <enabled>true</enabled>
                                </config>
                                </protocol>
                                </protocols>
                                <tables>
                                <table>
                                <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
                                <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
                                <config>
                                <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
                                <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
                                </config>
                                </table>
                                <table>
                                <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
                                <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</address-
family>
                                <config>
                                <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>

```



```
        <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</address-
family>
        </config>
    </table>
    <table>
        <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-types:BGP</protocol>
        <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
        <config>
            <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-types:BGP</protocol>
            <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
        </config>
    </table>
</tables>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
ip vrf VRF1
  rd 100:200
exit
router bgp 123
  neighbor 10.1.1.1 remote-as 100
  neighbor 10.1.1.1 local-as 300
  neighbor 10.1.1.1 fall-over bfd
  neighbor 11.1.1.1 remote-as 123
  neighbor 10.1.1.1 ebgp-multihop 5
  neighbor 10.1.1.1 update-source eth1
  neighbor 10.1.1.1 timers 30 120
  !
  address-family ipv4 unicast
  neighbor 10.1.1.1 activate
  neighbor 10.1.1.1 remove-private-AS
  neighbor 10.1.1.1 maximum-prefix 5 60
  neighbor 10.1.1.1 capability graceful-restart
  neighbor 10.1.1.1 default-originate
  neighbor 11.1.1.1 activate
  neighbor 11.1.1.1 additional-paths send-receive
  neighbor 11.1.1.1 maximum-prefix 7 70 warning-only
  neighbor 11.1.1.1 route-map rmap1 in
  neighbor 11.1.1.1 route-map rmap1 out
  exit-address-family
  !
  address-family ipv4 vrf VRF1
  neighbor 20.1.1.2 remote-as 200
  neighbor 20.1.1.2 local-as 300
  neighbor 20.1.1.2 activate
  neighbor 20.1.1.2 remove-private-AS
  neighbor 20.1.1.2 route-map rmap2 in
```




```
neighbor 20.1.1.2 route-map rmap2 out
neighbor 20.1.1.2 default-originate
neighbor 21.1.1.2 remote-as 123
neighbor 21.1.1.2 activate
neighbor 21.1.1.2 maximum-prefix 5 80 warning-only
neighbor 21.1.1.2 capability graceful-restart
neighbor 20.1.1.2 description ebgp_VRF1
exit-address-family
!
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>VRF1</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>VRF1</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>VRF1</vrf-name>
      </config>
      <bgp-vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp-vrf">
        <config>
          <rd-string>100:200</rd-string>
        </config>
      </bgp-vrf>
    </vrf>
  </network-instance>
</network-instances>
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>123</bgp-as>
    <config>
      <bgp-as>123</bgp-as>
    </config>
    <address-family>
      <afi>ipv4</afi>
      <safi>unicast</safi>
      <config>
        <afi>ipv4</afi>
        <safi>unicast</safi>
      </config>
    </address-family>
    <peer>
      <peer-address>10.1.1.1</peer-address>
      <address-family>
        <afi>ipv4</afi>
        <safi>unicast</safi>
        <maximum-prefixes>
          <prefix-count>5</prefix-count>
        </config>
        <prefix-count>5</prefix-count>
      </address-family>
    </peer>
  </bgp-instance>
</bgp>
```

```
        <threshold-percentage>60</threshold-percentage>
    </config>
</maximum-prefixes>
<config>
    <afi>ipv4</afi>
    <safi>unicast</safi>
    <activate/>
    <peer-remove-private-as/>
    <capability-graceful-restart/>
    <default-peer-route-map-name/>
</config>
</address-family>
<config>
    <peer-address>10.1.1.1</peer-address>
    <peer-as>100</peer-as>
    <enable-peer-bfd/>
    <peer-local-as>300</peer-local-as>
    <source-identifier>eth1</source-identifier>
</config>
<timers>
    <config>
        <keep-alive>30</keep-alive>
        <hold-time>120</hold-time>
    </config>
</timers>
<ebgp-multihop>
    <config>
        <maximum-hop-count>5</maximum-hop-count>
        <enabled/>
    </config>
</ebgp-multihop>
</peer>
<peer>
    <peer-address>11.1.1.1</peer-address>
    <address-family>
        <afi>ipv4</afi>
        <safi>unicast</safi>
        <maximum-prefixes>
            <prefix-count>7</prefix-count>
            <config>
                <prefix-count>7</prefix-count>
                <threshold-percentage>70</threshold-percentage>
                <warning-only/>
            </config>
        </maximum-prefixes>
        <route-map-filter>
            <route-map-direction>in</route-map-direction>
            <config>
                <route-map-direction>in</route-map-direction>
                <route-map-name>rmap1</route-map-name>
            </config>
        </route-map-filter>
        <route-map-filter>
            <route-map-direction>out</route-map-direction>
            <config>
                <route-map-direction>out</route-map-direction>
                <route-map-name>rmap1</route-map-name>
            </config>
        </route-map-filter>
    </address-family>
</peer>
```

```
    </config>
  </route-map-filter>
  <config>
    <afi>ipv4</afi>
    <safi>unicast</safi>
    <additional-paths-mode>receive send</additional-paths-mode>
    <activate/>
  </config>
</address-family>
<config>
  <peer-address>11.1.1.1</peer-address>
  <peer-as>123</peer-as>
</config>
</peer>
<address-family-vrf>
  <afi>ipv4</afi>
  <safi>unicast</safi>
  <vrf-name>VRF1</vrf-name>
  <vrf-peer>
    <peer-address>20.1.1.2</peer-address>
    <route-map-filter>
      <route-map-direction>in</route-map-direction>
      <config>
        <route-map-direction>in</route-map-direction>
        <route-map-name>rmap2</route-map-name>
      </config>
    </route-map-filter>
    <route-map-filter>
      <route-map-direction>out</route-map-direction>
      <config>
        <route-map-direction>out</route-map-direction>
        <route-map-name>rmap2</route-map-name>
      </config>
    </route-map-filter>
    <config>
      <peer-address>20.1.1.2</peer-address>
      <peer-as>200</peer-as>
      <peer-local-as>300</peer-local-as>
      <activate/>
      <peer-remove-private-as/>
      <default-peer-route-map-name/>
    </config>
  </vrf-peer>
  <vrf-peer>
    <peer-address>21.1.1.2</peer-address>
    <maximum-prefixes>
      <prefix-count>5</prefix-count>
      <config>
        <prefix-count>5</prefix-count>
        <threshold-percentage>80</threshold-percentage>
        <warning-only/>
      </config>
    </maximum-prefixes>
    <config>
      <peer-address>21.1.1.2</peer-address>
      <peer-as>123</peer-as>
      <activate/>
    </config>
  </vrf-peer>
</address-family-vrf>
</vrf>
</config>
</router>
```



```
        <capability-graceful-restart/>
    </config>
</vrf-peer>
<config>
    <afi>ipv4</afi>
    <safi>unicast</safi>
    <vrf-name>VRF1</vrf-name>
</config>
</address-family-vrf>
</bgp-instance>
</bgp>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
        <name>123</name>
        <bgp>
          <global>
            <config>
              <as>123</as>
            </config>
            <afi-safis>
              <afi-safi>
                <afi-safi-name
                  xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                <config>
                  <afi-safi-name
                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                    <enabled>true</enabled>
                  </config>
                </afi-safi>
              </afi-safis>
            </global>
            <neighbors>
              <neighbor>
                <neighbor-address>10.1.1.1</neighbor-address>
                <afi-safis>
                  <afi-safi>
                    <afi-safi-name
                      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                    <ipv4-unicast>
                      <config>
                        <send-default-route>true</send-default-route>
                      </config>
                    </prefix-limit>
```

```

        <config>
          <max-prefixes>5</max-prefixes>
          <warning-threshold-pct>60</warning-threshold-pct>
        </config>
      </prefix-limit>
    </ipv4-unicast>
  <config>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
    <enabled>true</enabled>
  </config>
  <graceful-restart>
    <config>
      <enabled>true</enabled>
    </config>
  </graceful-restart>
</afi-safi>
</afi-safis>
<config>
  <enabled>true</enabled>
  <neighbor-address>10.1.1.1</neighbor-address>
  <peer-as>100</peer-as>
  <local-as>300</local-as>
  <remove-private-as
    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:PRIVATE_AS_REMOVE_ALL</remove-private-as>
  </config>
  <enable-bfd>
    <config>
      <enabled>true</enabled>
    </config>
  </enable-bfd>
  <ebgp-multihop>
    <config>
      <enabled>true</enabled>
      <multihop-ttl>5</multihop-ttl>
    </config>
  </ebgp-multihop>
  <transport>
    <config>
      <local-address>eth1</local-address>
    </config>
  </transport>
  <timers>
    <config>
      <keepalive-interval>30.00</keepalive-interval>
      <hold-time>120.00</hold-time>
    </config>
  </timers>
</neighbor>
<neighbor>
  <neighbor-address>11.1.1.1</neighbor-address>
  <afi-safis>
    <afi-safi>
      <afi-safi-name

```

```

        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        <ipv4-unicast>
            <prefix-limit>
                <config>
                    <max-prefixes>7</max-prefixes>
                    <warning-threshold-pct>70</warning-threshold-pct>
                    <prevent-teardown>true</prevent-teardown>
                </config>
            </prefix-limit>
        </ipv4-unicast>
        <apply-policy>
            <config>
                <import-policy>rmap1</import-policy>
                <export-policy>rmap1</export-policy>
            </config>
        </apply-policy>
        <config>
            <afi-safi-name
                xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                <enabled>true</enabled>
            </config>
            <add-paths>
                <config>
                    <receive>true</receive>
                    <send>true</send>
                </config>
            </add-paths>
        </afi-safi>
    </afi-safis>
    <config>
        <enabled>true</enabled>
        <neighbor-address>11.1.1.1</neighbor-address>
        <peer-as>123</peer-as>
    </config>
</neighbor>
</neighbors>
</bgp>
</protocol>
</protocols>
</network-instance>
<network-instance>
    <name>management</name>
</network-instance>
<network-instance>
    <name>VRF1</name>
    <protocols>
        <protocol>
            <identifier
                xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
                <name>123</name>
            <bgp>
                <global>
                    <config>
                        <as>123</as>
                    </config>
                </global>
            </bgp>
        </protocol>
    </protocols>
</network-instance>
</network-instances>
</vrf>
</vrf-instances>
</config>
</router>
</openconfig>

```

```
</config>
<afi-safis>
  <afi-safi>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
      <enabled>true</enabled>
    </config>
  </afi-safi>
</afi-safis>
</global>
<neighbors>
  <neighbor>
    <neighbor-address>20.1.1.2</neighbor-address>
    <afi-safis>
      <afi-safi>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        <apply-policy>
          <config>
            <import-policy>rmap2</import-policy>
            <export-policy>rmap2</export-policy>
          </config>
        </apply-policy>
        <ipv4-unicast>
          <config>
            <send-default-route>true</send-default-route>
          </config>
        </ipv4-unicast>
      </afi-safi>
    </afi-safis>
    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
      <enabled>true</enabled>
    </config>
  </afi-safi>
</afi-safis>
<apply-policy>
  <config>
    <import-policy>rmap2</import-policy>
    <export-policy>rmap2</export-policy>
  </config>
</apply-policy>
<config>
  <neighbor-address>20.1.1.2</neighbor-address>
  <peer-as>200</peer-as>
  <local-as>300</local-as>
  <enabled>true</enabled>
  <remove-private-as
    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:PRIVATE_AS_REMOVE_ALL</remove-private-as>
  </config>
```

```

    </neighbor>
  <neighbor>
    <neighbor-address>21.1.1.2</neighbor-address>
    <afi-safis>
      <afi-safi>
        <afi-safi-name
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
        <ipv4-unicast>
          <prefix-limit>
            <config>
              <max-prefixes>5</max-prefixes>
              <warning-threshold-pct>80</warning-threshold-pct>
              <prevent-teardown>true</prevent-teardown>
            </config>
          </prefix-limit>
        </ipv4-unicast>
      </config>
      <afi-safi-name
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        <enabled>true</enabled>
      </config>
      <graceful-restart>
        <config>
          <enabled>true</enabled>
        </config>
      </graceful-restart>
    </afi-safi>
  </afi-safis>
</config>
  <neighbor-address>21.1.1.2</neighbor-address>
  <peer-as>123</peer-as>
  <enabled>true</enabled>
</config>
</neighbor>
</neighbors>
</bgp>
</protocol>
</protocols>
</network-instance>
</network-instances>

```

Restrictions

- **/network-instances/network-instance/protocols/protocol/bgp/neighbors/neighbor/config/remove-private-as**

This leaf must have this value PRIVATE_AS_REMOVE_ALL.

- **/network-instances/network-instance/protocols/protocol/bgp/neighbors/neighbor/apply-policy**

This leaf was not supported by the current implementation but this feature is supported at afi-safi level of each neighbor

- `/network-instances/network-instance/protocols/protocol/bgp/neighbors/neighbor/graceful-restart`

This leaf was not supported by the current implementation at neighbor level, but this feature is supported at afi-safi level of each neighbor as well as at global level `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global/graceful-restart`

- `/network-instances/network-instance/protocols/protocol/bgp/neighbors/neighbor/use-multiple-paths`

This leaf was not supported by the current implementation at neighbor level, but this feature is supported at global level `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/global/afi-safis/afi-safi/use-multiple-paths`

- `/network-instances/network-instance/interfaces/interface/config/id`

This leaf is limited to 32 characters and must have the format “<interface>.<subinterface>”, e.g., eth2.10.

- On the first time `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbor` paths are configured, those configuration needs the respective **AFI-SAFI** configuration that be present to indicate **AFI** type:
`/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbors/neighbor/afi-safis`

this information is necessary for the OcNOS model to generate the following paths:

```
/ipi-bgp:bgp/bgp-instance/address-family  
/ipi-bgp:bgp/bgp-instance/peer-group/address-families  
/ip.i-bgp:bgp/bgp-instance/address-family-vrf
```

- After the `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbors` paths are configured on equipment, on the further configurations on those paths the user does not need to indicate the AFI-SAFI, the translation will look for this information on the equipment database.

Configure eBGP neighbor with TTL

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

Use this xml config to define the eBGP neighbor.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">  
  <network-instance>  
    <name>VRF1</name>  
    <config>
```

```

        <name>VRF1</name>
        <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:L3VRF</type>
        <enabled>true</enabled>
        <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
        <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
        <route-distinguisher>1.2.3.4:56</route-distinguisher>
    </config>
    <protocols>
        <protocol>
            <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</identifier>
            <name>DIRECTLY_CONNECTED</name>
            <config>
                <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</identifier>
                <name>DIRECTLY_CONNECTED</name>
                <enabled>true</enabled>
            </config>
        </protocol>
        <protocol>
            <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-types:BGP</identifier>
            <name>100</name>
            <bgp>
                <global>
                    <config>
                        <as>100</as>
                    </config>
                </global>
                <neighbors>
                    <neighbor>
                        <neighbor-address>1.1.1.2</neighbor-address>
                        <afi-safis>
                            <afi-safi>
                                <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
                                    <config>
                                        <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
                                            <enabled>true</enabled>
                                        </config>
                                    </afi-safi>
                                </afi-safis>
                            </config>
                        <neighbor-address>1.1.1.2</neighbor-address>
                        <peer-as>200</peer-as>
                    </config>
                </neighbor>
            </neighbors>
        </bgp-multihop>
    </protocols>

```

```

        <config>
            <enabled>true</enabled>
            <multihop-ttl>20</multihop-ttl>
        </config>
    </ebgp-multihop>
</neighbor>
</neighbors>
</bgp>
<config>
    <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-types:BGP</identifier>
    <name>100</name>
    <enabled>true</enabled>
    </config>
</protocol>
</protocols>
<tables>
    <table>
        <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
        <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
            <config>
                <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
                <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
            </config>
        </table>
    </table>
    <table>
        <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
        <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</address-
family>
            <config>
                <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
                <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</address-
family>
            </config>
        </table>
    </table>
    <table>
        <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-types:BGP</protocol>
        <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
            <config>
```

```
        <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-types:BGP</protocol>
        <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
                </config>
        </table>
</tables>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
router bgp 100
!
address-family ipv4 vrf VRF1
neighbor 1.1.1.2 remote-as 200
neighbor 1.1.1.2 activate
neighbor 1.1.1.2 ebgp-multihop 20
exit-address-family
!
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>VRF1</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>VRF1</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>VRF1</vrf-name>
      </config>
      <bgp-vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp-
vrf">
        <config>
          <rd-string>1.2.3.4:56</rd-string>
        </config>
      </bgp-vrf>
    </vrf>
  </network-instance>
</network-instances>
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>100</bgp-as>
    <config>
      <bgp-as>100</bgp-as>
    </config>
    <address-family-vrf>
      <afi>ipv4</afi>
      <safi>unicast</safi>
```

```

    <vrf-name>VRF1</vrf-name>
    <vrf-peer>
      <peer-address>1.1.1.2</peer-address>
      <config>
        <peer-address>1.1.1.2</peer-address>
        <peer-as>200</peer-as>
      </config>
      <ebgp-multihop>
        <config>
          <maximum-hop-count>20</maximum-hop-count>
        </enabled>
      </config>
    </ebgp-multihop>
  </vrf-peer>
</config>
<afi>ipv4</afi>
<safi>unicast</safi>
<vrf-name>VRF1</vrf-name>
</config>
</address-family-vrf>
</bgp-instance>
</bgp>

```

Validation with NETCONF get

```

<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <config>
      <name>VRF1</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</enabled-address-families>
      <enabled-address-families
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</enabled-address-families>
      <route-distinguisher>1.2.3.4:56</route-distinguisher>
    </config>
    <state>
      <name>VRF1</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled-address-families
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</enabled-address-families>
      <enabled-address-families
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</enabled-address-families>
      <enabled>true</enabled>
      <route-distinguisher>1.2.3.4:56</route-distinguisher>
    </state>
  </network-instance>
</network-instances>

```

```

<protocols>
  <protocol>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
    <name>DIRECTLY_CONNECTED</name>
    <config>
      <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <enabled>>true</enabled>
      </config>
    <state>
      <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <enabled>true</enabled>
      </state>
    </protocol>
  <protocol>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
    <name>100</name>
    <bgp>
      <global>
        <config>
          <as>100</as>
        </config>
        <state>
          <as>100</as>
        </state>
      </global>
      <neighbors>
        <neighbor>
          <neighbor-address>1.1.1.2</neighbor-address>
          <afi-safis>
            <afi-safi>
              <afi-safi-name
                xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
              <config>
                <afi-safi-name
                  xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                  <enabled>true</enabled>
                </config>
              </afi-safi>
            </afi-safis>
          </config>
          <neighbor-address>1.1.1.2</neighbor-address>
          <peer-as>200</peer-as>
          <enabled>true</enabled>
        </config>
      </neighbor>
    </bgp-multihop>
  </protocol>
</protocols>

```

```

    <config>
      <enabled>true</enabled>
      <multihop-ttl>20</multihop-ttl>
    </config>
    <state>
      <enabled>true</enabled>
      <multihop-ttl>20</multihop-ttl>
    </state>
  </ebgp-multihop>
  <state>
    <neighbor-address>1.1.1.2</neighbor-address>
    <peer-as>200</peer-as>
    <enabled>true</enabled>
  </state>
</neighbor>
</neighbors>
</bgp>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
    <name>100</name>
    <enabled>true</enabled>
  </config>
  <state>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
      <name>100</name>
      <enabled>true</enabled>
    </state>
  </protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
        <config>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
              <config>
                </config>
            </table>
          </table>
        </network-instance>
      </network-instances>

```

Restrictions

/network-instances/network-instance/protocols/protocol/bgp/neighbors/neighbor/config/peer-type

This leaf was not supported

- On the first time /oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbor paths are configured, those configuration needs the respective **AFI-SAFI** configuration that be present to indicate **AFI** type: /oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbors/neighbor/afi-safis

this information is necessary for the OcnOS model to generate the following paths:

```
/ipi-bgp:bgp/bgp-instance/address-family  
/ipi-bgp:bgp/bgp-instance/peer-group/address-families  
/ipi-bgp:bgp/bgp-instance/address-family-vrf
```

- After the /oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbors paths are configured on equipment, on the further configurations on those paths the user does not need to indicate the AFI-SAFI, the translation will look for this information on the equipment database.

Create BGP peer-groups with default VRF

Release

This configuration was introduced in OcnOS version 5.1.

Configuration

Peer groups are configurations that can be used elsewhere without the need to repeat them.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">  
  <network-instance>  
    <name>default</name>  
    <protocols>  
      <protocol>  
        <identifier  
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-  
pol-types:BGP</identifier>  
        <name>100</name>  
        <bgp>  
          <global>  
            <config>  
              <as>100</as>  
            </config>  
            <route-selection-options>  
              <config>  
                <enable-aigp>true</enable-aigp>  
              </config>  
          </global>  
        </bgp>  
      </protocol>  
    </protocols>  
  </network-instance>  
</network-instances>
```



```
<state>
  <enable-aigp>true</enable-aigp>
</state>
</route-selection-options>
<afi-safis>
  <afi-safi>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
      <enabled>true</enabled>
    </config>
  </afi-safi>
  <afi-safi>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_LABELED_UNICAST</afi-safi-name>
    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_LABELED_UNICAST</afi-safi-name>
      <enabled>true</enabled>
    </config>
  </afi-safi>
  <afi-safi>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_LABELED_UNICAST</afi-safi-name>
    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_LABELED_UNICAST</afi-safi-name>
      <enabled>true</enabled>
    </config>
  </afi-safi>
  <afi-safi>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L3VPN_IPV6_UNICAST</afi-safi-name>
    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L3VPN_IPV6_UNICAST</afi-safi-name>
      <enabled>true</enabled>
    </config>
  </afi-safi>
</afi-safis>
</global>
<peer-groups>
  <peer-group>
    <peer-group-name>ABC</peer-group-name>
    <config>
      <auth-password>0x9603e78694ace534ea912b9ab53f8a55</auth-
password>
```

```
<peer-group-name>ABC</peer-group-name>
<peer-as>100</peer-as>
<description>Non VRF peer-group configs</description>
</config>
<enable-bfd>
  <config>
    <enabled>true</enabled>
  </config>
</enable-bfd>
<timers>
  <config>
    <connect-retry>300.00</connect-retry>
    <minimum-advertisement-interval>20.00</minimum-
advertisement-interval>
    <keepalive-interval>300.00</keepalive-interval>
    <hold-time>8200.00</hold-time>
  </config>
</timers>
<transport>
  <config>
    <local-address>10.1.1.1</local-address>
    <passive-mode>true</passive-mode>
  </config>
</transport>
<afi-safis>
  <afi-safi>
    <afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
    <ipv4-unicast>
      <prefix-limit>
        <config>
          <max-prefixes>4294967295</max-prefixes>
          <warning-threshold-pct>100</warning-threshold-pct>
          <prevent-teardown>true</prevent-teardown>
        </config>
      </prefix-limit>
      <config>
        <send-default-route>true</send-default-route>
      </config>
    </ipv4-unicast>
    <config>
      <afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
      <enabled>true</enabled>
    </config>
    <apply-policy>
      <config>
        <import-policy>in-map</import-policy>
        <export-policy>out-map</export-policy>
      </config>
    </apply-policy>
  </afi-safi>
</afi-safis>
<route-reflector>
  <config>
```

```
        <route-reflector-client>true</route-reflector-client>
    </config>
</route-reflector>
</peer-group>
<peer-group>
    <peer-group-name>peer1</peer-group-name>
    <config>
        <auth-password>0x9a20ef22549ad84b</auth-password>
        <peer-group-name>peer1</peer-group-name>
        <peer-as>200</peer-as>
    </config>
    <ebgp-multihop>
        <config>
            <enabled>true</enabled>
        </config>
    </ebgp-multihop>
    <afi-safis>
        <afi-safi>
            <afi-safi-name
                xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_LABELED_UNICAST</afi-safi-name>
            <config>
                <afi-safi-name
                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_LABELED_UNICAST</afi-safi-name>
                <enabled>true</enabled>
            </config>
        </afi-safi>
    </afi-safis>
</peer-group>
<peer-group>
    <peer-group-name>peer2</peer-group-name>
    <config>
        <auth-password>0x9603e78694ace534e74f24019f5bfeb5</auth-
password>
        <peer-group-name>peer2</peer-group-name>
        <peer-as>300</peer-as>
    </config>
    <enable-bfd>
        <config>
            <enabled>true</enabled>
        </config>
    </enable-bfd>
    <ebgp-multihop>
        <config>
            <multihop-ttl>10</multihop-ttl>
            <enabled>true</enabled>
        </config>
    </ebgp-multihop>
    <afi-safis>
        <afi-safi>
            <afi-safi-name
                xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_LABELED_UNICAST</afi-safi-name>
            <ipv6-labeled-unicast>
                <prefix-limit>
            </config>
```

```
        <max-prefixes>1</max-prefixes>
        <prevent-teardown>true</prevent-teardown>
    </config>
</prefix-limit>
</ipv6-labeled-unicast>
<config>
    <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_LABELED_UNICAST</afi-safi-name>
        <enabled>true</enabled>
    </config>
</afi-safi>
<afi-safi>
    <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L3VPN_IPV6_UNICAST</afi-safi-name>
        <l3vpn-ipv6-unicast>
            <prefix-limit>
                <config>
                    <max-prefixes>12345</max-prefixes>
                </config>
            </prefix-limit>
        </l3vpn-ipv6-unicast>
    </config>
    <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L3VPN_IPV6_UNICAST</afi-safi-name>
        <enabled>true</enabled>
    </config>
</afi-safi>
</afi-safis>
</peer-group>
</peer-groups>
</bgp>
</protocol>
</protocols>
</network-instance>
</network-instances>
```

OcNOS CLI Commands

```
!
router bgp 100
  neighbor ABC peer-group
  neighbor ABC remote-as 100
  neighbor ABC fall-over bfd multihop
  neighbor peer1 peer-group
  neighbor peer1 remote-as 200
  neighbor peer2 peer-group
  neighbor peer2 remote-as 300
  neighbor peer2 fall-over bfd
  neighbor ABC description Non VRF peer-group configs
  neighbor ABC passive
  neighbor ABC update-source 10.1.1.1
  neighbor ABC authentication-key 0x9603e78694ace534ea912b9ab53f8a55
  neighbor ABC advertisement-interval 20
```



```
neighbor ABC timers 300 8200
neighbor ABC timers connect 300
neighbor peer1 ebgp-multihop
neighbor peer1 authentication-key 0x9a20ef22549ad84b
neighbor peer2 ebgp-multihop 10
neighbor peer2 authentication-key 0x9603e78694ace534e74f24019f5bfeb5
!
address-family ipv4 unicast
neighbor ABC activate
neighbor ABC route-reflector-client
neighbor ABC default-originate
neighbor ABC maximum-prefix 4294967295 100 warning-only
neighbor ABC route-map in-map in
neighbor ABC route-map out-map out
exit-address-family
!
address-family ipv4 labeled-unicast
neighbor peer1 activate
exit-address-family
!
address-family vpv6 unicast
neighbor peer2 allow-ebgp-vpn
neighbor peer2 activate
neighbor peer2 maximum-prefix 12345
exit-address-family
!
address-family ipv6 labeled-unicast
neighbor peer2 activate
neighbor peer2 maximum-prefix 1 warning-only
exit-address-family
!
```

OcNOS NETCONF Payload

```
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>100</bgp-as>
    <config>
      <bgp-as>100</bgp-as>
    </config>
    <state>
      <bgp-as>100</bgp-as>
      <version>4</version>
      <table-version>1</table-version>
      <total-prefixes>0</total-prefixes>
      <router-run-time-ip-address>0.0.0.0</router-run-time-ip-address>
      <scan-remain-time>49</scan-remain-time>
    </state>
    <rib>
      <address-family>
        <safi>link-state</safi>
        <afi>link-state</afi>
        <state>
          <safi>link-state</safi>
          <afi>link-state</afi>
        </state>
      </address-family>
    </rib>
  </bgp-instance>
</bgp>
```

```
</address-family>
</rib>
<address-family>
  <afi>ipv4</afi>
  <safi>unicast</safi>
  <config>
    <afi>ipv4</afi>
    <safi>unicast</safi>
  </config>
</state>
  <afi>ipv4</afi>
  <safi>unicast</safi>
</state>
</address-family>
<address-family>
  <afi>ipv4</afi>
  <safi>labeled-unicast</safi>
  <config>
    <afi>ipv4</afi>
    <safi>labeled-unicast</safi>
  </config>
</state>
  <afi>ipv4</afi>
  <safi>labeled-unicast</safi>
</state>
</address-family>
<address-family>
  <afi>ipv6</afi>
  <safi>labeled-unicast</safi>
  <config>
    <afi>ipv6</afi>
    <safi>labeled-unicast</safi>
  </config>
</state>
  <afi>ipv6</afi>
  <safi>labeled-unicast</safi>
</state>
</address-family>
<address-family>
  <afi>ipv6</afi>
  <safi>vpn-unicast</safi>
  <config>
    <afi>ipv6</afi>
    <safi>vpn-unicast</safi>
  </config>
</state>
  <afi>ipv6</afi>
  <safi>vpn-unicast</safi>
</state>
</address-family>
<peer-group>
  <peer-group-tag>ABC</peer-group-tag>
  <bgp-password>
    <password>0x9603e78694ace534ea912b9ab53f8a55</password>
  </password>
  <config>
    <password>0x9603e78694ace534ea912b9ab53f8a55</password>
    <auth-key-encrypt>1</auth-key-encrypt>
  </config>
</peer-group>
```

```
</config>
<state>
  <password>0x9603e78694ace534ea912b9ab53f8a55</password>
  <auth-key-encrypt>1</auth-key-encrypt>
</state>
</bgp-password>
<config>
  <peer-group-tag>ABC</peer-group-tag>
  <peer-group-range>static</peer-group-range>
  <peer-as>100</peer-as>
  <enable-peer-bfd/>
  <enable-peer-bfd-multihop/>
  <peer-description>Non VRF peer-group configs</peer-description>
  <peer-connect-interval>300</peer-connect-interval>
  <min-route-advertisement-interval>20</min-route-advertisement-
interval>
  <source-identifier>10.1.1.1</source-identifier>
  <neighbor-passive/>
</config>
<state>
  <peer-group-tag>ABC</peer-group-tag>
  <peer-group-range>static</peer-group-range>
  <peer-as>100</peer-as>
  <enable-peer-bfd/>
  <enable-peer-bfd-multihop/>
  <peer-description>Non VRF peer-group configs</peer-description>
  <peer-connect-interval>300</peer-connect-interval>
  <min-route-advertisement-interval>20</min-route-advertisement-
interval>
  <source-identifier>10.1.1.1</source-identifier>
  <neighbor-passive/>
</state>
<timers>
  <config>
    <keep-alive>300</keep-alive>
    <hold-time>8200</hold-time>
  </config>
  <state>
    <keep-alive>300</keep-alive>
    <hold-time>8200</hold-time>
  </state>
</timers>
<address-families>
  <address-family>
    <afi>ipv4</afi>
    <safi>unicast</safi>
    <maximum-prefixes>
      <prefix-count>4294967295</prefix-count>
    <config>
      <prefix-count>4294967295</prefix-count>
      <threshold-percentage>100</threshold-percentage>
      <warning-only/>
    </config>
  <state>
    <prefix-count>4294967295</prefix-count>
    <threshold-percentage>100</threshold-percentage>
    <warning-only/>
```

```
    </state>
  </maximum-prefixes>
  <config>
    <afi>ipv4</afi>
    <safi>unicast</safi>
    <activate/>
    <default-peer-route-map-name/>
    <peer-route-reflector/>
  </config>
  <state>
    <afi>ipv4</afi>
    <safi>unicast</safi>
    <activate/>
    <default-peer-route-map-name/>
    <peer-route-reflector/>
  </state>
  <route-map-filters>
    <route-map-filter>
      <route-map-direction>in</route-map-direction>
      <config>
        <route-map-direction>in</route-map-direction>
        <route-map-name>in-map</route-map-name>
      </config>
      <state>
        <route-map-direction>in</route-map-direction>
        <route-map-name>in-map</route-map-name>
      </state>
    </route-map-filter>
    <route-map-filter>
      <route-map-direction>out</route-map-direction>
      <config>
        <route-map-direction>out</route-map-direction>
        <route-map-name>out-map</route-map-name>
      </config>
      <state>
        <route-map-direction>out</route-map-direction>
        <route-map-name>out-map</route-map-name>
      </state>
    </route-map-filter>
  </route-map-filters>
</address-family>
</address-families>
</peer-group>
<peer-group>
  <peer-group-tag>peer1</peer-group-tag>
  <bgp-password>
    <password>0x9a20ef22549ad84b</password>
    <config>
      <password>0x9a20ef22549ad84b</password>
      <auth-key-encrypt>1</auth-key-encrypt>
    </config>
    <state>
      <password>0x9a20ef22549ad84b</password>
      <auth-key-encrypt>1</auth-key-encrypt>
    </state>
  </bgp-password>
</config>
```



```
<peer-group-tag>peer1</peer-group-tag>
<peer-group-range>static</peer-group-range>
<peer-as>200</peer-as>
</config>
<state>
  <peer-group-tag>peer1</peer-group-tag>
  <peer-group-range>static</peer-group-range>
  <peer-as>200</peer-as>
</state>
<ebgp-multihop>
  <config>
    <enabled/>
  </config>
  <state>
    <enabled/>
  </state>
</ebgp-multihop>
<address-families>
  <address-family>
    <afi>ipv4</afi>
    <safi>labeled-unicast</safi>
    <config>
      <afi>ipv4</afi>
      <safi>labeled-unicast</safi>
      <activate/>
    </config>
    <state>
      <afi>ipv4</afi>
      <safi>labeled-unicast</safi>
      <activate/>
    </state>
  </address-family>
</address-families>
</peer-group>
<peer-group>
  <peer-group-tag>peer2</peer-group-tag>
  <bgp-password>
    <password>0x9603e78694ace534e74f24019f5bfef5</password>
    <config>
      <password>0x9603e78694ace534e74f24019f5bfef5</password>
      <auth-key-encrypt>1</auth-key-encrypt>
    </config>
    <state>
      <password>0x9603e78694ace534e74f24019f5bfef5</password>
      <auth-key-encrypt>1</auth-key-encrypt>
    </state>
  </bgp-password>
  <config>
    <peer-group-tag>peer2</peer-group-tag>
    <peer-group-range>static</peer-group-range>
    <peer-as>300</peer-as>
    <enable-peer-bfd/>
  </config>
  <state>
    <peer-group-tag>peer2</peer-group-tag>
    <peer-group-range>static</peer-group-range>
    <peer-as>300</peer-as>
```

```
<enable-peer-bfd/>
</state>
<ebgp-multihop>
  <config>
    <maximum-hop-count>10</maximum-hop-count>
    <enabled/>
  </config>
  <state>
    <maximum-hop-count>10</maximum-hop-count>
    <enabled/>
  </state>
</ebgp-multihop>
<address-families>
  <address-family>
    <afi>ipv6</afi>
    <safi>labeled-unicast</safi>
    <maximum-prefixes>
      <prefix-count>1</prefix-count>
      <config>
        <prefix-count>1</prefix-count>
        <maximum-prefix-warning/>
      </config>
      <state>
        <prefix-count>1</prefix-count>
        <maximum-prefix-warning/>
      </state>
    </maximum-prefixes>
    <config>
      <afi>ipv6</afi>
      <safi>labeled-unicast</safi>
      <activate/>
    </config>
    <state>
      <afi>ipv6</afi>
      <safi>labeled-unicast</safi>
      <activate/>
    </state>
  </address-family>
  <address-family>
    <afi>ipv6</afi>
    <safi>vpn-unicast</safi>
    <maximum-prefixes>
      <prefix-count>12345</prefix-count>
      <config>
        <prefix-count>12345</prefix-count>
      </config>
      <state>
        <prefix-count>12345</prefix-count>
      </state>
    </maximum-prefixes>
    <config>
      <afi>ipv6</afi>
      <safi>vpn-unicast</safi>
      <activate/>
      <peer-allow-ebgp-vpn/>
    </config>
    <state>
```



```
<afi>ipv6</afi>
<safi>vpn-unicast</safi>
<activate/>
<peer-allow-ebgp-vpn/>
</state>
</address-family>
</address-families>
</peer-group>
</bgp-instance>
</bgp>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGPP</identifier>
        <name>100</name>
        <bgp>
          <global>
            <config>
              <as>100</as>
            </config>
            <route-selection-options>
              <config>
                <enable-aigp>true</enable-aigp>
              </config>
              <state>
                <enable-aigp>true</enable-aigp>
              </state>
            </route-selection-options>
            <state>
              <as>100</as>
              <total-prefixes>0</total-prefixes>
            </state>
            <afi-safis>
              <afi-safi>
                <afi-safi-name
                  xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                <config>
                  <afi-safi-name
                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                    <enabled>true</enabled>
                  </config>
                </afi-safi>
              <afi-safi>
                <afi-safi-name
                  xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_LABELED_UNICAST</afi-safi-name>
                <config>
```

```

        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_LABELED_UNICAST</afi-safi-name>
          <enabled>true</enabled>
        </config>
      </afi-safi>
    <afi-safi>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_LABELED_UNICAST</afi-safi-name>
        <config>
          <afi-safi-name
            xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_LABELED_UNICAST</afi-safi-name>
            <enabled>true</enabled>
          </config>
        </afi-safi>
      <afi-safi>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L3VPN_IPV6_UNICAST</afi-safi-name>
          <config>
            <afi-safi-name
              xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L3VPN_IPV6_UNICAST</afi-safi-name>
              <enabled>true</enabled>
            </config>
          </afi-safi>
        </afi-safis>
      </global>
    <peer-groups>
      <peer-group>
        <peer-group-name>ABC</peer-group-name>
        <config>
          <auth-password>0x9603e78694ace534ea912b9ab53f8a55</auth-
password>
          <peer-group-name>ABC</peer-group-name>
          <peer-as>100</peer-as>
          <description>Non VRF peer-group configs</description>
        </config>
        <state>
          <auth-password>0x9603e78694ace534ea912b9ab53f8a55</auth-
password>
          <peer-group-name>ABC</peer-group-name>
          <peer-as>100</peer-as>
          <description>Non VRF peer-group configs</description>
        </state>
        <enable-bfd>
          <config>
            <enabled>true</enabled>
          </config>
          <state>
            <enabled>true</enabled>
          </state>
        </enable-bfd>
        <timers>
          <config>

```

```

        <connect-retry>300.00</connect-retry>
        <minimum-advertisement-interval>20.00</minimum-
advertisement-interval>
        <keepalive-interval>300.00</keepalive-interval>
        <hold-time>8200.00</hold-time>
    </config>
    <state>
        <connect-retry>300.00</connect-retry>
        <minimum-advertisement-interval>20.00</minimum-
advertisement-interval>
        <keepalive-interval>300.00</keepalive-interval>
        <hold-time>8200.00</hold-time>
    </state>
</timers>
<transport>
    <config>
        <local-address>10.1.1.1</local-address>
        <passive-mode>>true</passive-mode>
    </config>
    <state>
        <local-address>10.1.1.1</local-address>
        <passive-mode>>true</passive-mode>
    </state>
</transport>
<afi-safis>
    <afi-safi>
        <afi-safi-name
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        <ipv4-unicast>
            <prefix-limit>
                <config>
                    <max-prefixes>4294967295</max-prefixes>
                    <warning-threshold-pct>100</warning-threshold-pct>
                    <prevent-teardown>true</prevent-teardown>
                </config>
                <state>
                    <max-prefixes>4294967295</max-prefixes>
                    <warning-threshold-pct>100</warning-threshold-pct>
                    <prevent-teardown>true</prevent-teardown>
                </state>
            </prefix-limit>
            <config>
                <send-default-route>true</send-default-route>
            </config>
            <state>
                <send-default-route>true</send-default-route>
            </state>
        </ipv4-unicast>
        <config>
            <afi-safi-name
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
            <enabled>true</enabled>
        </config>
        <state>
            <afi-safi-name

```

```

        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        <enabled>true</enabled>
    </state>
    <apply-policy>
        <config>
            <import-policy>in-map</import-policy>
            <export-policy>out-map</export-policy>
        </config>
    <state>
        <import-policy>in-map</import-policy>
        <export-policy>out-map</export-policy>
    </state>
    </apply-policy>
</afi-safi>
</afi-safis>
<route-reflector>
    <config>
        <route-reflector-client>true</route-reflector-client>
    </config>
    <state>
        <route-reflector-client>true</route-reflector-client>
    </state>
</route-reflector>
</peer-group>
<peer-group>
    <peer-group-name>peer1</peer-group-name>
    <config>
        <auth-password>0x9a20ef22549ad84b</auth-password>
        <peer-group-name>peer1</peer-group-name>
        <peer-as>200</peer-as>
    </config>
    <state>
        <auth-password>0x9a20ef22549ad84b</auth-password>
        <peer-group-name>peer1</peer-group-name>
        <peer-as>200</peer-as>
    </state>
    <ebgp-multihop>
        <config>
            <enabled>true</enabled>
        </config>
        <state>
            <enabled>true</enabled>
        </state>
    </ebgp-multihop>
</afi-safis>
    <afi-safi>
        <afi-safi-name
            xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_LABELED_UNICAST</afi-safi-name>
            <config>
                <afi-safi-name
                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_LABELED_UNICAST</afi-safi-name>
                    <enabled>true</enabled>
                </config>
            <state>

```

```

    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_LABELLED_UNICAST</afi-safi-name>
    <enabled>true</enabled>
  </state>
</afi-safi>
</afi-safis>
</peer-group>
<peer-group>
  <peer-group-name>peer2</peer-group-name>
  <config>
    <auth-password>0x9603e78694ace534e74f24019f5bfeb5</auth-
password>
    <peer-group-name>peer2</peer-group-name>
    <peer-as>300</peer-as>
  </config>
  <state>
    <auth-password>0x9603e78694ace534e74f24019f5bfeb5</auth-
password>
    <peer-group-name>peer2</peer-group-name>
    <peer-as>300</peer-as>
  </state>
  <enable-bfd>
    <config>
      <enabled>true</enabled>
    </config>
    <state>
      <enabled>true</enabled>
    </state>
  </enable-bfd>
  <ebgp-multihop>
    <config>
      <multihop-ttl>10</multihop-ttl>
      <enabled>true</enabled>
    </config>
    <state>
      <enabled>true</enabled>
      <multihop-ttl>10</multihop-ttl>
    </state>
  </ebgp-multihop>
</afi-safis>
<afi-safi>
  <afi-safi-name
    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_LABELLED_UNICAST</afi-safi-name>
  <ipv6-labeled-unicast>
    <prefix-limit>
      <config>
        <max-prefixes>1</max-prefixes>
        <prevent-teardown>true</prevent-teardown>
      </config>
      <state>
        <max-prefixes>1</max-prefixes>
        <prevent-teardown>true</prevent-teardown>
      </state>
    </prefix-limit>
  </ipv6-labeled-unicast>

```

```

    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_LABELED_UNICAST</afi-safi-name>
        <enabled>true</enabled>
      </config>
    </state>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_LABELED_UNICAST</afi-safi-name>
      <enabled>true</enabled>
    </state>
  </afi-safi>
  <afi-safi>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L3VPN_IPV6_UNICAST</afi-safi-name>
    <l3vpn-ipv6-unicast>
      <prefix-limit>
        <config>
          <max-prefixes>12345</max-prefixes>
        </config>
        <state>
          <max-prefixes>12345</max-prefixes>
        </state>
      </prefix-limit>
    </l3vpn-ipv6-unicast>
  </config>
  <afi-safi-name
    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L3VPN_IPV6_UNICAST</afi-safi-name>
    <enabled>true</enabled>
  </config>
  <state>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L3VPN_IPV6_UNICAST</afi-safi-name>
      <enabled>true</enabled>
    </state>
  </afi-safi>
</afi-safis>
</peer-group>
</peer-groups>
</bgp>
</protocol>
</protocols>
</network-instance>
</network-instances>

```

Restrictions

- The first time `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/peer-groups` and `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbors` paths are



configured, those configuration needs the respective **AFI-SAFI** configuration that is present to indicate **AFI** type:

```
/oc-netinst:network-instances/network-  
instance/protocols/protocol/bgp/neighbors/neighbor/afi-safis  
/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/peer-  
groups/peer-group/afi-safis
```

this information is necessary for the OcnOS model to generate the following paths:

```
/ipi-bgp:bgp/bgp-instance/address-family  
/ipi-bgp:bgp/bgp-instance/peer-group/address-families  
/ipi-bgp:bgp/bgp-instance/address-family-vrf
```

- After the `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/peer-groups` and `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbors` paths are configured on equipment, on the further configurations on those paths the user does not need to indicate the AFI-SAFI, the translation will look for this information on the equipment database.

Create BGP peer-groups with user-defined VRFs

Release

This configuration was introduced in OcnOS version 5.1.

Configuration

Peer groups are configurations that can be used elsewhere without the need to repeat them.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">  
  <network-instance>  
    <name>default</name>  
    <protocols>  
      <protocol>  
        <identifier  
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-  
pol-types:BGP</identifier>  
        <name>100</name>  
        <bgp>  
          <global>  
            <config>  
              <as>100</as>  
            </config>  
            <route-selection-options>  
              <config>  
                <enable-aigp>true</enable-aigp>  
              </config>  
            <state>  
              <enable-aigp>true</enable-aigp>  
            </state>  
          </bgp>  
        </protocol>  
      </protocols>  
    </network-instance>  
  </network-instances>
```

```

        </state>
    </route-selection-options>
</global>
</bgp>
</protocol>
</protocols>
</network-instance>
<network-instance>
    <name>management</name>
</network-instance>
<network-instance>
    <name>vrfA</name>
    <protocols>
        <protocol>
            <identifier
                xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
            <name>100</name>
            <bgp>
                <global>
                    <config>
                        <as>100</as>
                    </config>
                    <afi-safis>
                        <afi-safi>
                            <afi-safi-name
                                xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                            <config>
                                <afi-safi-name
                                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                                <enabled>true</enabled>
                            </config>
                        </afi-safi>
                    </afi-safis>
                </global>
                <peer-groups>
                    <peer-group>
                        <peer-group-name>peerA</peer-group-name>
                        <afi-safis>
                            <afi-safi>
                                <afi-safi-name
                                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                                <ipv4-unicast>
                                    <prefix-limit>
                                        <config>
                                            <max-prefixes>2331</max-prefixes>
                                            <warning-threshold-pct>100</warning-threshold-pct>
                                            <prevent-teardown>true</prevent-teardown>
                                        </config>
                                    </prefix-limit>
                                </config>
                                <send-default-route>true</send-default-route>
                            </afi-safi>
                        </afi-safis>
                    </peer-group>
                </peer-groups>
            </bgp>
        </protocol>
    </protocols>
</network-instance>
</network-instance>
</global>
</bgp>
</state>
</configuration>
</root>

```

```

    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        <enabled>true</enabled>
      </config>
    </afi-safi>
  </afi-safis>
<config>
  <auth-password>0x9603e78694ace534ea912b9ab53f8a55</auth-
password>
  <peer-group-name>peerA</peer-group-name>
  <peer-as>100</peer-as>
  <description>VRFA peer-group configs</description>
</config>
<transport>
  <config>
    <local-address>2.2.2.2</local-address>
    <passive-mode>true</passive-mode>
  </config>
</transport>
<timers>
  <config>
    <connect-retry>900.00</connect-retry>
    <minimum-advertisement-interval>65535.00</minimum-
advertisement-interval>
    <keepalive-interval>100.00</keepalive-interval>
    <hold-time>300.00</hold-time>
  </config>
</timers>
<enable-bfd>
  <config>
    <enabled>true</enabled>
  </config>
</enable-bfd>
<route-reflector>
  <config>
    <route-reflector-client>true</route-reflector-client>
  </config>
</route-reflector>
</peer-group>
</peer-groups>
</bgp>
</protocol>
</protocols>
</network-instance>
<network-instance>
  <name>vrfB</name>
  <protocols>
    <protocol>
      <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
      <name>100</name>
      <bgp>
        <global>
          <config>

```

```
<as>100</as>
</config>
<afi-safis>
  <afi-safi>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
        <enabled>true</enabled>
      </config>
    </afi-safi>
  </afi-safis>
</global>
<peer-groups>
  <peer-group>
    <peer-group-name>peerB</peer-group-name>
    <afi-safis>
      <afi-safi>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
        <ipv6-unicast>
          <prefix-limit>
            <config>
              <max-prefixes>3123</max-prefixes>
              <prevent-teardown>true</prevent-teardown>
            </config>
          </prefix-limit>
          <config>
            <send-default-route>true</send-default-route>
          </config>
        </ipv6-unicast>
        <config>
          <afi-safi-name
            xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
            <enabled>true</enabled>
          </config>
        </afi-safi>
      </afi-safis>
    <config>
      <auth-password>0x9a20ef22549ad84b</auth-password>
      <peer-group-name>peerB</peer-group-name>
      <peer-as>200</peer-as>
      <local-as>300</local-as>
      <description>VRFB peer-group configs</description>
    </config>
    <enable-bfd>
      <config>
        <enabled>true</enabled>
      </config>
    </enable-bfd>
    <ebgp-multihop>
      <config>
```

```
        <multihop-ttl>100</multihop-ttl>
        <enabled>true</enabled>
    </config>
</ebgp-multihop>
</peer-group>
</peer-groups>
</bgp>
</protocol>
</protocols>
</network-instance>
</network-instances>
```

OcNOS CLI Commands

```
!
ip vrf vrfA
  rd 1:1
!
ip vrf vrfB
  rd 1:2
!
!
router bgp 100
!
  address-family ipv4 vrf vrfA
  neighbor peerA peer-group
  neighbor peerA remote-as 100
  neighbor peerA fall-over bfd
  neighbor peerA activate
  neighbor peerA authentication-key 0x9603e78694ace534ea912b9ab53f8a55
  neighbor peerA route-reflector-client
  neighbor peerA default-originate
  neighbor peerA maximum-prefix 2331 100 warning-only
  neighbor peerA description VRFA peer-group configs
  neighbor peerA passive
  neighbor peerA update-source 2.2.2.2
  neighbor peerA advertisement-interval 65535
  neighbor peerA timers 100 300
  neighbor peerA timers connect 900
  exit-address-family
!
  address-family ipv6 vrf vrfB
  neighbor peerB peer-group
  neighbor peerB remote-as 200
  neighbor peerB local-as 300
  neighbor peerB fall-over bfd multihop
  neighbor peerB activate
  neighbor peerB authentication-key 0x9a20ef22549ad84b
  neighbor peerB default-originate
  neighbor peerB maximum-prefix 3123 warning-only
  neighbor peerB description VRFB peer-group configs
  neighbor peerB ebgp-multihop 100
  exit-address-family
!
```

OcNOS NETCONF Payload

```
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>100</bgp-as>
    <config>
      <bgp-as>100</bgp-as>
    </config>
    <state>
      <bgp-as>100</bgp-as>
      <version>4</version>
      <table-version>1</table-version>
      <total-prefixes>0</total-prefixes>
      <router-run-time-ip-address>0.0.0.0</router-run-time-ip-address>
      <scan-remain-time>36</scan-remain-time>
    </state>
    <rib>
      <address-family>
        <safi>link-state</safi>
        <afi>link-state</afi>
        <state>
          <safi>link-state</safi>
          <afi>link-state</afi>
        </state>
      </address-family>
    </rib>
    <address-family-vrf>
      <afi>ipv4</afi>
      <safi>unicast</safi>
      <vrf-name>vrfA</vrf-name>
      <config>
        <afi>ipv4</afi>
        <safi>unicast</safi>
        <vrf-name>vrfA</vrf-name>
      </config>
      <state>
        <afi>ipv4</afi>
        <safi>unicast</safi>
        <vrf-name>vrfA</vrf-name>
      </state>
    <peer-group>
      <peer-group-tag>peerA</peer-group-tag>
      <bgp-password>
        <password>0x9603e78694ace534ea912b9ab53f8a55</password>
        <config>
          <password>0x9603e78694ace534ea912b9ab53f8a55</password>
          <auth-key-encrypt>1</auth-key-encrypt>
        </config>
        <state>
          <password>0x9603e78694ace534ea912b9ab53f8a55</password>
          <auth-key-encrypt>1</auth-key-encrypt>
        </state>
      </bgp-password>
      <maximum-prefixes>
        <prefix-count>2331</prefix-count>
      </config>
    </peer-group>
  </bgp-instance>
</bgp>
```

```

    <prefix-count>2331</prefix-count>
    <threshold-percentage>100</threshold-percentage>
    <warning-only/>
  </config>
  <state>
    <prefix-count>2331</prefix-count>
    <threshold-percentage>100</threshold-percentage>
    <warning-only/>
  </state>
</maximum-prefixes>
<config>
  <peer-group-tag>peerA</peer-group-tag>
  <peer-group-range>static</peer-group-range>
  <peer-as>100</peer-as>
  <source-identifier>2.2.2.2</source-identifier>
  <peer-connection-interval>900</peer-connection-interval>
  <neighbor-passive/>
  <min-route-advertisement-interval>65535</min-route-advertisement-
interval>
  <peer-description>VRFA peer-group configs</peer-description>
  <enable-peer-bfd/>
  <activate/>
  <default-peer-route-map-name/>
  <peer-route-reflector/>
</config>
<state>
  <peer-group-tag>peerA</peer-group-tag>
  <peer-group-range>static</peer-group-range>
  <peer-as>100</peer-as>
  <source-identifier>2.2.2.2</source-identifier>
  <peer-connection-interval>900</peer-connection-interval>
  <neighbor-passive/>
  <min-route-advertisement-interval>65535</min-route-advertisement-
interval>
  <peer-description>VRFA peer-group configs</peer-description>
  <enable-peer-bfd/>
  <activate/>
  <default-peer-route-map-name/>
  <peer-route-reflector/>
</state>
<timers>
  <config>
    <keep-alive>100</keep-alive>
    <hold-time>300</hold-time>
  </config>
  <state>
    <keep-alive>100</keep-alive>
    <hold-time>300</hold-time>
  </state>
</timers>
</peer-group>
</address-family-vrf>
<address-family-vrf>
  <afi>ipv6</afi>
  <safi>unicast</safi>
  <vrf-name>vrfB</vrf-name>
</config>
```

```
<afi>ipv6</afi>
<safi>unicast</safi>
<vrf-name>vrfB</vrf-name>
</config>
<state>
  <afi>ipv6</afi>
  <safi>unicast</safi>
  <vrf-name>vrfB</vrf-name>
</state>
<peer-group>
  <peer-group-tag>peerB</peer-group-tag>
  <bgp-password>
    <password>0x9a20ef22549ad84b</password>
    <config>
      <password>0x9a20ef22549ad84b</password>
      <auth-key-encrypt>1</auth-key-encrypt>
    </config>
    <state>
      <password>0x9a20ef22549ad84b</password>
      <auth-key-encrypt>1</auth-key-encrypt>
    </state>
  </bgp-password>
  <maximum-prefixes>
    <prefix-count>3123</prefix-count>
    <config>
      <prefix-count>3123</prefix-count>
      <maximum-prefix-warning/>
    </config>
    <state>
      <prefix-count>3123</prefix-count>
      <maximum-prefix-warning/>
    </state>
  </maximum-prefixes>
  <config>
    <peer-group-tag>peerB</peer-group-tag>
    <peer-group-range>static</peer-group-range>
    <peer-as>200</peer-as>
    <peer-local-as>300</peer-local-as>
    <peer-description>VRFB peer-group configs</peer-description>
    <enable-peer-bfd/>
    <enable-peer-bfd-multihop/>
    <activate/>
    <default-peer-route-map-name/>
  </config>
  <state>
    <peer-group-tag>peerB</peer-group-tag>
    <peer-group-range>static</peer-group-range>
    <peer-as>200</peer-as>
    <peer-local-as>300</peer-local-as>
    <peer-description>VRFB peer-group configs</peer-description>
    <enable-peer-bfd/>
    <enable-peer-bfd-multihop/>
    <activate/>
    <default-peer-route-map-name/>
  </state>
</bgp-multihop>
<config>
```



```
        <maximum-hop-count>100</maximum-hop-count>
        <enabled/>
    </config>
    <state>
        <maximum-hop-count>100</maximum-hop-count>
        <enabled/>
    </state>
</ebgp-multihop>
</peer-group>
</address-family-vrf>
</bgp-instance>
</bgp>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
        <name>100</name>
        <bgp>
          <global>
            <config>
              <as>100</as>
            </config>
            <route-selection-options>
              <config>
                <enable-aigp>true</enable-aigp>
              </config>
              <state>
                <enable-aigp>true</enable-aigp>
              </state>
            </route-selection-options>
            <state>
              <as>100</as>
              <total-prefixes>0</total-prefixes>
            </state>
          </global>
        </bgp>
      </protocol>
    </protocols>
  </network-instance>
  <network-instance>
    <name>management</name>
  </network-instance>
  <network-instance>
    <name>vrfA</name>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
```

```
<name>100</name>
<bgp>
  <global>
    <config>
      <as>100</as>
    </config>
    <afi-safis>
      <afi-safi>
        <afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        <config>
          <afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
          <enabled>true</enabled>
        </config>
        <state>
          <afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
          </state>
        </afi-safi>
      </afi-safis>
    </state>
    <as>100</as>
  </global>
  <peer-groups>
    <peer-group>
      <peer-group-name>peerA</peer-group-name>
      <afi-safis>
        <afi-safi>
          <afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
          <ipv4-unicast>
            <prefix-limit>
              <config>
                <max-prefixes>2331</max-prefixes>
                <warning-threshold-pct>100</warning-threshold-pct>
                <prevent-teardown>true</prevent-teardown>
              </config>
              <state>
                <max-prefixes>2331</max-prefixes>
                <warning-threshold-pct>100</warning-threshold-pct>
                <prevent-teardown>true</prevent-teardown>
              </state>
            </prefix-limit>
          </config>
          <send-default-route>true</send-default-route>
        </afi-safi>
      </afi-safis>
    </peer-group>
  </peer-groups>
</bgp>
</config>
```

```

        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
          <enabled>>true</enabled>
        </config>
      </state>
      <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
          <enabled>>true</enabled>
        </state>
      </afi-safi>
    </afi-safis>
  </config>
  <auth-password>0x9603e78694ace534ea912b9ab53f8a55</auth-
password>
    <peer-group-name>peerA</peer-group-name>
    <peer-as>100</peer-as>
    <description>VRFA peer-group configs</description>
  </config>
  <state>
    <auth-password>0x9603e78694ace534ea912b9ab53f8a55</auth-
password>
    <peer-group-name>peerA</peer-group-name>
    <peer-as>100</peer-as>
    <description>VRFA peer-group configs</description>
  </state>
  <transport>
    <config>
      <local-address>2.2.2.2</local-address>
      <passive-mode>>true</passive-mode>
    </config>
    <state>
      <local-address>2.2.2.2</local-address>
      <passive-mode>>true</passive-mode>
    </state>
  </transport>
  <timers>
    <config>
      <connect-retry>900.00</connect-retry>
      <minimum-advertisement-interval>65535.00</minimum-
advertisement-interval>
      <keepalive-interval>100.00</keepalive-interval>
      <hold-time>300.00</hold-time>
    </config>
    <state>
      <connect-retry>900.00</connect-retry>
      <minimum-advertisement-interval>65535.00</minimum-
advertisement-interval>
      <keepalive-interval>100.00</keepalive-interval>
      <hold-time>300.00</hold-time>
    </state>
  </timers>
  <enable-bfd>
    <config>
      <enabled>>true</enabled>
    </config>

```

```

        <state>
          <enabled>true</enabled>
        </state>
      </enable-bfd>
    </route-reflector>
    <config>
      <route-reflector-client>true</route-reflector-client>
    </config>
    <state>
      <route-reflector-client>true</route-reflector-client>
    </state>
  </route-reflector>
</peer-group>
</peer-groups>
</bgp>
</protocol>
</protocols>
</network-instance>
<network-instance>
  <name>vrfB</name>
  <protocols>
    <protocol>
      <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
      <name>100</name>
      <bgp>
        <global>
          <config>
            <as>100</as>
          </config>
          <afi-safis>
            <afi-safi>
              <afi-safi-name
                xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
              <config>
                <afi-safi-name
                  xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
                  <enabled>true</enabled>
                </config>
              </state>
              <afi-safi-name
                xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
              </state>
            </afi-safi>
          </afi-safis>
        </state>
        <as>100</as>
      </state>
    </global>
  </peer-groups>
  <peer-group>
    <peer-group-name>peerB</peer-group-name>
    <afi-safis>

```

```
<afi-safi>
  <afi-safi-name
    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
  <ipv6-unicast>
    <prefix-limit>
      <config>
        <max-prefixes>3123</max-prefixes>
        <prevent-teardown>true</prevent-teardown>
      </config>
      <state>
        <max-prefixes>3123</max-prefixes>
        <prevent-teardown>true</prevent-teardown>
      </state>
    </prefix-limit>
    <config>
      <send-default-route>true</send-default-route>
    </config>
    <state>
      <send-default-route>true</send-default-route>
    </state>
  </ipv6-unicast>
  <config>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
    <enabled>true</enabled>
  </config>
  <state>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
    <enabled>true</enabled>
  </state>
</afi-safi>
</afi-safis>
<config>
  <auth-password>0x9a20ef22549ad84b</auth-password>
  <peer-group-name>peerB</peer-group-name>
  <peer-as>200</peer-as>
  <local-as>300</local-as>
  <description>VRFB peer-group configs</description>
</config>
<state>
  <auth-password>0x9a20ef22549ad84b</auth-password>
  <peer-group-name>peerB</peer-group-name>
  <peer-as>200</peer-as>
  <local-as>300</local-as>
  <description>VRFB peer-group configs</description>
</state>
<enable-bfd>
  <config>
    <enabled>true</enabled>
  </config>
  <state>
    <enabled>true</enabled>
  </state>
```

```
</enable-bfd>
<ebgp-multihop>
  <config>
    <multihop-ttl>100</multihop-ttl>
    <enabled>true</enabled>
  </config>
  <state>
    <enabled>true</enabled>
    <multihop-ttl>100</multihop-ttl>
  </state>
</ebgp-multihop>
</peer-group>
</peer-groups>
</bgp>
</protocol>
</protocols>
</network-instance>
</network-instances>
```

Restrictions

- The first time `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/peer-groups` and `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbors` paths are configured, those configuration needs the respective **AFI-SAFI** configuration that is present to indicate **AFI** type:

```
/oc-netinst:network-instances/network-
instance/protocols/protocol/bgp/neighbors/neighbor/afi-safis
/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/peer-
groups/peer-group/afi-safis
```

this information is necessary for the OcNOS model to generate the following paths:

```
/ipi-bgp:bgp/bgp-instance/address-family
/ipi-bgp:bgp/bgp-instance/peer-group/address-families
/ipi-bgp:bgp/bgp-instance/address-family-vrf
```

- After the `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/peer-groups` and `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbors` paths are configured on equipment, on the further configurations on those paths the user does not need to indicate the AFI-SAFI, the translation will look for this information on the equipment database.

Configure update-source on neighbor

Release

This configuration was introduced in OcNOS version 5.0.

Configuration



Use this XML config to allow internal BGP sessions to use any operating interface for TCP connections.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <protocols>
      <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
        <identifier>oc-pol-types:BGP</identifier>
        <name>100</name>
        <config>
          <identifier>oc-pol-types:BGP</identifier>
          <name>100</name>
          <enabled>true</enabled>
        </config>
        <bgp>
          <global>
            <config>
              <as>100</as>
            </config>
          </global>
          <neighbors>
            <neighbor>
              <afi-safis>
                <afi-safi>
                  <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
                    <config>
                      <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
                        <enabled>true</enabled>
                    </config>
                  </afi-safi>
                </afi-safis>
              <neighbor-address>1.1.1.1</neighbor-address>
              <config>
                <neighbor-address>1.1.1.1</neighbor-address>
                <peer-as>100</peer-as>
              </config>
              <transport>
                <config>
                  <local-address>2.2.2.2</local-address>
                </config>
              </transport>
            </neighbor>
          </neighbors>
        </bgp>
      </protocol>
    </protocols>
  </network-instance>
</network-instances>
```

OcNOS CLI Command

```
router bgp 100
 neighbor 1.1.1.1 remote-as 100
 neighbor 1.1.1.1 update-source 2.2.2.2
!
```

OcNOS NETCONF Payload

```
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>100</bgp-as>
    <config>
      <bgp-as>100</bgp-as>
    </config>
    <peer>
      <peer-address>1.1.1.1</peer-address>
      <config>
        <peer-address>1.1.1.1</peer-address>
        <source-identifier>2.2.2.2</source-identifier>
        <peer-as>100</peer-as>
      </config>
    </peer>
  </bgp-instance>
</bgp>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <state>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
    </state>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier
```



```

        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <enabled>>true</enabled>
    </config>
    <state>
        <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <enabled>>true</enabled>
        </state>
    </protocol>
    <protocol>
        <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
        <name>100</name>
        <config>
            <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
            <name>100</name>
            <enabled>>true</enabled>
            </config>
            <bgp>
                <global>
                    <config>
                        <as>100</as>
                    </config>
                    <state>
                        <as>100</as>
                    </state>
                </global>
                <neighbors>
                    <neighbor>
                        <neighbor-address>1.1.1.1</neighbor-address>
                        <afi-safis>
                            <afi-safi>
                                <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
                                    <config>
                                        <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
                                            <enabled>true</enabled>
                                        </config>
                                    </afi-safi>
                                </afi-safis>
                            </config>
                        <neighbor-address>1.1.1.1</neighbor-address>
                        <peer-as>100</peer-as>
                    </config>
                </transport>
                <config>
                    <local-address>2.2.2.2</local-address>

```

```
        </config>
        <state>
          <local-address>2.2.2.2</local-address>
        </state>
      </transport>
      <state>
        <neighbor-address>1.1.1.1</neighbor-address>
        <peer-as>100</peer-as>
      </state>
    </neighbor>
  </neighbors>
</bgp>
<state>
  <enabled>>true</enabled>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
    <name>100</name>
  </state>
</protocol>
</protocols>
</network-instance>
</network-instances>
```

Restrictions

None

Double link in load balance

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

This scenario is the configuration in which there are two links to guarantee service availability and all traffic should be routed throughout both links at the same time if any of them has failure all traffic should be routed by the available link.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>TEST_A9</name>
    <config>
      <name>TEST_A9</name>
      <type>L3VRF</type>
      <route-distinguisher>65000:100</route-distinguisher>
    </enabled-address-families
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</enabled-address-families>
```

```

    <enabled-address-families
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</enabled-address-families>
  </config>
</protocols>
  <protocol>
    <identifier>BGP</identifier>
    <name>65000</name>
    <config>
      <identifier>BGP</identifier>
      <name>65000</name>
      <enabled>true</enabled>
    </config>
    <bgp>
      <peer-groups>
        <peer-group>
          <afi-safis>
            <afi-safi>
              <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPv4_UNICAST</afi-
safi-name>
                <config>
                  <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPv4_UNICAST</afi-
safi-name>
                    <enabled>true</enabled>
                </config>
              </afi-safi>
            </afi-safis>
            <peer-group-name>PPAL_BGP_L3</peer-group-name>
            <config>
              <peer-group-name>PPAL_BGP_L3</peer-group-
name>
                <peer-as>18746</peer-as>
            </config>
          </peer-group>
        </peer-group>
        <afi-safis>
          <afi-safi>
            <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPv4_UNICAST</afi-
safi-name>
              <config>
                <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPv4_UNICAST</afi-
safi-name>
                  <enabled>true</enabled>
              </config>
            </afi-safi>
          </afi-safis>
          <peer-group-name>BCK_BGP_L3</peer-group-name>
          <config>
            <peer-group-name>BCK_BGP_L3</peer-group-name>
            <peer-as>18010</peer-as>
          </config>
        </peer-group>
      </peer-groups>
    </bgp>
  </protocol>

```

```
<global>
  <config>
    <as>65000</as>
  </config>
  <use-multiple-paths>
    <config>
      <enabled>>true</enabled>
    </config>
  </use-multiple-paths>
  <ebgp>
    <config>
      <maximum-paths>2</maximum-paths>
    </config>
  </ebgp>
</global>
<neighbors>
  <neighbor>
    <afi-safis>
      <afi-safi>
        <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
          <config>
            <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
              <enabled>true</enabled>
            </config>
          </afi-safi>
        </afi-safis>
        <neighbor-address>172.17.30.2</neighbor-address>
        <config>
          <peer-group>PPAL_BGP_L3</peer-group>
          <neighbor-address>172.17.30.2</neighbor-
address>
            <peer-as>18747</peer-as>
            <local-as>65001</local-as>
            <description>PPAL_SESSION</description>
          </config>
        </neighbor>
      </neighbor>
      <afi-safis>
        <afi-safi>
          <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
            <config>
              <afi-safi-name xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">oc-bgp-types:IPV4_UNICAST</afi-
safi-name>
                <enabled>true</enabled>
              </config>
            </afi-safi>
          </afi-safis>
          <neighbor-address>172.17.40.2</neighbor-address>
          <config>
            <peer-group>BCK_BGP_L3</peer-group>
```

```
address>
<neighbor-address>172.17.40.2</neighbor-
address>
<peer-as>18010</peer-as>
<local-as>65002</local-as>
<description>BCK_SESSION</description>
</config>
</neighbor>
</neighbors>
</bgp>
</protocol>
</protocols>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
!
ip vrf TEST_A9
  rd 65000:100
!
router bgp 65000
!
address-family ipv4 vrf TEST_A9
max-paths ebgp 2
neighbor BCK_BGP_L3 peer-group
neighbor BCK_BGP_L3 remote-as 18010
neighbor BCK_BGP_L3 activate
neighbor PPAL_BGP_L3 peer-group
neighbor PPAL_BGP_L3 remote-as 18746
neighbor PPAL_BGP_L3 activate
neighbor 172.17.30.2 remote-as 18747
neighbor 172.17.30.2 peer-group PPAL_BGP_L3
neighbor 172.17.40.2 remote-as 18010
neighbor 172.17.40.2 peer-group BCK_BGP_L3
neighbor 172.17.30.2 description PPAL_SESSION
neighbor 172.17.40.2 description BCK_SESSION
exit-address-family
!
address-family ipv6 vrf TEST_A9
max-paths ebgp 2
exit-address-family
!
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>TEST_A9</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>TEST_A9</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
```

```
<config>
  <vrf-name>TEST_A9</vrf-name>
</config>
<bgp-vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp-vrf">
  <config>
    <rd-string>65000:100</rd-string>
  </config>
</bgp-vrf>
</vrf>
</network-instance>
</network-instances>
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>65000</bgp-as>
    <config>
      <bgp-as>65000</bgp-as>
    </config>
    <address-family-vrf>
      <afi>ipv4</afi>
      <safi>unicast</safi>
      <vrf-name>TEST_A9</vrf-name>
      <vrf-peer>
        <peer-address>172.17.30.2</peer-address>
        <config>
          <peer-address>172.17.30.2</peer-address>
          <peer-as>18747</peer-as>
          <peer-description>PPAL_SESSION</peer-description>
          <mapped-peer-group-tag-af>PPAL_BGP_L3</mapped-peer-group-tag-af>
        </config>
      </vrf-peer>
      <vrf-peer>
        <peer-address>172.17.40.2</peer-address>
        <config>
          <peer-address>172.17.40.2</peer-address>
          <peer-as>18010</peer-as>
          <peer-description>BCK_SESSION</peer-description>
          <mapped-peer-group-tag-af>BCK_BGP_L3</mapped-peer-group-tag-af>
        </config>
      </vrf-peer>
    </config>
    <afi>ipv4</afi>
    <safi>unicast</safi>
    <vrf-name>TEST_A9</vrf-name>
  </config>
  <maximum-paths>
    <config>
      <ebgp-max-path>2</ebgp-max-path>
    </config>
  </maximum-paths>
  <peer-group>
    <peer-group-tag>BCK_BGP_L3</peer-group-tag>
    <config>
      <peer-group-tag>BCK_BGP_L3</peer-group-tag>
      <peer-group-range>static</peer-group-range>
      <peer-as>18010</peer-as>
      <activate/>
    </config>
  </peer-group>
</bgp-instance>
</bgp>
```

```
</peer-group>
<peer-group>
  <peer-group-tag>PPAL_BGP_L3</peer-group-tag>
  <config>
    <peer-group-tag>PPAL_BGP_L3</peer-group-tag>
    <peer-group-range>static</peer-group-range>
    <peer-as>18746</peer-as>
    <activate/>
  </config>
</peer-group>
</address-family-vrf>
<address-family-vrf>
  <afi>ipv6</afi>
  <safi>unicast</safi>
  <vrf-name>TEST_A9</vrf-name>
  <config>
    <afi>ipv6</afi>
    <safi>unicast</safi>
    <vrf-name>TEST_A9</vrf-name>
  </config>
  <maximum-paths>
    <config>
      <ebgp-max-path>2</ebgp-max-path>
    </config>
  </maximum-paths>
</address-family-vrf>
</bgp-instance>
</bgp>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>TEST_A9</name>
    <config>
      <name>TEST_A9</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</enabled-address-families>
      <enabled-address-families
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</enabled-address-families>
      <route-distinguisher>65000:100</route-distinguisher>
    </config>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
      </protocol>
    </protocols>
  </network-instance>
</network-instances>
```

```
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <enabled>>true</enabled>
    </config>
  </protocol>
</protocol>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGPP</identifier>
    <name>65000</name>
    <bgp>
      <global>
        <config>
          <as>65000</as>
        </config>
        <use-multiple-paths>
          <config>
            <enabled>>true</enabled>
          </config>
          <ebgp>
            <config>
              <maximum-paths>2</maximum-paths>
            </config>
          </ebgp>
        </use-multiple-paths>
      </global>
      <neighbors>
        <neighbor>
          <neighbor-address>172.17.30.2</neighbor-address>
          <afi-safis>
            <afi-safi>
              <afi-safi-name
                xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                <config>
                  <afi-safi-name
                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                    <enabled>>false</enabled>
                  </config>
                </afi-safi>
              </afi-safis>
            </config>
            <enabled>>false</enabled>
            <neighbor-address>172.17.30.2</neighbor-address>
            <peer-as>18747</peer-as>
            <description>PPAL_SESSION</description>
            <peer-group>PPAL_BGP_L3</peer-group>
          </config>
        </neighbor>
        <neighbor>
          <neighbor-address>172.17.40.2</neighbor-address>
          <afi-safis>
            <afi-safi>
              <afi-safi-name
```



```

        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        <config>
        <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        <enabled>>false</enabled>
        </config>
        </afi-safi>
</afi-safis>
<config>
<enabled>>false</enabled>
<neighbor-address>172.17.40.2</neighbor-address>
<peer-as>18010</peer-as>
<description>BCK_SESSION</description>
<peer-group>BCK_BGP_L3</peer-group>
</config>
</neighbor>
</neighbors>
<peer-groups>
<peer-group>
<peer-group-name>BCK_BGP_L3</peer-group-name>
<afi-safis>
<afi-safi>
<afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
<config>
<afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
<enabled>>true</enabled>
</config>
</afi-safi>
</afi-safis>
<config>
<peer-group-name>BCK_BGP_L3</peer-group-name>
<peer-as>18010</peer-as>
</config>
</peer-group>
<peer-group>
<peer-group-name>PPAL_BGP_L3</peer-group-name>
<afi-safis>
<afi-safi>
<afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
<config>
<afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
<enabled>>true</enabled>
</config>
</afi-safi>
</afi-safis>
<config>
<peer-group-name>PPAL_BGP_L3</peer-group-name>

```

```
        <peer-as>18746</peer-as>
      </config>
    </peer-group>
  </peer-groups>
</bgp>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
    <name>65000</name>
    <enabled>>true</enabled>
  </config>
</protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          </config>
        </table>
      </table>
      <table>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
          <config>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
              <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
              </config>
            </table>
          </table>
          <table>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
              <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
              <config>
                <protocol
```

```
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
      <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
      </config>
    </table>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
      <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
          <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
          </config>
        </table>
      </tables>
    </network-instance>
  </network-instances>
```

Restrictions

- On the first time `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/peer-groups` and `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbors` paths are configured, those configuration needs the respective **AFI-SAFI** configuration that be present to indicate **AFI** type:

```
/oc-netinst:network-instances/network-
instance/protocols/protocol/bgp/neighbors/neighbor/afi-safis
/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/peer-
groups/peer-group/afi-safis
```

this information is necessary on OcnOS model to generate the follow paths:

```
/ipi-bgp:bgp/bgp-instance/address-family
/ipi-bgp:bgp/bgp-instance/peer-group/address-families
/ipi-bgp:bgp/bgp-instance/address-family-vrf
```

- After the `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/peer-groups` and `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/neighbors` paths are configured on equipment, on the further configurations on those paths the user do not need to indicate the AFI-SAFE, the translation will look for this information on equipment database.

Delete BGP instance

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

BGP instances are configured on network-instance on OpenConfig and on container BGP on OcNos side. Due this difference the delete process need to handle if the operation is trying to delete one VRF instance or the entire BGP instance.

When using OpenConfig, the BGP object on OcNOS database is only deleted by the delete on "default" network-instance. When the delete is execute on VRF network-instance it only deletes the given VRF instance.

If there are VRF instances configured and a delete operation is executed on "default" network-instance, it going to clean only entries configured on "default" network-instance. To remove VRF instances, the user needs to apply a operation delete on VRF instances.

OpenConfig NETCONF Payload

Delete VRF instance:

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <protocols>
      <protocol operation="delete">
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
          <name>100</name>
        </protocol>
      </protocols>
    </network-instance>
  </network-instances>
```

Delete default instance:

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <protocols>
      <protocol operation="delete">
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
          <name>100</name>
        </protocol>
      </protocols>
    </network-instance>
  </network-instances>
```

OcNOS NETCONF Payload

Delete VRF instance:

```
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>100</bgp-as>
    <address-family-vrf operation="delete">
      <afi>ipv4</afi>
      <safi>unicast</safi>
      <vrf-name>VRF1</vrf-name>
    </address-family-vrf>
  </bgp-instance>
</bgp>
```

Delete default instance:

```
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance operation="delete">
    <bgp-as>100</bgp-as>
  </bgp-instance>
</bgp>
```

Restrictions

None.

BGP RIB Counters IPv4

Release

This configuration was introduced in OcNOS version 6.2.

Configuration

The BGP RIB (Routing information base) is a set of counters to retrieve information about routes from neighbors. In this chapter will be discussed about BGP RIB IPv4.

The containers related to RIB are status only on both Open Config and OcNOS datamodels, and there are no configuration related to this.

On OcNOS the containers are available only after the BGP negotiate routers, before it this tables are empty and could not be retrieved.

The table below show which information each table displays.

OcNOS CLI	OcNOS XPath	Open Config XPath
-----------	-------------	-------------------

show ip bgp neighbors <IP-address> routes	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv4-unicast/loc-rib/routes/route
show ip bgp neighbors <IP-address> received-routes	For default VRF instances: /ipi-bgp:bgp/bgp-instance/address-family-vrf/vrf-peer/peer-adj-in-route/next-hop For non-default VRF instances: /ipi-bgp:bgp/bgp-instance/peer/address-family/peer-adj-in-route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv4-unicast/neighbors/neighbor/adj-rib-in-post/routes/route
show ip bgp neighbors <IP-address> advertised-routes	For default VRF instances: /ipi-bgp:bgp/bgp-instance/address-family-vrf/vrf-peer/peer-adj-out-route/next-hop For non-default VRF instances: /ipi-bgp:bgp/bgp-instance/peer/address-family/peer-adj-out-route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv4-unicast/neighbors/neighbor/adj-rib-out-post/routes/route
To get “last update” information: show ip bgp <IP-address>	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv4-unicast/loc-rib/routes/route
show ip bgp ipv4 unicast <IP-address>	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv4-unicast/loc-rib/routes/route
When have user-defined VRF: show ip bgp vrf <VRF name>	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv4-unicast/loc-rib/routes/route
When have user-defined VRF: show ip bgp vpnv4 vrf <VRF name>	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv4-unicast/loc-rib/routes/route
When have user-defined VRF:	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv4-unicast/loc-rib/routes/route

show ip bgp vpn4 vrf <VRF name> <IP- address>		
--	--	--

OpenConfig NETCONF Payload

N.A.

OcNOS CLI Command

The config below is just an example to illustrate to counters indicated.

To have a complete BGP RIB scenario it needs more than one equipment configured to work with BGP.

```
router bgp 200
 neighbor 10.10.10.11 remote-as 300
 !
 address-family ipv4 unicast
 redistribute connected
 redistribute static
 neighbor 10.10.10.11 activate
 neighbor 10.10.10.11 soft-reconfiguration inbound
 exit-address-family
 !
```

OcNOS NETCONF Payload

```
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>200</bgp-as>
    <config>
      <bgp-as>200</bgp-as>
    </config>
    <state>
      <bgp-as>200</bgp-as>
      <version>4</version>
      <table-version>1</table-version>
      <total-prefixes>2</total-prefixes>
      <router-run-time-ip-address>192.168.122.61</router-run-time-ip-address>
      <scan-remain-time>16</scan-remain-time>
    </state>
    <rib>
      <address-family>
        <safi>unicast</safi>
        <afi>ipv4</afi>
        <state>
          <safi>unicast</safi>
          <afi>ipv4</afi>
        </state>
      </address-family>
      <routes>
        <route>
          <route-distinguisher>0</route-distinguisher>
```

```
<network-address>10.10.10.0/24</network-address>
<next-hop>
  <next-hop-address>0.0.0.0</next-hop-address>
  <state>
    <next-hop-address>0.0.0.0</next-hop-address>
    <peer-network-weight>32768</peer-network-weight>
    <bgp-as-path-string>Local</bgp-as-path-string>
    <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
    <ibgp-metric-route>0</ibgp-metric-route>
    <route-local-preference>100</route-local-preference>
    <last-update-route>2022-12-04T17:50:28Z</last-update-route>
    <reflector-client-route>false</reflector-client-route>
    <route-dampening-active>false</route-dampening-active>
    <history-route>false</history-route>
    <nexthop-valid-route>true</nexthop-valid-route>
    <med-flag-type-route>false</med-flag-type-route>
    <valid-route>true</valid-route>
    <stale-route>false</stale-route>
    <route-type>sourced</route-type>
    <ecmp-multi-candidate-route>false</ecmp-multi-candidate-
route>
    <multi-installed-route>false</multi-installed-route>
    <atomic-aggregate-route>false</atomic-aggregate-route>
    <selected-route>true</selected-route>
    <bgp-tx-path-id>-1</bgp-tx-path-id>
    <bgp-rx-path-id>-1</bgp-rx-path-id>
  </state>
</next-hop>
<next-hop>
  <next-hop-address>10.10.10.11</next-hop-address>
  <state>
    <next-hop-address>10.10.10.11</next-hop-address>
    <peer-network-weight>32768</peer-network-weight>
    <bgp-as-path-string>Local</bgp-as-path-string>
    <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
    <ibgp-metric-route>0</ibgp-metric-route>
    <route-local-preference>100</route-local-preference>
    <last-update-route>2022-12-04T17:50:28Z</last-update-route>
    <reflector-client-route>false</reflector-client-route>
    <route-dampening-active>false</route-dampening-active>
    <history-route>false</history-route>
    <nexthop-valid-route>true</nexthop-valid-route>
    <med-flag-type-route>false</med-flag-type-route>
    <valid-route>true</valid-route>
    <stale-route>false</stale-route>
    <route-type>sourced</route-type>
    <ecmp-multi-candidate-route>false</ecmp-multi-candidate-
route>
    <multi-installed-route>false</multi-installed-route>
    <atomic-aggregate-route>false</atomic-aggregate-route>
    <selected-route>true</selected-route>
    <bgp-tx-path-id>-1</bgp-tx-path-id>
    <bgp-rx-path-id>-1</bgp-rx-path-id>
  </state>
</next-hop>
```



```
<state>
  <route-distinguisher>0</route-distinguisher>
  <network-address>10.10.10.0/24</network-address>
</state>
</route>
<route>
  <route-distinguisher>0</route-distinguisher>
  <network-address>192.168.122.0</network-address>
  <next-hop>
    <next-hop-address>0.0.0.0</next-hop-address>
    <state>
      <next-hop-address>0.0.0.0</next-hop-address>
      <peer-network-weight>32768</peer-network-weight>
      <bgp-as-path-string>Local</bgp-as-path-string>
      <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
      <ibgp-metric-route>0</ibgp-metric-route>
      <route-local-preference>100</route-local-preference>
      <last-update-route>2022-12-04T17:50:28Z</last-update-route>
      <reflector-client-route>false</reflector-client-route>
      <route-dampening-active>false</route-dampening-active>
      <history-route>false</history-route>
      <nexthop-valid-route>true</nexthop-valid-route>
      <med-flag-type-route>false</med-flag-type-route>
      <valid-route>true</valid-route>
      <stale-route>false</stale-route>
      <route-type>sourced</route-type>
      <ecmp-multi-candidate-route>false</ecmp-multi-candidate-
route>
      <multi-installed-route>false</multi-installed-route>
      <atomic-aggregate-route>false</atomic-aggregate-route>
      <selected-route>true</selected-route>
      <bgp-tx-path-id>-1</bgp-tx-path-id>
      <bgp-rx-path-id>-1</bgp-rx-path-id>
    </state>
  </next-hop>
  <next-hop>
    <next-hop-address>10.10.10.11</next-hop-address>
    <state>
      <next-hop-address>10.10.10.11</next-hop-address>
      <peer-network-weight>32768</peer-network-weight>
      <bgp-as-path-string>Local</bgp-as-path-string>
      <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
      <ibgp-metric-route>0</ibgp-metric-route>
      <route-local-preference>100</route-local-preference>
      <last-update-route>2022-12-04T17:50:28Z</last-update-route>
      <reflector-client-route>false</reflector-client-route>
      <route-dampening-active>false</route-dampening-active>
      <history-route>false</history-route>
      <nexthop-valid-route>true</nexthop-valid-route>
      <med-flag-type-route>false</med-flag-type-route>
      <valid-route>true</valid-route>
      <stale-route>false</stale-route>
      <route-type>sourced</route-type>
      <ecmp-multi-candidate-route>false</ecmp-multi-candidate-
route>
```

```
        <multi-installed-route>false</multi-installed-route>
        <atomic-aggregate-route>false</atomic-aggregate-route>
        <selected-route>true</selected-route>
        <bgp-tx-path-id>-1</bgp-tx-path-id>
        <bgp-rx-path-id>-1</bgp-rx-path-id>
    </state>
</next-hop>
<state>
    <route-distinguisher>0</route-distinguisher>
    <network-address>192.168.122.0</network-address>
</state>
</route>
</routes>
</address-family>
<address-family>
    <safi>link-state</safi>
    <afi>link-state</afi>
    <state>
        <safi>link-state</safi>
        <afi>link-state</afi>
    </state>
</address-family>
</rib>
<address-family>
    <afi>ipv4</afi>
    <safi>unicast</safi>
    <config>
        <afi>ipv4</afi>
        <safi>unicast</safi>
    </config>
    <state>
        <afi>ipv4</afi>
        <safi>unicast</safi>
    </state>
    <route-redirect-list>
        <protocol-type>connected</protocol-type>
        <config>
            <protocol-type>connected</protocol-type>
        </config>
        <state>
            <protocol-type>connected</protocol-type>
        </state>
    </route-redirect-list>
    <route-redirect-list>
        <protocol-type>static</protocol-type>
        <config>
            <protocol-type>static</protocol-type>
        </config>
        <state>
            <protocol-type>static</protocol-type>
        </state>
    </route-redirect-list>
</address-family>
<peer>
    <peer-address>10.10.10.11</peer-address>
    <address-family>
        <afi>ipv4</afi>
```

```
<safi>unicast</safi>
<peer-adj-out-route>
  <network-address>10.10.10.0/24</network-address>
  <next-hop>
    <next-hop-address>10.10.10.10</next-hop-address>
    <state>
      <next-hop-address>10.10.10.10</next-hop-address>
      <peer-network-weight>32768</peer-network-weight>
      <bgp-as-path-string>Local</bgp-as-path-string>
      <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
      <ibgp-metric-route>0</ibgp-metric-route>
      <route-local-preference>100</route-local-preference>
      <last-update-route>2022-12-04T17:50:28Z</last-update-route>
      <reflector-client-route>false</reflector-client-route>
      <route-dampening-active>false</route-dampening-active>
      <history-route>false</history-route>
      <med-flag-type-route>false</med-flag-type-route>
      <valid-route>true</valid-route>
      <stale-route>false</stale-route>
      <route-type>sourced</route-type>
      <ecmp-multi-candidate-route>false</ecmp-multi-candidate-route>
      <multi-installed-route>false</multi-installed-route>
      <atomic-aggregate-route>false</atomic-aggregate-route>
      <selected-route>true</selected-route>
      <bgp-tx-path-id>-1</bgp-tx-path-id>
      <bgp-rx-path-id>-1</bgp-rx-path-id>
    </state>
  </next-hop>
</peer-adj-out-route>
<state>
  <network-address>10.10.10.0/24</network-address>
</state>
</peer-adj-out-route>
<peer-adj-out-route>
  <network-address>192.168.122.0</network-address>
  <next-hop>
    <next-hop-address>10.10.10.10</next-hop-address>
    <state>
      <next-hop-address>10.10.10.10</next-hop-address>
      <peer-network-weight>32768</peer-network-weight>
      <bgp-as-path-string>Local</bgp-as-path-string>
      <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
      <ibgp-metric-route>0</ibgp-metric-route>
      <route-local-preference>100</route-local-preference>
      <last-update-route>2022-12-04T17:50:28Z</last-update-route>
      <reflector-client-route>false</reflector-client-route>
      <route-dampening-active>false</route-dampening-active>
      <history-route>false</history-route>
      <med-flag-type-route>false</med-flag-type-route>
      <valid-route>true</valid-route>
      <stale-route>false</stale-route>
      <route-type>sourced</route-type>
      <ecmp-multi-candidate-route>false</ecmp-multi-candidate-route>
      <multi-installed-route>false</multi-installed-route>
      <atomic-aggregate-route>false</atomic-aggregate-route>
      <selected-route>true</selected-route>
```

```

    <bgp-tx-path-id>-1</bgp-tx-path-id>
    <bgp-rx-path-id>-1</bgp-rx-path-id>
  </state>
</next-hop>
<state>
  <network-address>192.168.122.0</network-address>
</state>
</peer-adj-out-route>
<peer-adj-in-route>
  <network-address>10.10.10.0/24</network-address>
  <next-hop>
    <next-hop-address>10.10.10.11</next-hop-address>
    <state>
      <next-hop-address>10.10.10.11</next-hop-address>
      <peer-network-weight>0</peer-network-weight>
      <bgp-as-path-string>300</bgp-as-path-string>
      <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
      <ibgp-metric-route>0</ibgp-metric-route>
      <network-remote-address-route>192.168.122.60</network-remote-
address-route>
      <route-peer-address>10.10.10.11</route-peer-address>
      <route-local-preference>100</route-local-preference>
      <last-update-route>1970-01-01T00:00:00Z</last-update-route>
      <reflector-client-route>false</reflector-client-route>
      <route-dampening-active>false</route-dampening-active>
      <history-route>false</history-route>
      <nexthop-valid-route>false</nexthop-valid-route>
      <med-flag-type-route>false</med-flag-type-route>
      <valid-route>true</valid-route>
      <stale-route>false</stale-route>
      <route-type>external</route-type>
      <ecmp-multi-candidate-route>false</ecmp-multi-candidate-route>
      <multi-installed-route>false</multi-installed-route>
      <atomic-aggregate-route>false</atomic-aggregate-route>
      <selected-route>true</selected-route>
      <bgp-tx-path-id>0</bgp-tx-path-id>
      <bgp-rx-path-id>0</bgp-rx-path-id>
    </state>
  </next-hop>
</state>
</peer-adj-in-route>
<peer-adj-in-route>
  <network-address>192.168.122.0</network-address>
  <next-hop>
    <next-hop-address>10.10.10.11</next-hop-address>
    <state>
      <next-hop-address>10.10.10.11</next-hop-address>
      <peer-network-weight>0</peer-network-weight>
      <bgp-as-path-string>300</bgp-as-path-string>
      <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
      <ibgp-metric-route>0</ibgp-metric-route>
      <network-remote-address-route>192.168.122.60</network-remote-
address-route>
```

```
<route-peer-address>10.10.10.11</route-peer-address>
<route-local-preference>100</route-local-preference>
<last-update-route>1970-01-01T00:00:00Z</last-update-route>
<reflector-client-route>false</reflector-client-route>
<route-dampening-active>false</route-dampening-active>
<history-route>false</history-route>
<nexthop-valid-route>false</nexthop-valid-route>
<med-flag-type-route>false</med-flag-type-route>
<valid-route>true</valid-route>
<stale-route>false</stale-route>
<route-type>external</route-type>
<ecmp-multi-candidate-route>false</ecmp-multi-candidate-route>
<multi-installed-route>false</multi-installed-route>
<atomic-aggregate-route>false</atomic-aggregate-route>
<selected-route>true</selected-route>
<bgp-tx-path-id>0</bgp-tx-path-id>
<bgp-rx-path-id>0</bgp-rx-path-id>
</state>
</next-hop>
<state>
  <network-address>192.168.122.0</network-address>
</state>
</peer-adj-in-route>
<config>
  <afi>ipv4</afi>
  <safi>unicast</safi>
  <activate/>
  <soft-reconfig-inbound/>
</config>
<state>
  <afi>ipv4</afi>
  <safi>unicast</safi>
  <activate/>
  <soft-reconfig-inbound/>
  <community-count>0</community-count>
  <address-family-capability>advertise-receive</address-family-
capability>
  <ipv6-next-hop-global>:</ipv6-next-hop-global>
  <ipv6-next-hop-local>:</ipv6-next-hop-local>
  <remote-port>179</remote-port>
  <remote-address>10.10.10.11</remote-address>
  <local-host>10.10.10.10</local-host>
  <ipv4-next-hop>10.10.10.10</ipv4-next-hop>
  <local-port>40394</local-port>
  <peer-address-family-table-version>1</peer-address-family-table-
version>
  <address-family-table-version>1</address-family-table-version>
  <prefix-count>2</prefix-count>
  <send-prefix-count>2</send-prefix-count>
  <count>1</count>
  <connection-type>non_shared</connection-type>
  <connection-established-count>1</connection-established-count>
  <graceful-restart-time>0</graceful-restart-time>
  <bgp-established-up-time>00:02:24</bgp-established-up-time>
  <last-read-time>00:00:23</last-read-time>
  <bgp-peer-state>established</bgp-peer-state>
  <link-type>external</link-type>
```

```

<router-id>192.168.122.60</router-id>
<advertisement-interval>30</advertisement-interval>
<calculated-hold-time>90</calculated-hold-time>
<calculated-keepalive>30</calculated-keepalive>
<route-refresh-capability>advertised-and-received-old-and-
new</route-refresh-capability>
  <counters>
    <keepalive-in-messages>6</keepalive-in-messages>
    <keepalive-out-messages>6</keepalive-out-messages>
    <open-messages-in>1</open-messages-in>
    <open-messages-out>1</open-messages-out>
    <as-path-count>2</as-path-count>
    <update-message-in>1</update-message-in>
    <update-message-out>1</update-message-out>
    <received-packet-count>8</received-packet-count>
    <notification-in>0</notification-in>
    <notification-out>0</notification-out>
    <packet-in-queue>0</packet-in-queue>
    <packet-out-queue>0</packet-out-queue>
    <sent-packet-count>8</sent-packet-count>
    <refresh-received-packet-count>0</refresh-received-packet-count>
    <refresh-sent-packet-count>0</refresh-sent-packet-count>
  </counters>
</state>
<peer-index>
  <state>
    <peer-index>1</peer-index>
    <offset>0</offset>
    <mask>0x2</mask>
  </state>
</peer-index>
</address-family>
<config>
  <peer-address>10.10.10.11</peer-address>
  <peer-as>300</peer-as>
</config>
<state>
  <peer-address>10.10.10.11</peer-address>
  <peer-as>300</peer-as>
</state>
</peer>
</bgp-instance>
</bgp>

```

Validation with NETCONF get

```

<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
  </network-instance>
</network-instances>

```

```
<state>
  <name>default</name>
  <type
    xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
  <enabled>true</enabled>
</state>
</protocols>
<protocol>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
  <name>DIRECTLY_CONNECTED</name>
  <config>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
    <name>DIRECTLY_CONNECTED</name>
    <enabled>true</enabled>
  </config>
  <state>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
    <name>DIRECTLY_CONNECTED</name>
    <enabled>true</enabled>
  </state>
</protocol>
<protocol>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGPP</identifier>
  <name>200</name>
  <bgp>
    <global>
      <afi-safis>
        <afi-safi>
          <afi-safi-name
            xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
          <config>
            <afi-safi-name
              xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
            <enabled>true</enabled>
          </config>
          <state>
            <afi-safi-name
              xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
            <enabled>true</enabled>
          </state>
        </afi-safi>
      </afi-safis>
    </config>
    <as>200</as>
  </config>

```

```
<state>
  <as>200</as>
  <total-prefixes>2</total-prefixes>
</state>
</global>
<rib>
  <afi-safis>
    <afi-safi>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
      <ipv4-unicast>
        <loc-rib>
          <routes>
            <route>
              <prefix>10.10.10.0/24</prefix>
              <origin>0.0.0.0</origin>
              <path-id>0</path-id>
              <state>
                <prefix>10.10.10.0/24</prefix>
                <origin>0.0.0.0</origin>
                <path-id>0</path-id>
                <last-modified>1670176228</last-modified>
                <valid-route>true</valid-route>
              </state>
            </route>
            <route>
              <prefix>192.168.122.0</prefix>
              <origin>0.0.0.0</origin>
              <path-id>0</path-id>
              <state>
                <prefix>192.168.122.0</prefix>
                <origin>0.0.0.0</origin>
                <path-id>0</path-id>
                <last-modified>1670176228</last-modified>
                <valid-route>true</valid-route>
              </state>
            </route>
          </routes>
        </loc-rib>
        <neighbors>
          <neighbor>
            <neighbor-address>10.10.10.11</neighbor-address>
            <state>
              <neighbor-address>10.10.10.11</neighbor-address>
            </state>
            <adj-rib-out-post>
              <routes>
                <route>
                  <prefix>10.10.10.0/24</prefix>
                  <path-id>0</path-id>
                  <state>
                    <prefix>10.10.10.0/24</prefix>
                    <path-id>0</path-id>
                    <last-modified>1670176228</last-modified>
                    <valid-route>true</valid-route>
                  </state>
                </route>
              </routes>
            </adj-rib-out-post>
          </neighbor>
        </neighbors>
      </afi-safi>
    </afi-safis>
  </rib>
</global>
</state>
```



```

    </route>
  <route>
    <prefix>192.168.122.0</prefix>
    <path-id>0</path-id>
    <state>
      <prefix>192.168.122.0</prefix>
      <path-id>0</path-id>
      <last-modified>1670176228</last-modified>
      <valid-route>true</valid-route>
    </state>
  </route>
</routes>
</adj-rib-out-post>
<adj-rib-in-post>
  <routes>
    <route>
      <prefix>10.10.10.0/24</prefix>
      <path-id>0</path-id>
      <state>
        <prefix>10.10.10.0/24</prefix>
        <path-id>0</path-id>
        <last-modified>0</last-modified>
        <valid-route>true</valid-route>
      </state>
    </route>
    <route>
      <prefix>192.168.122.0</prefix>
      <path-id>0</path-id>
      <state>
        <prefix>192.168.122.0</prefix>
        <path-id>0</path-id>
        <last-modified>0</last-modified>
        <valid-route>true</valid-route>
      </state>
    </route>
  </routes>
</adj-rib-in-post>
</neighbor>
</neighbors>
</ipv4-unicast>
<state>
  <afi-safi-name
    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
  </state>
</afi-safi>
</afi-safis>
</rib>
<neighbors>
  <neighbor>
    <neighbor-address>10.10.10.11</neighbor-address>
    <afi-safis>
      <afi-safi>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
        </afi-safi>
      </afi-safis>
    </neighbor>
  </neighbors>
</config>

```

```

    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
    <enabled>true</enabled>
  </config>
  <state>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV4_UNICAST</afi-safi-name>
    <enabled>true</enabled>
  </state>
</afi-safi>
</afi-safis>
<config>
  <enabled>true</enabled>
  <neighbor-address>10.10.10.11</neighbor-address>
  <peer-as>300</peer-as>
</config>
<state>
  <enabled>true</enabled>
  <neighbor-address>10.10.10.11</neighbor-address>
  <peer-as>300</peer-as>
</state>
</neighbor>
</neighbors>
</bgp>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
  <name>200</name>
  <enabled>true</enabled>
</config>
<state>
  <enabled>true</enabled>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
  <name>200</name>
</state>
</protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
    <config>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
```

```
</config>
<state>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
    </state>
  </table>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
          </config>
        <state>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
            </state>
          </table>
        </table>
        <table>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGPP</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
            <config>
              <protocol
                xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGPP</protocol>
                <address-family
                  xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
                </config>
              </state>
            <state>
              <protocol
                xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGPP</protocol>
                <address-family
                  xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
                </state>
              </table>
            </table>
          </table>
        </table>
      </table>
    </table>
  </table>
</state>
</config>
```

```
</table>
</tables>
<table-connections>
  <table-connection>
    <src-protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</src-protocol>
    <dst-protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</dst-protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
    <config>
      <dst-protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</dst-protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
      <dst-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-
ni-augments">200</dst-instance>
      <default-import-policy>ACCEPT_ROUTE</default-import-policy>
      <src-protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</src-protocol>
    </config>
  </table-connection>
  <table-connection>
    <src-protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</src-protocol>
    <dst-protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</dst-protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
    <config>
      <dst-protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</dst-protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
      <dst-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-
ni-augments">200</dst-instance>
      <default-import-policy>ACCEPT_ROUTE</default-import-policy>
      <src-protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</src-protocol>
    </config>
  </table-connection>
</table-connections>
</network-instance>
</network-instances>
```

Restrictions

- The containers related to RIB are status only on both Open Config and OcNOS datamodels, and there are no configuration related to this.
- On OcNOS the containers are available only after the BGP negotiate routers, before it this tables are empty and could not be retrieved.
- The paths `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safi/afi-safi/ipv4-unicast/loc-rib/routes/route` and `/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safi/afi-safi/ipv6-unicast/loc-rib/routes/route` have some keys with fixed values, the table below show the values. Note the “X” indicate that is valid for IPv4 and IPv6 containers.

Open Config xpath	OcNOS xpath
<code>/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipvX-unicast/loc-rib/routes/route/origin</code>	Use fixed value: <ul style="list-style-type: none"> • IPV4: “0.0.0.0” • IPV6: “0::0”
<code>/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipvX-unicast/loc-rib/routes/route/path-id</code>	Fixed value “0”
<code>/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipvX-unicast/loc-rib/routes/route/prefix</code>	<code>/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/network-address</code>

BGP RIB Counters IPv6

Release

This configuration was introduced in OcNOS version 6.2.

Configuration

The BGP RIB (Routing information base) is a set of counters to retrieve information about routes from neighbors. In this chapter will be discussed about BGP RIB IPv6.

The containers related to RIB are status only on both Open Config and OcNOS datamodels, and there are no configuration related to this.

On OcNOS the containers are available only after the BGP negotiate routers, before it this tables are empty and could not be retrieved.

The table below show which information each table displays.

OcNOS CLI	OcNOS XPath	Open Config XPath
show bgp ipv6 neighbors <IP-address IPv6> routes	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv6-unicast/loc-rib/routes/route
show bgp ipv6 neighbors <IP-address IPv6> received-routes	<p>For default VRF instances: /ipi-bgp:bgp/bgp-instance/address-family-vrf/vrf-peer/peer-adj-in-route/next-hop</p> <p>For non-default VRF instances: /ipi-bgp:bgp/bgp-instance/peer/address-family/peer-adj-in-route/next-hop</p>	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv6-unicast/neighbors/neighbor/adj-rib-in-post/routes/route
show bgp ipv6 neighbors <IP-address IPv6> advertised-routes	<p>For default VRF instances: /ipi-bgp:bgp/bgp-instance/address-family-vrf/vrf-peer/peer-adj-out-route/next-hop</p> <p>For non-default VRF instances: /ipi-bgp:bgp/bgp-instance/peer/address-family/peer-adj-out-route/next-hop</p>	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv6-unicast/neighbors/neighbor/adj-rib-out-post/routes/route
To get “last update” information: show bgp ipv6 <IP-address IPv6>	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv6-unicast/loc-rib/routes/route
show bgp ipv6 unicast <IP-address IPv6>	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv6-unicast/loc-rib/routes/route
When have user-defined VRF, to get “last update” information: show ip bgp vpv6 vrf <VRF name>	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv6-unicast/loc-rib/routes/route
When have user-defined VRF, to get “last update” information:	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/next-hop	/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipv6-unicast/loc-rib/routes/route

show ip bgp vpn6 vrf <VRF name> <IP- address IPv6>		
show bgp ipv6 summary	/ipi-bgp:bgp/bgp- instance/rib/address- family/routes/route/next-hop	/oc-netinst:network-instances/network- instance/protocols/protocol/bgp/rib/afi-safis/afi- safi/ipv6-unicast/loc-rib/routes/route

OpenConfig NETCONF Payload

N.A.

OcNOS CLI Command

The config below is just an example to illustrate to counters indicated.

To have a complete BGP RIB scenario it needs more than one equipment configured to work with BGP.

```
interface eth1
  ipv6 address f0ca::11/48
!
router bgp 200
  neighbor f0ca::10 remote-as 300
!
  address-family ipv6 unicast
  redistribute connected
  redistribute static
  neighbor f0ca::10 activate
  neighbor f0ca::10 soft-reconfiguration inbound
  exit-address-family
!
```

OcNOS NETCONF Payload

```
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>200</bgp-as>
    <config>
      <bgp-as>200</bgp-as>
    </config>
    <state>
      <bgp-as>200</bgp-as>
      <version>4</version>
      <table-version>1</table-version>
      <total-prefixes>0</total-prefixes>
      <router-run-time-ip-address>192.168.122.60</router-run-time-ip-address>
      <scan-remain-time>38</scan-remain-time>
    </state>
  </bgp-instance>
  <rib>
    <address-family>
      <safi>unicast</safi>
      <afi>ipv6</afi>
    </address-family>
  </rib>
</bgp>
```

```

<state>
  <safi>unicast</safi>
  <afi>ipv6</afi>
</state>
<routes>
  <route>
    <route-distinguisher>0</route-distinguisher>
    <network-address>b0b0::/64</network-address>
    <next-hop>
      <next-hop-address>:</next-hop-address>
      <state>
        <next-hop-address>:</next-hop-address>
        <peer-network-weight>32768</peer-network-weight>
        <bgp-as-path-string>Local</bgp-as-path-string>
        <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
          <ibgp-metric-route>0</ibgp-metric-route>
          <route-local-preference>100</route-local-preference>
          <last-update-route>2022-11-20T22:42:24Z</last-update-route>
          <reflector-client-route>false</reflector-client-route>
          <route-dampening-active>false</route-dampening-active>
          <history-route>false</history-route>
          <nexthop-valid-route>true</nexthop-valid-route>
          <med-flag-type-route>false</med-flag-type-route>
          <valid-route>true</valid-route>
          <stale-route>false</stale-route>
          <route-type>sourced</route-type>
          <ecmp-multi-candidate-route>false</ecmp-multi-candidate-
route>
            <multi-installed-route>false</multi-installed-route>
            <atomic-aggregate-route>false</atomic-aggregate-route>
            <selected-route>true</selected-route>
            <bgp-tx-path-id>-1</bgp-tx-path-id>
            <bgp-rx-path-id>-1</bgp-rx-path-id>
          </state>
        </next-hop>
      </next-hop>
      <next-hop-address>f0ca::10 (fe80::5054:ff:fe78:1f3)</next-hop-
address>
        <state>
          <next-hop-address>f0ca::10 (fe80::5054:ff:fe78:1f3)</next-hop-
address>
            <peer-network-weight>32768</peer-network-weight>
            <bgp-as-path-string>Local</bgp-as-path-string>
            <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
              <ibgp-metric-route>0</ibgp-metric-route>
              <route-local-preference>100</route-local-preference>
              <last-update-route>2022-11-20T22:42:24Z</last-update-route>
              <reflector-client-route>false</reflector-client-route>
              <route-dampening-active>false</route-dampening-active>
              <history-route>false</history-route>
              <nexthop-valid-route>true</nexthop-valid-route>
              <med-flag-type-route>false</med-flag-type-route>
              <valid-route>true</valid-route>
              <stale-route>false</stale-route>
              <route-type>sourced</route-type>

```



```

route>
    <ecmp-multi-candidate-route>>false</ecmp-multi-candidate-
address>
    <multi-installed-route>>false</multi-installed-route>
    <atomic-aggregate-route>>false</atomic-aggregate-route>
    <selected-route>>true</selected-route>
    <bgp-tx-path-id>-1</bgp-tx-path-id>
    <bgp-rx-path-id>-1</bgp-rx-path-id>
    </state>
</next-hop>
<state>
    <route-distinguisher>0</route-distinguisher>
    <network-address>b0b0::/64</network-address>
</state>
</route>
<route>
    <route-distinguisher>0</route-distinguisher>
    <network-address>f0ca::/24</network-address>
    <next-hop>
    <next-hop-address>f0ca::10 (fe80::5054:ff:fe78:1f3)</next-hop-
address>
    <state>
    <next-hop-address>f0ca::10 (fe80::5054:ff:fe78:1f3)</next-hop-
address>
    <peer-network-weight>0</peer-network-weight>
    <bgp-med-value>0</bgp-med-value>
    <bgp-as-path-string>300</bgp-as-path-string>
    <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
    <ibgp-metric-route>0</ibgp-metric-route>
    <network-remote-address-route>192.168.122.52</network-remote-
address-route>
    <originator-id-route>192.168.122.52</originator-id-route>
    <route-peer-address>f0ca::10</route-peer-address>
    <route-local-preference>100</route-local-preference>
    <last-update-route>2022-11-20T22:43:26Z</last-update-route>
    <reflector-client-route>>false</reflector-client-route>
    <route-dampening-active>>false</route-dampening-active>
    <history-route>>false</history-route>
    <nexthop-valid-route>>true</nexthop-valid-route>
    <med-flag-type-route>>false</med-flag-type-route>
    <valid-route>>true</valid-route>
    <stale-route>>false</stale-route>
    <route-type>external</route-type>
    <ecmp-multi-candidate-route>>false</ecmp-multi-candidate-
route>
    <multi-installed-route>>false</multi-installed-route>
    <atomic-aggregate-route>>false</atomic-aggregate-route>
    <selected-route>>true</selected-route>
    <bgp-tx-path-id>-1</bgp-tx-path-id>
    <bgp-rx-path-id>-1</bgp-rx-path-id>
    </state>
</next-hop>
<state>
    <route-distinguisher>0</route-distinguisher>
    <network-address>f0ca::/24</network-address>
</state>
</route>

```

```

<route>
  <route-distinguisher>0</route-distinguisher>
  <network-address>f0ca::/48</network-address>
  <next-hop>
    <next-hop-address>:::</next-hop-address>
    <state>
      <next-hop-address>:::</next-hop-address>
      <peer-network-weight>32768</peer-network-weight>
      <bgp-as-path-string>Local</bgp-as-path-string>
      <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
      <ibgp-metric-route>0</ibgp-metric-route>
      <route-local-preference>100</route-local-preference>
      <last-update-route>2022-11-20T22:42:24Z</last-update-route>
      <reflector-client-route>false</reflector-client-route>
      <route-dampening-active>false</route-dampening-active>
      <history-route>false</history-route>
      <nexthop-valid-route>true</nexthop-valid-route>
      <med-flag-type-route>false</med-flag-type-route>
      <valid-route>true</valid-route>
      <stale-route>false</stale-route>
      <route-type>sourced</route-type>
      <ecmp-multi-candidate-route>false</ecmp-multi-candidate-
route>
      <multi-installed-route>false</multi-installed-route>
      <atomic-aggregate-route>false</atomic-aggregate-route>
      <selected-route>true</selected-route>
      <bgp-tx-path-id>-1</bgp-tx-path-id>
      <bgp-rx-path-id>-1</bgp-rx-path-id>
    </state>
  </next-hop>
  <state>
    <route-distinguisher>0</route-distinguisher>
    <network-address>f0ca::/48</network-address>
  </state>
</route>
</routes>
</address-family>
<address-family>
  <safi>link-state</safi>
  <afi>link-state</afi>
  <state>
    <safi>link-state</safi>
    <afi>link-state</afi>
  </state>
</address-family>
</rib>
<address-family>
  <afi>ipv6</afi>
  <safi>unicast</safi>
  <config>
    <afi>ipv6</afi>
    <safi>unicast</safi>
  </config>
  <state>
    <afi>ipv6</afi>
    <safi>unicast</safi>

```

```

</state>
<route- redistribute-list>
  <protocol-type>connected</protocol-type>
  <config>
    <protocol-type>connected</protocol-type>
  </config>
  <state>
    <protocol-type>connected</protocol-type>
  </state>
</route- redistribute-list>
<route- redistribute-list>
  <protocol-type>static</protocol-type>
  <config>
    <protocol-type>static</protocol-type>
  </config>
  <state>
    <protocol-type>static</protocol-type>
  </state>
</route- redistribute-list>
</address-family>
<peer>
  <peer-address>f0ca::10</peer-address>
  <address-family>
    <afi>ipv6</afi>
    <safi>unicast</safi>
    <peer-adj-out-route>
      <network-address>b0b0::/64</network-address>
      <next-hop>
        <next-hop-address>f0ca::11 (fe80::5054:ff:fed0:8295)</next-hop-
address>
        <state>
          <next-hop-address>f0ca::11 (fe80::5054:ff:fed0:8295)</next-hop-
address>
          <peer-network-weight>32768</peer-network-weight>
          <bgp-as-path-string>Local</bgp-as-path-string>
          <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
          <ibgp-metric-route>0</ibgp-metric-route>
          <route-local-preference>100</route-local-preference>
          <last-update-route>2022-11-20T22:42:24Z</last-update-route>
          <reflector-client-route>false</reflector-client-route>
          <route-dampening-active>false</route-dampening-active>
          <history-route>false</history-route>
          <med-flag-type-route>false</med-flag-type-route>
          <valid-route>true</valid-route>
          <stale-route>false</stale-route>
          <route-type>sourced</route-type>
          <ecmp-multi-candidate-route>false</ecmp-multi-candidate-route>
          <multi-installed-route>false</multi-installed-route>
          <atomic-aggregate-route>false</atomic-aggregate-route>
          <selected-route>true</selected-route>
          <bgp-tx-path-id>-1</bgp-tx-path-id>
          <bgp-rx-path-id>-1</bgp-rx-path-id>
        </state>
      </next-hop>
    <state>
      <network-address>b0b0::/64</network-address>

```

```
</state>
</peer-adj-out-route>
<peer-adj-out-route>
  <network-address>f0ca::/48</network-address>
  <next-hop>
address>    <next-hop-address>f0ca::11 (fe80::5054:ff:fed0:8295) </next-hop-
address>    <state>
      <next-hop-address>f0ca::11 (fe80::5054:ff:fed0:8295) </next-hop-
origin>    <peer-network-weight>32768</peer-network-weight>
      <bgp-as-path-string>Local</bgp-as-path-string>
      <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
      <ibgp-metric-route>0</ibgp-metric-route>
      <route-local-preference>100</route-local-preference>
      <last-update-route>2022-11-20T22:42:24Z</last-update-route>
      <reflector-client-route>false</reflector-client-route>
      <route-dampening-active>false</route-dampening-active>
      <history-route>false</history-route>
      <med-flag-type-route>false</med-flag-type-route>
      <valid-route>true</valid-route>
      <stale-route>false</stale-route>
      <route-type>sourced</route-type>
      <ecmp-multi-candidate-route>false</ecmp-multi-candidate-route>
      <multi-installed-route>false</multi-installed-route>
      <atomic-aggregate-route>false</atomic-aggregate-route>
      <selected-route>true</selected-route>
      <bgp-tx-path-id>-1</bgp-tx-path-id>
      <bgp-rx-path-id>-1</bgp-rx-path-id>
    </state>
  </next-hop>
  <state>
    <network-address>f0ca::/48</network-address>
  </state>
</peer-adj-out-route>
<peer-adj-in-route>
  <network-address>b0b0::/64</network-address>
  <next-hop>
address>    <next-hop-address>f0ca::10 (fe80::5054:ff:fe78:1f3) </next-hop-
address>    <state>
      <next-hop-address>f0ca::10 (fe80::5054:ff:fe78:1f3) </next-hop-
origin>    <peer-network-weight>0</peer-network-weight>
      <bgp-as-path-string>300</bgp-as-path-string>
      <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
address-route>    <ibgp-metric-route>0</ibgp-metric-route>
      <network-remote-address-route>192.168.122.52</network-remote-
      <route-peer-address>f0ca::10</route-peer-address>
      <route-local-preference>100</route-local-preference>
      <last-update-route>1970-01-01T00:00:00Z</last-update-route>
      <reflector-client-route>false</reflector-client-route>
      <route-dampening-active>false</route-dampening-active>
      <history-route>false</history-route>
```

```

    <nexthop-valid-route>false</nexthop-valid-route>
    <med-flag-type-route>false</med-flag-type-route>
    <valid-route>true</valid-route>
    <stale-route>false</stale-route>
    <route-type>external</route-type>
    <ecmp-multi-candidate-route>false</ecmp-multi-candidate-route>
    <multi-installed-route>false</multi-installed-route>
    <atomic-aggregate-route>false</atomic-aggregate-route>
    <selected-route>true</selected-route>
    <bgp-tx-path-id>0</bgp-tx-path-id>
    <bgp-rx-path-id>0</bgp-rx-path-id>
  </state>
</next-hop>
<state>
  <network-address>b0b0::/64</network-address>
</state>
</peer-adj-in-route>
<peer-adj-in-route>
  <network-address>f0ca::/24</network-address>
  <next-hop>
    <next-hop-address>f0ca::10 (fe80::5054:ff:fe78:1f3) </next-hop-
address>
    <state>
      <next-hop-address>f0ca::10 (fe80::5054:ff:fe78:1f3) </next-hop-
address>
      <peer-network-weight>0</peer-network-weight>
      <bgp-as-path-string>300</bgp-as-path-string>
      <bgp-as-path-4-byte-origin>incomplete</bgp-as-path-4-byte-
origin>
      <ibgp-metric-route>0</ibgp-metric-route>
      <network-remote-address-route>192.168.122.52</network-remote-
address-route>
      <route-peer-address>f0ca::10</route-peer-address>
      <route-local-preference>100</route-local-preference>
      <last-update-route>1970-01-01T00:00:00Z</last-update-route>
      <reflector-client-route>false</reflector-client-route>
      <route-dampening-active>false</route-dampening-active>
      <history-route>false</history-route>
      <nexthop-valid-route>false</nexthop-valid-route>
      <med-flag-type-route>false</med-flag-type-route>
      <valid-route>true</valid-route>
      <stale-route>false</stale-route>
      <route-type>external</route-type>
      <ecmp-multi-candidate-route>false</ecmp-multi-candidate-route>
      <multi-installed-route>false</multi-installed-route>
      <atomic-aggregate-route>false</atomic-aggregate-route>
      <selected-route>true</selected-route>
      <bgp-tx-path-id>0</bgp-tx-path-id>
      <bgp-rx-path-id>0</bgp-rx-path-id>
    </state>
  </next-hop>
</state>
  <network-address>f0ca::/24</network-address>
</state>
</peer-adj-in-route>
</config>
</afi>ipv6</afi>

```

```
<safi>unicast</safi>
<activate/>
<soft-reconfig-inbound/>
</config>
<state>
  <afi>ipv6</afi>
  <safi>unicast</safi>
  <activate/>
  <soft-reconfig-inbound/>
  <community-count>0</community-count>
  <ipv6-next-hop-global>f0ca::11</ipv6-next-hop-global>
  <ipv6-next-hop-local>fe80::5054:ff:fed0:8295</ipv6-next-hop-local>
  <remote-port>54786</remote-port>
  <remote-address>f0ca::10</remote-address>
  <local-host>f0ca::11</local-host>
  <ipv4-next-hop>192.168.122.60</ipv4-next-hop>
  <local-port>179</local-port>
  <peer-address-family-table-version>2</peer-address-family-table-
version>
  <address-family-table-version>2</address-family-table-version>
  <prefix-count>2</prefix-count>
  <send-prefix-count>2</send-prefix-count>
  <count>1</count>
  <connection-type>shared</connection-type>
  <connection-established-count>1</connection-established-count>
  <graceful-restart-time>0</graceful-restart-time>
  <bgp-established-up-time>00:00:33</bgp-established-up-time>
  <last-read-time>00:00:05</last-read-time>
  <bgp-peer-state>established</bgp-peer-state>
  <link-type>external</link-type>
  <router-id>192.168.122.52</router-id>
  <advertisement-interval>30</advertisement-interval>
  <calculated-hold-time>90</calculated-hold-time>
  <calculated-keepalive>30</calculated-keepalive>
  <route-refresh-capability>advertised-and-received-old-and-
new</route-refresh-capability>
  <capability-ipv6-unicast>advertised-and-received</capability-ipv6-
unicast>
  <counters>
    <keepalive-in-messages>2</keepalive-in-messages>
    <keepalive-out-messages>2</keepalive-out-messages>
    <open-messages-in>1</open-messages-in>
    <open-messages-out>2</open-messages-out>
    <as-path-count>2</as-path-count>
    <update-message-in>1</update-message-in>
    <update-message-out>1</update-message-out>
    <received-packet-count>4</received-packet-count>
    <notification-in>0</notification-in>
    <notification-out>0</notification-out>
    <packet-in-queue>0</packet-in-queue>
    <packet-out-queue>0</packet-out-queue>
    <sent-packet-count>5</sent-packet-count>
    <refresh-received-packet-count>0</refresh-received-packet-count>
    <refresh-sent-packet-count>0</refresh-sent-packet-count>
  </counters>
</state>
<peer-index>
```

```

    <state>
      <peer-index>1</peer-index>
      <offset>0</offset>
      <mask>0x2</mask>
    </state>
  </peer-index>
</address-family>
<config>
  <peer-address>f0ca::10</peer-address>
  <peer-as>300</peer-as>
</config>
<state>
  <peer-address>f0ca::10</peer-address>
  <peer-as>300</peer-as>
</state>
</peer>
</bgp-instance>
</bgp>

```

Validation with NETCONF get

```

<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <state>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </state>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
            <name>DIRECTLY_CONNECTED</name>
            <enabled>true</enabled>
          </config>
        <state>
          <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
            <name>DIRECTLY_CONNECTED</name>

```

```
<enabled>true</enabled>
</state>
</protocol>
<protocol>
  <identifier>
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
    <name>200</name>
    <bgp>
      <global>
        <afi-safis>
          <afi-safi>
            <afi-safi-name>
              xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
              <config>
                <afi-safi-name>
                  xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
                  <enabled>true</enabled>
                </config>
                <state>
                  <afi-safi-name>
                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
                    <enabled>true</enabled>
                  </state>
                </afi-safi>
              </afi-safis>
            <config>
              <as>200</as>
            </config>
            <state>
              <as>200</as>
              <total-prefixes>0</total-prefixes>
            </state>
          </global>
        <rib>
          <afi-safis>
            <afi-safi>
              <afi-safi-name>
                xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
                <ipv6-unicast>
                  <loc-rib>
                    <routes>
                      <route>
                        <prefix>b0b0::/64</prefix>
                        <origin>0::0</origin>
                        <path-id>0</path-id>
                        <state>
                          <prefix>b0b0::/64</prefix>
                          <origin>0.0.0.0</origin>
                          <path-id>0</path-id>
                          <last-modified>1668984144</last-modified>
                          <valid-route>true</valid-route>
                        </state>
                      </route>
                    </routes>
                  </loc-rib>
                </ipv6-unicast>
              </afi-safi>
            </afi-safis>
          </rib>
        </global>
      </bgp>
    </name>
  </protocol>
</state>
</state>
```



```
</route>
<route>
  <prefix>f0ca::/24</prefix>
  <origin>0::0</origin>
  <path-id>0</path-id>
  <state>
    <prefix>f0ca::/24</prefix>
    <origin>0.0.0.0</origin>
    <path-id>0</path-id>
    <last-modified>1668984206</last-modified>
    <valid-route>true</valid-route>
  </state>
</route>
<route>
  <prefix>f0ca::/48</prefix>
  <origin>0::0</origin>
  <path-id>0</path-id>
  <state>
    <prefix>f0ca::/48</prefix>
    <origin>0.0.0.0</origin>
    <path-id>0</path-id>
    <last-modified>1668984144</last-modified>
    <valid-route>true</valid-route>
  </state>
</route>
</routes>
</loc-rib>
<neighbors>
  <neighbor>
    <neighbor-address>f0ca::10</neighbor-address>
    <state>
      <neighbor-address>f0ca::10</neighbor-address>
    </state>
  </neighbor>
  <adj-rib-out-post>
    <routes>
      <route>
        <prefix>b0b0::/64</prefix>
        <path-id>0</path-id>
        <state>
          <prefix>b0b0::/64</prefix>
          <path-id>0</path-id>
          <last-modified>1668984144</last-modified>
          <valid-route>true</valid-route>
        </state>
      </route>
      <route>
        <prefix>f0ca::/48</prefix>
        <path-id>0</path-id>
        <state>
          <prefix>f0ca::/48</prefix>
          <path-id>0</path-id>
          <last-modified>1668984144</last-modified>
          <valid-route>true</valid-route>
        </state>
      </route>
    </routes>
  </adj-rib-out-post>
```

```

    <adj-rib-in-post>
      <routes>
        <route>
          <prefix>b0b0::/64</prefix>
          <path-id>0</path-id>
          <state>
            <prefix>b0b0::/64</prefix>
            <path-id>0</path-id>
            <last-modified>0</last-modified>
            <valid-route>true</valid-route>
          </state>
        </route>
        <route>
          <prefix>f0ca::/24</prefix>
          <path-id>0</path-id>
          <state>
            <prefix>f0ca::/24</prefix>
            <path-id>0</path-id>
            <last-modified>0</last-modified>
            <valid-route>true</valid-route>
          </state>
        </route>
      </routes>
    </adj-rib-in-post>
  </neighbor>
</neighbors>
</ipv6-unicast>
<state>
  <afi-safi-name
    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
  </state>
</afi-safi>
</afi-safis>
</rib>
<neighbors>
  <neighbor>
    <neighbor-address>f0ca::10</neighbor-address>
    <afi-safis>
      <afi-safi>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
        <config>
          <afi-safi-name
            xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
            <enabled>true</enabled>
          </config>
        <state>
          <afi-safi-name
            xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:IPV6_UNICAST</afi-safi-name>
            <enabled>true</enabled>
          </state>
        </afi-safi>
      </afi-safis>
    </neighbor>
  </neighbors>
</state>
</afi-safis>

```

```
<config>
  <enabled>true</enabled>
  <neighbor-address>f0ca::10</neighbor-address>
  <peer-as>300</peer-as>
</config>
<state>
  <enabled>true</enabled>
  <neighbor-address>f0ca::10</neighbor-address>
  <peer-as>300</peer-as>
</state>
</neighbor>
</neighbors>
</bgp>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
    <name>200</name>
    <enabled>true</enabled>
  </config>
  <state>
    <enabled>true</enabled>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
      <name>200</name>
    </state>
  </protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          </config>
        <state>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
            </state>
          </table>
        <table>
          <protocol
```

```
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
          </config>
        <state>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
            </state>
          </table>
        </table>
      <table>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
          <config>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
              <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
              </config>
            <state>
              <protocol
                xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
                <address-family
                  xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
                </state>
              </table>
            </table>
          </interfaces>
          <interface>
            <id>eth0</id>
            <config>
              <id>eth0</id>
              <interface>eth0</interface>
            </config>
          </interface>
          <interface>
            <id>eth1</id>
```

```
<config>
  <id>eth1</id>
  <interface>eth1</interface>
</config>
</interface>
<interface>
  <id>eth2</id>
  <config>
    <id>eth2</id>
    <interface>eth2</interface>
  </config>
</interface>
<interface>
  <id>eth3</id>
  <config>
    <id>eth3</id>
    <interface>eth3</interface>
  </config>
</interface>
<interface>
  <id>eth4</id>
  <config>
    <id>eth4</id>
    <interface>eth4</interface>
  </config>
</interface>
<interface>
  <id>eth5</id>
  <config>
    <id>eth5</id>
    <interface>eth5</interface>
  </config>
</interface>
<interface>
  <id>eth6</id>
  <config>
    <id>eth6</id>
    <interface>eth6</interface>
  </config>
</interface>
<interface>
  <id>eth7</id>
  <config>
    <id>eth7</id>
    <interface>eth7</interface>
  </config>
</interface>
<interface>
  <id>eth8</id>
  <config>
    <id>eth8</id>
    <interface>eth8</interface>
  </config>
</interface>
<interface>
  <id>lo</id>
  <config>
```

```
<id>lo</id>
<interface>lo</interface>
</config>
</interface>
</interfaces>
<table-connections>
  <table-connection>
    <src-protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</src-protocol>
    <dst-protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</dst-protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
    <config>
      <dst-protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</dst-protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
      <dst-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-
ni-augments">200</dst-instance>
      <default-import-policy>ACCEPT_ROUTE</default-import-policy>
    <src-protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</src-protocol>
    </config>
  </table-connection>
  <table-connection>
    <src-protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</src-protocol>
    <dst-protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</dst-protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
    <config>
      <dst-protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</dst-protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
      <dst-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-
ni-augments">200</dst-instance>
      <default-import-policy>ACCEPT_ROUTE</default-import-policy>
    <src-protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</src-protocol>
    </config>
  </table-connection>
</table-connections>
```

```
</network-instance>
<network-instance>
  <name>management</name>
  <config>
    <name>management</name>
    <type
      xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
    <enabled>true</enabled>
    <enabled-address-families
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</enabled-address-families>
    <enabled-address-families
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</enabled-address-families>
    </config>
    <state>
      <name>management</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</enabled-address-families>
      <enabled-address-families
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</enabled-address-families>
      </state>
      <protocols>
        <protocol>
          <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <config>
            <identifier
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
            <name>DIRECTLY_CONNECTED</name>
            <enabled>true</enabled>
          </config>
          <state>
            <identifier
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
            <name>DIRECTLY_CONNECTED</name>
            <enabled>true</enabled>
          </state>
        </protocol>
      </protocols>
      <tables>
        <table>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
```

```
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
    <config>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
        </config>
      <state>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          </state>
        </table>
      <table>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
          <config>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
              <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
              </config>
            <state>
              <protocol
                xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
                <address-family
                  xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
                </state>
              </table>
            </tables>
          </network-instance>
        </network-instances>
```

Restrictions

- The containers related to RIB are status only on both Open Config and OcNOS datamodels, and there are no configuration related to this.
- On OcNOS the containers are available only after the BGP negotiate routers, before it this tables are empty and could not be retrived.
- The paths /oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safi/afi-safi/ipv4-unicast/loc-

rib/routes/route and /oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safi/afi-safi/ipv6-unicast/loc-rib/routes/route have some keys with fixed values, the table below show the values. Note the “X” indicate that is valid for IPv4 and IPv6 containers.

Open Config xpath	OcNOS xpath
/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipvX-unicast/loc-rib/routes/route/origin	Use fixed value: <ul style="list-style-type: none"> • IPV4: “0.0.0.0” • IPV6: “0::0”
/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipvX-unicast/loc-rib/routes/route/path-id	Fixed value “0”
/oc-netinst:network-instances/network-instance/protocols/protocol/bgp/rib/afi-safis/afi-safi/ipvX-unicast/loc-rib/routes/route/prefix	/ipi-bgp:bgp/bgp-instance/rib/address-family/routes/route/network-address

OSPFv2

OcNOS version 4.2

Create OSPF process

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

Use this xml config to configuring OSPF process

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe2</name>
    <config>
      <name>xe2</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>0</index>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

```

    <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
      <addresses>
        <address>
          <ip>10.10.10.1</ip>
          <config>
            <ip>10.10.10.1</ip>
            <prefix-length>24</prefix-length>
          </config>
        </address>
      </addresses>
    </ipv4>
  </config>
  <index>0</index>
</config>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <protocols>
      <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
        <identifier>oc-pol-types:OSPF</identifier>
        <name>100</name>
        <config>
          <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:OSPF</identifier>
            <name>100</name>
            <enabled>true</enabled>
          </config>
          <ospfv2>
            <global>
              <config>
                <router-id>2.2.2.2</router-id>
              </config>
            </global>
            <areas>
              <area>
                <identifier>0.0.0.0</identifier>
                <config>
                  <identifier>0.0.0.0</identifier>
                </config>
                <interfaces>
                  <interface>
                    <id>xe2</id>
                    <config>
                      <id>xe2</id>
                      <network-type xmlns:oc-ospf-
types="http://openconfig.net/yang/ospf-types">oc-ospf-
types:NON_BROADCAST_NETWORK</network-type>
                      <passive>true</passive>
                      <authentication-
type>simple</authentication-type>
                    </config>
                  </interface>
                </interfaces>
              </area>
            </areas>
          </ospfv2>
        </config>
      </protocol>
    </protocols>
  </network-instance>
</network-instances>

```

```
        <interface-ref>
            <config>
                <interface>xe2</interface>
            </config>
        </interface-ref>
    </interface>
</interfaces>
</area>
</areas>
</ospfv2>
</protocols>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
ospf area-interface-config-mode
router ospf 100
  ospf router-id 2.2.2.2
  area 0.0.0.0 interface xe2
  area 0.0.0.0 interface xe2 passive
  area 0.0.0.0 interface xe2 network-type non-broadcast
  area 0.0.0.0 interface xe2 authentication
!
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe2</name>
    <config>
      <name>xe2</name>
    </config>
    <ipv4 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-ip">
      <config>
        <primary-ip-addr>10.10.10.1/24</primary-ip-addr>
      </config>
    </ipv4>
  </interface>
</interfaces>
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>default</instance-name>
    <config>
      <instance-name>default</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>default</vrf-name>
      </config>
    </vrf>
    <bridge xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bridge">
      <config>
```

```

        <protocol>ieee-vlan-bridge</protocol>
    </config>
</bridge>
</network-instance>
</network-instances>
<ospfv2 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-ospf">
    <processes>
        <process>
            <ospf-id>100</ospf-id>
            <config>
                <router-id>2.2.2.2</router-id>
                <ospf-id>100</ospf-id>
                <vrf-name>default</vrf-name>
            </config>
            <areas>
                <area>
                    <area-id>0.0.0.0</area-id>
                    <config>
                        <area-id>0.0.0.0</area-id>
                    </config>
                    <interfaces>
                        <interface>
                            <name>xe2</name>
                            <config>
                                <name>xe2</name>
                                <network-type>non-broadcast</network-type>
                                <passive />
                                <authentication-type>simple</authentication-
type>
                                </config>
                            </interface>
                        </interfaces>
                    </area>
                </areas>
            </process>
        </processes>
    <global>
        <config>
            <area-interface-config-mode />
        </config>
    </global>
</ospfv2>

```

Validation with NETCONF get

```

<network-instances xmlns="http://openconfig.net/yang/network-instance">
    <network-instance>
        <name>default</name>
        <config>
            <name>default</name>
            <type
                xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
            <enabled>true</enabled>
        </config>
        <protocols>

```

```
<protocol>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</identifier>
  <name>100</name>
  <ospfv2>
    <global>
      <config>
        <router-id>2.2.2.2</router-id>
      </config>
    </global>
    <areas>
      <area>
        <identifier>0.0.0.0</identifier>
        <config>
          <identifier>0.0.0.0</identifier>
        </config>
        <state>
          <identifier>0.0.0.0</identifier>
        </state>
        <interfaces>
          <interface>
            <id>xe2</id>
            <config>
              <id>xe2</id>
              <network-type
                xmlns:oc-ospf-
types="http://openconfig.net/yang/ospf-types">oc-ospf-
types:NON_BROADCAST_NETWORK</network-type>
              <passive>true</passive>
              <authentication-type>simple</authentication-type>
            </config>
            <interface-ref>
              <config>
                <interface>xe2</interface>
              </config>
            </interface-ref>
            <state>
              <id>xe2</id>
              <network-type
                xmlns:oc-ospf-
types="http://openconfig.net/yang/ospf-types">oc-ospf-
types:NON_BROADCAST_NETWORK</network-type>
              <passive>true</passive>
              <authentication-type>simple</authentication-type>
            </state>
          </interface>
        </interfaces>
      </area>
    </areas>
  </ospfv2>
</config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</identifier>
  <name>100</name>
  <enabled>true</enabled>
```

```
</config>
</protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
        <config>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
              </config>
            </table>
          </tables>
        </network-instance>
      </network-instance>
      <name>management</name>
      <config>
        <name>management</name>
        <type
          xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
          <enabled>true</enabled>
          <enabled-address-families
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</enabled-address-families>
          <enabled-address-families
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</enabled-address-families>
          </config>
        </network-instance>
      </network-instances>
```

Restrictions

Area

/network-instances/network-instance/protocols/protocol/ospfv2/areas/area

must always be set with interface. At least one.

/network-instances/network-instance/protocols/protocol/ospfv2/areas/area/interfaces/interface

OcNOS version 6.3.0

Create OSPF process

This configuration was introduced in OcNOS version 6.3.

Configuration

Use this xml config to configuring OSPF process

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>eth1</name>
    <config>
      <name>eth1</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>0</index>
        <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
          <addresses>
            <address>
              <ip>10.10.10.1</ip>
              <config>
                <ip>10.10.10.1</ip>
                <prefix-length>24</prefix-length>
              </config>
            </address>
          </addresses>
        </ipv4>
      </subinterface>
    </subinterfaces>
  </interface>
  <interface>
    <name>eth2</name>
    <config>
      <name>eth2</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>0</index>
        <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
          <addresses>
            <address>
              <ip>20.20.20.1</ip>
              <config>
                <ip>20.20.20.1</ip>
                <prefix-length>24</prefix-length>
              </config>
            </address>
          </addresses>
        </ipv4>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

```

        </config>
      </address>
    </addresses>
  </ipv4>
  <config>
    <index>0</index>
  </config>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <protocols>
      <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
        <identifier>oc-pol-types:OSPF</identifier>
        <name>100</name>
        <config>
          <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:OSPF</identifier>
            <name>100</name>
            <enabled>true</enabled>
          </config>
          <ospfv2>
            <global>
              <config>
                <router-id>1.1.1.1</router-id>
                <log-adjacency-changes>true</log-adjacency-
changes>
                <summary-route-cost-
mode>RFC1583_COMPATIBLE</summary-route-cost-mode>
              </config>
            <mpls>
              <config>
                <traffic-engineering-
extensions>false</traffic-engineering-extensions>
              </config>
            </mpls>
            <graceful-restart>
              <config>
                <enabled>false</enabled>
              </config>
            </graceful-restart>
            <timers>
              <max-metric>
                <config>
                  <set>true</set>
                </config>
              </max-metric>
            </timers>
          </ospfv2>
        </protocol>
      </protocols>
    </network-instance>
  </network-instances>
</config>
</include>MAX_METRIC_INCLUDE_STUB</include>
  <config>
    <max-metric>
      <config>
        <initial-delay>100</initial-delay>
      </config>
    </max-metric>
  </config>
</include>

```



```

        <maximum-delay>100</maximum-delay>
    </config>
</lsa-generation>
<spf>
    <config>
        <initial-delay>400</initial-delay>
        <maximum-delay>4000</maximum-delay>
    </config>
</spf>
</timers>
</global>
<areas>
    <area>
        <identifier>0.0.0.0</identifier>
        <config>
            <identifier>0.0.0.0</identifier>
        </config>
        <interfaces>
            <interface>
                <id>eth1</id>
                <config>
                    <id>eth1</id>
                    <passive>true</passive>
                    <priority>255</priority>
                    <network-type xmlns:oc-ospf-
types="http://openconfig.net/yang/ospf-types">oc-ospf-
types:POINT_TO_POINT_NETWORK</network-type>
                    <authentication-type>message-
digest</authentication-type>
                    <metric>65535</metric>
                </config>
                <interface-ref>
                    <config>
                        <interface>eth1</interface>
                    </config>
                </interface-ref>
                <enable-bfd>
                    <config>
                        <enabled>true</enabled>
                    </config>
                </enable-bfd>
                <lsa-filter>
                    <config>
                        <all>true</all>
                    </config>
                </lsa-filter>
                <mpls>
                    <config>
                        <traffic-engineering-
metric>1</traffic-engineering-metric>
                    </config>
                <igp-ldp-sync>
                    <config>
                        <enabled>true</enabled>
                    <post-session-up-
delay>1000</post-session-up-delay>
                </config>
            </interface>
        </interfaces>
    </area>
</areas>
</global>
</ospf>
</config>

```

```

        </igmp-ldp-sync>
        </mpls>
        <timers>
            <config>
                <dead-interval>2</dead-interval>
                <hello-interval>1</hello-
interval>
                <retransmission-
interval>1</retransmission-interval>
            </config>
        </timers>
    </interface>
</interfaces>
</area>
<area>
    <identifier>1.1.1.1</identifier>
    <config>
        <identifier>1.1.1.1</identifier>
    </config>
    <interfaces>
        <interface>
            <id>eth2</id>
            <config>
                <id>eth2</id>
            </config>
            <interface-ref>
                <config>
                    <interface>eth2</interface>
                </config>
            </interface-ref>
        </interface>
    </interfaces>
    <virtual-links>
        <virtual-link>
            <remote-router-id>10.143.74.1</remote-
router-id>
            <config>
                <remote-router-
id>10.143.74.1</remote-router-id>
            </config>
        </virtual-link>
    </virtual-links>
</area>
</areas>
</ospfv2>
</protocol>
</protocols>
</network-instance>
</network-instances>

```

OcNOS CLI Command

```

ospf area-interface-config-mode
router ospf 100
ospf router-id 1.1.1.1
max-metric router-lsa include-stub

```



```
compatible rfc1583
log-adjacency-changes detail
no capability restart graceful
timers spf exp 400 4000
timers throttle lsa all 100 100 100
area 0.0.0.0 interface eth1
area 0.0.0.0 interface eth1 passive
area 0.0.0.0 interface eth1 cost 65535
area 0.0.0.0 interface eth1 network-type point-to-point
area 0.0.0.0 interface eth1 priority 255
area 0.0.0.0 interface eth1 authentication message-digest
area 0.0.0.0 interface eth1 bfd
area 0.0.0.0 interface eth1 database-filter all out
area 0.0.0.0 interface eth1 te-metric 1
area 0.0.0.0 interface eth1 mpls ldp-igp sync ospf holddown-timer 1
area 0.0.0.0 interface eth1 dead-interval 2
area 0.0.0.0 interface eth1 hello-interval 1
area 0.0.0.0 interface eth1 retransmit-interval 1
area 1.1.1.1 interface eth2
area 1.1.1.1 virtual-link 10.143.74.1
no capability traffic-engineering
no capability cspf
!
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>eth1</name>
    <config>
      <name>eth1</name>
    </config>
    <ipv4 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-ip">
      <config>
        <primary-ip-addr>10.10.10.1/24</primary-ip-addr>
      </config>
    </ipv4>
  </interface>
  <interface>
    <name>eth2</name>
    <config>
      <name>eth2</name>
    </config>
    <ipv4 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-ip">
      <config>
        <primary-ip-addr>20.20.20.1/24</primary-ip-addr>
      </config>
    </ipv4>
  </interface>
</interfaces>
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>default</instance-name>
    <config>
      <instance-name>default</instance-name>
    </config>
  </network-instance>
</network-instances>
```

```
<instance-type>vrf</instance-type>
</config>
<vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
  <config>
    <vrf-name>default</vrf-name>
  </config>
</vrf>
<bridge xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bridge">
  <config>
    <protocol>ieee-vlan-bridge</protocol>
  </config>
</bridge>
</network-instance>
</network-instances>
<ospfv2 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-ospf">
  <processes>
    <process>
      <ospf-id>100</ospf-id>
      <config>
        <router-id>1.1.1.1</router-id>
        <ospf-id>100</ospf-id>
        <vrf-name>default</vrf-name>
      </config>
      <capability>
        <config>
          <disable-traffic-engineering />
          <disable-graceful-restart />
        </config>
      </capability>
      <max-metric>
        <config>
          <enable-max-router-lsa />
          <include-stub />
        </config>
      </max-metric>
      <timers>
        <lsa>
          <delays>
            <delay>
              <start-delay>100</start-delay>
              <min-delay>100</min-delay>
              <max-delay>100</max-delay>
            <config>
              <start-delay>100</start-delay>
              <min-delay>100</min-delay>
              <max-delay>100</max-delay>
            </config>
          </delay>
        </delays>
      </lsa>
      <spf>
        <delay>
          <config>
            <min-delay>400</min-delay>
            <max-delay>4000</max-delay>
          </config>
        </delay>
      </spf>
    </process>
  </processes>
</ospfv2>
```

```
</spf>
</timers>
<areas>
  <area>
    <area-id>0.0.0.0</area-id>
    <config>
      <area-id>0.0.0.0</area-id>
    </config>
    <interfaces>
      <interface>
        <name>eth1</name>
        <config>
          <name>eth1</name>
          <passive/>
          <priority>255</priority>
          <network-type>point-to-point</network-type>
          <authentication-type>message-
digest</authentication-type>
          <cost>65535</cost>
        </config>
        <enable-bfd>
          <config>
            <enabled>enable</enabled>
          </config>
        </enable-bfd>
        <lsa-filter>
          <config>
            <filter-out/>
          </config>
        </lsa-filter>
        <mpls>
          <config>
            <traffic-engineering-metric>1</traffic-
engineering-metric>
          </config>
          <igp-ldp-sync>
            <config>
              <ldp-igp-sync-enable/>
              <holddown-timer>1</holddown-timer>
            </config>
          </igp-ldp-sync>
        </mpls>
        <timers>
          <config>
            <dead-interval>2</dead-interval>
            <hello-interval>1</hello-interval>
            <retransmission-
interval>1</retransmission-interval>
          </config>
        </timers>
      </interface>
    </interfaces>
  </area>
  <area>
    <area-id>1.1.1.1</area-id>
    <config>
      <area-id>1.1.1.1</area-id>
```

```

    </config>
    <interfaces>
      <interface>
        <name>eth2</name>
        <config>
          <name>eth2</name>
        </config>
      </interface>
    </interfaces>
    <virtual-links>
      <virtual-link>
        <remote-router-id>10.143.74.1</remote-router-id>
        <config>
          <remote-router-id>10.143.74.1</remote-router-
id>
          </config>
        </virtual-link>
      </virtual-links>
    </area>
  </areas>
</process>
</processes>
<global>
  <config>
    <area-interface-config-mode/>
  </config>
</global>
</ospfv2>

```

Validation with NETCONF get

```

<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <protocols>
      <protocol>
        <identifier
xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier
xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <enabled>true</enabled>
        </config>
      </protocol>
    </protocol>
  </network-instance>

```

```
<identifier
  xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</identifier>
  <name>100</name>
  <ospfv2>
    <global>
      <config>
        <router-id>1.1.1.1</router-id>
        <summary-route-cost-mode>RFC1583_COMPATIBLE</summary-route-
cost-mode>
        <log-adjacency-changes>true</log-adjacency-changes>
      </config>
      <mpls>
        <config>
          <traffic-engineering-extensions>>false</traffic-
engineering-extensions>
        </config>
      </mpls>
      <graceful-restart>
        <config>
          <enabled>>false</enabled>
        </config>
      </graceful-restart>
      <timers>
        <lsa-generation>
          <config>
            <initial-delay>100</initial-delay>
            <maximum-delay>100</maximum-delay>
          </config>
        </lsa-generation>
        <spf>
          <config>
            <initial-delay>400</initial-delay>
            <maximum-delay>4000</maximum-delay>
          </config>
        </spf>
        <max-metric>
          <config>
            <set>>true</set>
            <include
              xmlns:oc-ospf-types="http://openconfig.net/yang/ospf-
types">oc-ospf-types:MAX_METRIC_INCLUDE_STUB</include>
            </config>
          </max-metric>
        </timers>
      </global>
      <areas>
        <area>
          <identifier>0.0.0.0</identifier>
          <config>
            <identifier>0.0.0.0</identifier>
          </config>
          <interfaces>
            <interface>
              <id>eth1</id>
              <config>
                <id>eth1</id>
```

```

        <metric>65535</metric>
        <network-type
          xmlns:oc-ospf-
types="http://openconfig.net/yang/ospf-types">oc-ospf-
types:POINT_TO_POINT_NETWORK</network-type>
          <passive>true</passive>
          <priority>255</priority>
          <authentication-type>message-digest</authentication-
type>
        </config>
      </interface-ref>
      <config>
        <interface>eth1</interface>
      </config>
    </interface-ref>
    <enable-bfd>
      <config>
        <enabled>true</enabled>
      </config>
    </enable-bfd>
    <lsa-filter>
      <config>
        <all>true</all>
      </config>
    </lsa-filter>
    <mpls>
      <config>
        <traffic-engineering-metric>1</traffic-engineering-
metric>
      </config>
      <igp-ldp-sync>
        <config>
          <enabled>true</enabled>
          <post-session-up-delay>1000</post-session-up-
delay>
        </config>
      </igp-ldp-sync>
    </mpls>
    <timers>
      <config>
        <dead-interval>2</dead-interval>
        <hello-interval>1</hello-interval>
        <retransmission-interval>1</retransmission-
interval>
      </config>
    </timers>
  </interface>
</interfaces>
</area>
<area>
  <identifier>1.1.1.1</identifier>
  <config>
    <identifier>1.1.1.1</identifier>
  </config>
</interfaces>
  <interface>
    <id>eth2</id>

```



```

        <config>
          <id>eth2</id>
        </config>
      <interface-ref>
        <config>
          <interface>eth2</interface>
        </config>
      </interface-ref>
    </interface>
  </interfaces>
  <virtual-links>
    <virtual-link>
      <remote-router-id>10.143.74.1</remote-router-id>
      <config>
        <remote-router-id>10.143.74.1</remote-router-id>
      </config>
    </virtual-link>
  </virtual-links>
</area>
</areas>
</ospfv2>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</identifier>
    <name>100</name>
    <enabled>true</enabled>
  </config>
</protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
          </config>
        </table>
      </tables>
    </network-instance>
  <network-instance>
    <name>management</name>
    <config>
      <name>management</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>

```

```
<enabled-address-families
  xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</enabled-address-families>
  <enabled-address-families
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</enabled-address-families>
  </config>
</tables>
</network-instance>
</network-instances>
```

Restrictions

In OpenConfig, for path */network-instances/network-instance/protocols/protocol/ospfv2/areas/area/interfaces/interface/mpls/igp-ldp-sync/config/post-session-up-delay*, only steps of 1000 by 1000 should be configured, to prevent broken values from being configured and then being presented rounded in get operations.

LDP

Create LDP router

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <mpls>
      <signaling-protocols>
        <ldp>
          <targeted>
            <address-families>
              <address-family>
                <afi-name>IPV4</afi-name>
                <config>
                  <afi-name>IPV4</afi-name>
                </config>
                <targets>
                  <target>
                    <remote-address>1.1.1.1</remote-address>
                    <config>
                      <remote-address>1.1.1.1</remote-address>
                      <local-address>192.168.1.1</local-
address>
                    </config>
                  </target>
                </targets>
              </address-family>
            </address-families>
          </targeted>
        </ldp>
      </signaling-protocols>
    </mpls>
  </network-instance>
</network-instances>
```

```
        </config>
      </target>
    </targets>
  </address-family>
</address-families>
</targeted>
</ldp>
</signaling-protocols>
</mpls>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
router ldp
targeted-peer ipv4 1.1.1.1
  exit-targeted-peer-mode
transport-address ipv4 192.168.1.1
!
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>default</instance-name>
    <config>
      <instance-name>default</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>default</vrf-name>
      </config>
    </vrf>
    <bridge xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bridge">
      <config>
        <protocol>ieee-vlan-bridge</protocol>
      </config>
    </bridge>
  </network-instance>
</network-instances>
<ldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-ldp">
  <global>
    <config>
      <ldp-instance>ldp</ldp-instance>
    </config>
  </global>
  <targeted-peers>
    <targeted-peer>
      <target-address>1.1.1.1</target-address>
      <config>
        <target-address>1.1.1.1</target-address>
      </config>
    </targeted-peer>
```

```
</targeted-peers>
<transport-address>
  <label-space-identifier>0</label-space-identifier>
  <config>
    <transport-address-ipv4>192.168.1.1</transport-address-ipv4>
    <label-space-identifier>0</label-space-identifier>
  </config>
</transport-address>
</ldp>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <state>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </state>
    <mpls>
      <signaling-protocols>
        <ldp>
          <targeted>
            <address-families>
              <address-family>
                <afi-name>IPV4</afi-name>
                <config>
                  <afi-name>IPV4</afi-name>
                </config>
                <targets>
                  <target>
                    <remote-address>1.1.1.1</remote-address>
                    <config>
                      <remote-address>1.1.1.1</remote-address>
                      <enabled>true</enabled>
                      <local-address>192.168.1.1</local-address>
                    </config>
                    <state>
                      <remote-address>1.1.1.1</remote-address>
                      <enabled>true</enabled>
                      <local-address>192.168.1.1</local-address>
                    </state>
                  </target>
                </targets>
              </address-family>
            </address-families>
          </targeted>
        </ldp>
      </signaling-protocols>
    </mpls>
  </network-instance>
</network-instances>
```

```
    </targeted>
  </ldp>
</signaling-protocols>
</mpls>
</network-instance>
</network-instances>
```

Restrictions

/network-instances/network-instance/mpls/signaling-protocols/ldp/targeted/address-families/address-family/targets/target/config/local-address

This leaf was not supported

/network-instances/network-instance/mpls/signaling-protocols/ldp/targeted/address-families/address-family/targets/target/config/enabled

This leaf can not be configured

Enable label switching (LDP)

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <mpls>
      <signaling-protocols>
        <ldp>
          <global>
            <config>
              <lsr-id>192.168.1.1</lsr-id>
            </config>
          </global>
          <interface-attributes>
            <interfaces>
              <interface>
                <interface-id>xel</interface-id>
                <address-families>
                  <address-family>
                    <afi-name>IPV4</afi-name>
                    <config>
                      <afi-name>IPV4</afi-name>
                      <enabled>true</enabled>
                    </config>
                  </address-family>
```

```
        </address-families>
        <config>
          <interface-id>xel</interface-id>
        </config>
      </interface>
    </interfaces>
  </interface-attributes>
</ldp>
</signaling-protocols>
<global>
  <interface-attributes>
    <interface>
      <interface-id>xel</interface-id>
      <interface-ref>
        <config>
          <interface>xel</interface>
        </config>
      </interface-ref>
      <config>
        <interface-id>xel</interface-id>
        <mpls-enabled>>true</mpls-enabled>
      </config>
    </interface>
  </interface-attributes>
</global>
</mpls>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
router ldp
  router-id 192.168.1.1
!
interface xel
  label-switching
  enable-ldp ipv4
!
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>default</instance-name>
    <config>
      <instance-name>default</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>default</vrf-name>
      </config>
    </vrf>
    <bridge xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bridge">
```

```
        <config>
          <protocol>ieee-vlan-bridge</protocol>
        </config>
      </bridge>
    </network-instance>
  </network-instances>
<ldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-ldp">
  <global>
    <config>
      <router-identifier>192.168.1.1</router-identifier>
      <ldp-instance>ldp</ldp-instance>
    </config>
  </global>
  <interfaces>
    <interface>
      <name>xel</name>
      <config>
        <enable-ldp-ipv4>enable-ldp</enable-ldp-ipv4>
      </config>
    </interface>
  </interfaces>
</ldp>
<mpls xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-mpls">
  <interfaces>
    <interface>
      <name>xel</name>
      <label-switching>
        <config>
          <enable />
        </config>
      </label-switching>
    </interface>
  </interfaces>
</mpls>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
  </network-instance>
</network-instances>
<mpls>
  <signaling-protocols>
    <ldp>
      <global>
        <config>
          <lsr-id>192.168.1.1</lsr-id>
        </config>
      </global>
      <interface-attributes>
        <interfaces>
```

```
<interface>
  <interface-id>xel</interface-id>
  <address-families>
    <address-family>
      <afi-name>IPV4</afi-name>
      <config>
        <afi-name>IPV4</afi-name>
        <enabled>>true</enabled>
      </config>
    </address-family>
  </address-families>
  <config>
    <interface-id>xel</interface-id>
  </config>
</interface>
</interfaces>
</interface-attributes>
</ldp>
</signaling-protocols>
<global>
  <interface-attributes>
    <interface>
      <interface-id>xel</interface-id>
      <interface-ref>
        <config>
          <interface>xel</interface>
        </config>
      </interface-ref>
      <config>
        <interface-id>xel</interface-id>
        <mpls-enabled>>true</mpls-enabled>
      </config>
    </interface>
  </interface-attributes>
</global>
</mpls>
</network-instance>
</network-instances>
```

Restrictions

/network-instances/network-instance/config/enabled

This leaf can not be configured as OcNOS does not have the concept of enable/disable.

/network-instances/network-instance/encapsulation/config/label-allocation-mode

This leaf does not support the PER_NEXTHOP type.

Static Routes

Create a static route

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

Use this xml config to specify the destination prefix and mask for the network and a gateway statically create.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>TEST_A9</name>
    <config>
      <name>TEST_A9</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
      </config>
      <protocols>
        <protocol>
          <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <config>
            <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</identifier>
            <name>DIRECTLY_CONNECTED</name>
            <enabled>true</enabled>
          </config>
        </protocol>
        <protocol>
          <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:STATIC</identifier>
          <name>static-routes</name>
          <config>
            <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:STATIC</identifier>
            <name>static-routes</name>
          </config>
          <static-routes>
            <static>
              <prefix>192.168.0.0/24</prefix>
            </static>
          </static-routes>
        </protocol>
      </protocols>
    </config>
  </network-instance>
</network-instances>
```

```

    <next-hops>
      <next-hop>
        <index>172.17.30.2</index>
        <interface-ref>
          <config>
            <interface>xe2</interface>
          </config>
        </interface-ref>
        <config>
          <metric>10</metric>
          <index>172.17.30.2</index>
          <next-hop>172.17.30.2</next-hop>
        </config>
      </next-hop>
    </next-hops>
    <config>
      <prefix>192.168.0.0/24</prefix>
    </config>
  </static>
</static-routes>
</protocol>
</protocols>
<tables>
  <table>
    <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
      <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
        <config>
          <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
            <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
              </config>
            </table>
          <table>
            <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
              <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</address-
family>
                <config>
                  <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
                    <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</address-
family>
                      </config>
                    </table>
                  </table>
                </table>
              </table>
            </table>
          </table>
        </table>
      </table>
    </table>
  </table>

```



```
      <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:STATIC</protocol>
      <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
      <config>
      <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:STATIC</protocol>
      <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
      </config>
    </table>
  </tables>
  <interfaces>
    <interface>
      <id>xe2</id>
      <config>
        <interface>xe2</interface>
        <id>xe2</id>
      </config>
    </interface>
  </interfaces>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
interface xe2
 ip vrf forwarding TEST_A9
 !
 ip route vrf TEST_A9 192.168.0.0/24 172.17.30.2 xe2 10
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>TEST_A9</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>TEST_A9</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>TEST_A9</vrf-name>
      </config>
      <static-routes xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
rib-vrf">
        <ipv4>
          <route>
```

```

prefix>
    <destination-prefix>192.168.0.0/24</destination-
prefix>
    <gateway-address>172.17.30.2</gateway-address>
    <gateway-interface-route>
        <interface-name>xe2</interface-name>
        <config>
            <interface-name>xe2</interface-name>
            <distance>10</distance>
        </config>
    </gateway-interface-route>
    <config>
        <destination-prefix>192.168.0.0/24</destination-
prefix>
        <gateway-address>172.17.30.2</gateway-address>
    </config>
    </route>
    </ipv4>
    </static-routes>
    </vrf>
    </network-instance>
</network-instances>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
    <interface>
        <name>xe2</name>
        <config>
            <name>xe2</name>
            <vrf-name>TEST_A9</vrf-name>
        </config>
    </interface>
</interfaces>

```

Validation with NETCONF get

```

<network-instances xmlns="http://openconfig.net/yang/network-instance">
    <network-instance>
        <name>TEST_A9</name>
        <config>
            <name>TEST_A9</name>
            <type
                xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
            <enabled>true</enabled>
            <enabled-address-families
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</enabled-address-families>
            <enabled-address-families
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</enabled-address-families>
            </config>
            <state>
                <name>TEST_A9</name>
                <type
                    xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
                <enabled>true</enabled>
                <enabled-address-families

```



```
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</enabled-address-families>
      <enabled-address-families
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</enabled-address-families>
      </state>
      <protocols>
      <protocol>
      <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <config>
      <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <enabled>>true</enabled>
      </config>
      </protocol>
      <protocol>
      <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:STATIC</identifier>
      <name>static-routes</name>
      <config>
      <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:STATIC</identifier>
      <name>static-routes</name>
      </config>
      <static-routes>
      <static>
      <prefix>192.168.0.0/24</prefix>
      <next-hops>
      <next-hop>
      <index>172.17.30.2</index>
      <interface-ref>
      <config>
      <interface>xe2</interface>
      </config>
      <state>
      <interface>xe2</interface>
      </state>
      </interface-ref>
      <config>
      <metric>10</metric>
      <index>172.17.30.2</index>
      <next-hop>172.17.30.2</next-hop>
      </config>
      <state>
      <metric>10</metric>
      <index>172.17.30.2</index>
      <next-hop>172.17.30.2</next-hop>
      </state>
      </next-hop>
      </next-hops>
```

```
<config>
  <prefix>192.168.0.0/24</prefix>
</config>
<state>
  <prefix>192.168.0.0/24</prefix>
</state>
</static>
</static-routes>
</protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
    <config>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
      </config>
    </table>
    <table>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV6</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV6</address-family>
        </config>
      </table>
    <table>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:STATIC</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:STATIC</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
```

```
</config>
</table>
</tables>
<interfaces>
  <interface>
    <id>lo.TEST_A9</id>
    <config>
      <interface>lo.TEST_A9</interface>
      <id>lo.TEST_A9</id>
    </config>
  </interface>
  <interface>
    <id>xe2</id>
    <config>
      <interface>xe2</interface>
      <id>xe2</id>
    </config>
  </interface>
</interfaces>
</network-instance>
</network-instances>
```

Restrictions

/network-instances/network-instance/protocols/protocol/static-routes/static/next-hops/next-hop

It is necessary to have at least one entry in this list of next hops

/network-instances/network-instance/protocols/protocol/static-routes/static/next-hops/next-hop/index

Whenever config/next-hop leaf is configured, the index MUST have the same value as the next-hop. If not, the index must match the interface name built from interface-ref/config/interface and interface-ref/config/subinterface, e.g., "xe1", "xe2.100", etc.

Create a static route with load balancing

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this xml config to create two paths to a specified the destination prefix and mask for the network and a gateway working in load balancing scenario, with this two links it is possible to guarantee the service availability. All traffic should be routed throughout both links at the same time and if any of them has a failure all traffic should be routed by available link.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>TEST_A9</name>
    <config>
      <name>TEST_A9</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
    </config>
    <protocols>
      <protocol>
        <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <enabled>true</enabled>
        </config>
      </protocol>
      <protocol>
        <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:STATIC</identifier>
        <name>static-routes</name>
        <config>
          <identifier xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:STATIC</identifier>
          <name>static-routes</name>
          </config>
          <static-routes>
            <static>
              <prefix>192.168.0.0/24</prefix>
              <next-hops>
                <next-hop>
                  <index>172.17.30.2</index>
                  <interface-ref>
                    <config>
                      <interface>xe2</interface>
                    </config>
                  </interface-ref>
                  <config>
                    <metric>10</metric>
                    <index>172.17.30.2</index>
                    <next-hop>172.17.30.2</next-hop>
                  </config>
                </next-hop>
              </next-hops>
            </static>
          </static-routes>
        </config>
      </protocol>
    </protocols>
  </network-instance>
</network-instances>
```



```

        <next-hop>
          <index>172.17.31.2</index>
          <interface-ref>
            <config>
              <interface>xel</interface>
            </config>
          </interface-ref>
          <config>
            <metric>10</metric>
            <index>172.17.31.2</index>
            <next-hop>172.17.31.2</next-hop>
          </config>
        </next-hop>
      </next-hops>
    </config>
    <prefix>192.168.0.0/24</prefix>
  </config>
</static>
</static-routes>
</protocol>
</protocols>
</tables>
  <table>
    <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
      <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
        <config>
          <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
            <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
              </config>
            </table>
          <table>
            <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
              <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</address-
family>
                <config>
                  <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</protocol>
                    <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</address-
family>
                      </config>
                    </table>
                  </table>
                </table>
              </table>
            </table>
          </table>
        </table>
      </table>
    </table>
  </table>

```



```
        <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:STATIC</protocol>
        <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
                <config>
                        <protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:STATIC</protocol>
                        <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
                </config>
        </table>
</tables>
<interfaces>
        <interface>
                <id>xe1</id>
                <config>
                        <interface>xe1</interface>
                        <id>xe1</id>
                </config>
        </interface>
        <interface>
                <id>xe2</id>
                <config>
                        <interface>xe2</interface>
                        <id>xe2</id>
                </config>
        </interface>
</interfaces>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
interface xe1
 ip vrf forwarding TEST_A9
!
interface xe2
 ip vrf forwarding TEST_A9
!
ip route vrf TEST_A9 192.168.0.0/24 172.17.30.2 xe2 10
ip route vrf TEST_A9 192.168.0.0/24 172.17.31.2 xe1 10
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
        <network-instance>
                <instance-name>TEST_A9</instance-name>
                <instance-type>vrf</instance-type>
                <config>
                        <instance-name>TEST_A9</instance-name>
```

```

    <instance-type>vrf</instance-type>
  </config>
  <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
    <config>
      <vrf-name>TEST_A9</vrf-name>
    </config>
    <static-routes xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
rib-vrf">
      <ipv4>
        <route>
          <destination-prefix>192.168.0.0/24</destination-
prefix>
          <gateway-address>172.17.30.2</gateway-address>
          <gateway-interface-route>
            <interface-name>xe2</interface-name>
            <config>
              <interface-name>xe2</interface-name>
              <distance>10</distance>
            </config>
          </gateway-interface-route>
          <config>
            <destination-prefix>192.168.0.0/24</destination-
prefix>
            <gateway-address>172.17.30.2</gateway-address>
          </config>
        </route>
        <route>
          <destination-prefix>192.168.0.0/24</destination-
prefix>
          <gateway-address>172.17.31.2</gateway-address>
          <gateway-interface-route>
            <interface-name>xe1</interface-name>
            <config>
              <interface-name>xe1</interface-name>
              <distance>10</distance>
            </config>
          </gateway-interface-route>
          <config>
            <destination-prefix>192.168.0.0/24</destination-
prefix>
            <gateway-address>172.17.31.2</gateway-address>
          </config>
        </route>
      </ipv4>
    </static-routes>
  </vrf>
</network-instance>
</network-instances>

```

Validation with NETCONF get

```

<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>TEST_A9</name>
    <config>
      <name>TEST_A9</name>

```

```
<type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
  <enabled>true</enabled>
  <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
  <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
</config>
<state>
  <name>TEST_A9</name>
  <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
  <enabled>true</enabled>
  <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
  <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
</state>
<protocols>
  <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
    <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
    <name>DIRECTLY_CONNECTED</name>
    <config>
      <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <enabled>true</enabled>
    </config>
  </protocol>
  <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
    <identifier>oc-pol-types:STATIC</identifier>
    <name>static-routes</name>
    <config>
      <identifier>oc-pol-types:STATIC</identifier>
      <name>static-routes</name>
    </config>
    <static-routes>
      <static>
        <prefix>192.168.0.0/24</prefix>
        <next-hops>
          <next-hop>
            <index>172.17.30.2</index>
            <interface-ref>
              <config>
                <interface>xe2</interface>
              </config>
            <state>
              <interface>xe2</interface>
            </state>
            </interface-ref>
          <config>
            <metric>10</metric>
          </config>
        </next-hop>
      </static>
    </static-routes>
  </protocol>

```

```
        <index>172.17.30.2</index>
        <next-hop>172.17.30.2</next-hop>
    </config>
    <state>
        <metric>10</metric>
        <index>172.17.30.2</index>
        <next-hop>172.17.30.2</next-hop>
    </state>
</next-hop>
<next-hop>
    <index>172.17.31.2</index>
    <interface-ref>
        <config>
            <interface>xel</interface>
        </config>
        <state>
            <interface>xel</interface>
        </state>
    </interface-ref>
    <config>
        <metric>10</metric>
        <index>172.17.31.2</index>
        <next-hop>172.17.31.2</next-hop>
    </config>
    <state>
        <metric>10</metric>
        <index>172.17.31.2</index>
        <next-hop>172.17.31.2</next-hop>
    </state>
</next-hop>
</next-hops>
<config>
    <prefix>192.168.0.0/24</prefix>
</config>
<state>
    <prefix>192.168.0.0/24</prefix>
    <prefix>192.168.0.0/24</prefix>
</state>
</static>
</static-routes>
</protocol>
</protocols>
<tables xmlns:oc-types="http://openconfig.net/yang/openconfig-types">
    <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
        <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family>oc-types:IPV4</address-family>
        <config>
            <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family>oc-types:IPV4</address-family>
        </config>
    </table>
    <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
        <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family>oc-types:IPV6</address-family>
        <config>
            <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family>oc-types:IPV6</address-family>
```

```
</config>
</table>
<table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
  <protocol>oc-pol-types:STATIC</protocol>
  <address-family>oc-types:IPV4</address-family>
  <config>
    <protocol>oc-pol-types:STATIC</protocol>
    <address-family>oc-types:IPV4</address-family>
  </config>
</table>
</tables>
<interfaces>
  <interface>
    <id>lo.TEST_A9</id>
    <config>
      <interface>lo.TEST_A9</interface>
      <id>lo.TEST_A9</id>
    </config>
  </interface>
  <interface>
    <id>xe1</id>
    <config>
      <interface>xe1</interface>
      <id>xe1</id>
    </config>
  </interface>
  <interface>
    <id>xe2</id>
    <config>
      <interface>xe2</interface>
      <id>xe2</id>
    </config>
  </interface>
</interfaces>
</network-instance>
</network-instances>
```

Restrictions

/network-instances/network-instance/protocols/protocol/static-routes/static/next-hops/next-hop

It is necessary to have at least one entry in this list of next hops

/network-instances/network-instance/protocols/protocol/static-routes/static/next-hops/next-hop/index

Whenever config/next-hop leaf is configured, the index MUST have the same value as the next-hop. If not, the index must match the interface name built from interface-ref/config/interface and interface-ref/config/subinterface, e.g., "xe1", "xe2.100", etc.

Create a static route with active/standby

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this xml config to create two paths to a specified the destination prefix and mask for the network and a gateway working in active/standby scenario, with these two links, it is possible to guarantee the service availability. All traffic should be routed throughout the active link while the passive link should be configured to be ready to receive the traffic in case of any failure in the active link.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <!-- double link in a single PE of any L3 VPN -->
  <network-instance>
    <name>TEST_A8</name>
    <config>
      <name>TEST_A8</name>
      <type>L3VRF</type>
    </config>
    <interfaces>
      <interface>
        <id>xe2</id>
        <config>
          <id>xe2</id>
          <interface>xe2</interface>
        </config>
      </interface>
      <interface>
        <id>xe4</id>
        <config>
          <id>xe4</id>
          <interface>xe4</interface>
        </config>
      </interface>
    </interfaces>
    <protocols>
      <protocol>
        <identifier>STATIC</identifier>
        <name>static-route</name>
        <config>
          <identifier>STATIC</identifier>
          <name>static-route</name>
          <enabled>>true</enabled>
        </config>
        <static-routes>
          <static>
            <prefix>192.168.0.0/24</prefix>
            <config>
              <prefix>192.168.0.0/24</prefix>
            </config>
            <next-hops>
              <next-hop>
```

```
<index>172.17.30.2</index>
<config>
  <index>172.17.30.2</index>
  <next-hop>172.17.30.2</next-hop>
  <metric>10</metric>
</config>
<interface-ref>
  <config>
    <interface>xe2</interface>
  </config>
</interface-ref>
</next-hop>
<next-hop>
  <index>172.17.40.2</index>
  <config>
    <index>172.17.40.2</index>
    <next-hop>172.17.40.2</next-hop>
    <metric>30</metric>
  </config>
  <interface-ref>
    <config>
      <interface>xe4</interface>
    </config>
  </interface-ref>
</next-hop>
</next-hops>
</static>
</static-routes>
</protocol>
</protocols>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
interface xe2
  ip vrf forwarding TEST_A8
!
interface xe4
  ip vrf forwarding TEST_A8
!
ip route vrf TEST_A8 192.168.0.0/24 172.17.30.2 xe2 10
ip route vrf TEST_A8 192.168.0.0/24 172.17.40.2 xe4 30
!
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
network-instance">
  <network-instance>
    <instance-name>TEST_A8</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>TEST_A8</instance-name>
      <instance-type>vrf</instance-type>
```



```
</config>
<vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
  <config>
    <vrf-name>TEST_A8</vrf-name>
  </config>
  <static-routes xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
rib-vrf">
    <ipv4>
      <route>
        <destination-prefix>192.168.0.0/24</destination-prefix>
        <gateway-address>172.17.30.2</gateway-address>
        <gateway-interface-route>
          <interface-name>xe2</interface-name>
          <config>
            <distance>10</distance>
            <interface-name>xe2</interface-name>
          </config>
        </gateway-interface-route>
        <config>
          <gateway-address>172.17.30.2</gateway-address>
          <destination-prefix>192.168.0.0/24</destination-prefix>
        </config>
      </route>
      <route>
        <destination-prefix>192.168.0.0/24</destination-prefix>
        <gateway-address>172.17.40.2</gateway-address>
        <gateway-interface-route>
          <interface-name>xe4</interface-name>
          <config>
            <distance>30</distance>
            <interface-name>xe4</interface-name>
          </config>
        </gateway-interface-route>
        <config>
          <gateway-address>172.17.40.2</gateway-address>
          <destination-prefix>192.168.0.0/24</destination-prefix>
        </config>
      </route>
    </ipv4>
  </static-routes>
</vrf>
</network-instance>
</network-instances>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe2</name>
    <config>
      <vrf-name>TEST_A8</vrf-name>
      <name>xe2</name>
    </config>
  </interface>
  <interface>
    <name>xe4</name>
    <config>
      <vrf-name>TEST_A8</vrf-name>
      <name>xe4</name>
    </config>
  </interface>
</interfaces>
```



```
</interface>  
</interfaces>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">  
  <network-instance>  
    <name>TEST_A8</name>  
    <config>  
      <name>TEST_A8</name>  
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-  
types">oc-ni-types:L3VRF</type>  
      <enabled>true</enabled>  
      <enabled-address-families xmlns:oc-  
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-  
address-families>  
      <enabled-address-families xmlns:oc-  
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-  
address-families>  
    </config>  
    <state>  
      <name>TEST_A8</name>  
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-  
types">oc-ni-types:L3VRF</type>  
      <enabled>true</enabled>  
      <enabled-address-families xmlns:oc-  
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-  
address-families>  
      <enabled-address-families xmlns:oc-  
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-  
address-families>  
    </state>  
    <protocols>  
      <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-  
types">  
        <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>  
        <name>DIRECTLY_CONNECTED</name>  
        <config>  
          <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>  
          <name>DIRECTLY_CONNECTED</name>  
          <enabled>true</enabled>  
        </config>  
      </protocol>  
      <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-  
types">  
        <identifier>oc-pol-types:STATIC</identifier>  
        <name>static-routes</name>  
        <config>  
          <identifier>oc-pol-types:STATIC</identifier>  
          <name>static-routes</name>  
        </config>  
        <static-routes>  
          <static>  
            <prefix>192.168.0.0/24</prefix>  
            <next-hops>  
              <next-hop>
```

```
<index>172.17.30.2</index>
<interface-ref>
  <config>
    <interface>xe2</interface>
  </config>
  <state>
    <interface>xe2</interface>
  </state>
</interface-ref>
<config>
  <metric>10</metric>
  <index>172.17.30.2</index>
  <next-hop>172.17.30.2</next-hop>
</config>
<state>
  <metric>10</metric>
  <index>172.17.30.2</index>
  <next-hop>172.17.30.2</next-hop>
</state>
</next-hop>
<next-hop>
  <index>172.17.40.2</index>
  <interface-ref>
    <config>
      <interface>xe4</interface>
    </config>
    <state>
      <interface>xe4</interface>
    </state>
  </interface-ref>
  <config>
    <metric>30</metric>
    <index>172.17.40.2</index>
    <next-hop>172.17.40.2</next-hop>
  </config>
  <state>
    <metric>30</metric>
    <index>172.17.40.2</index>
    <next-hop>172.17.40.2</next-hop>
  </state>
</next-hop>
</next-hops>
<config>
  <prefix>192.168.0.0/24</prefix>
</config>
<state>
  <prefix>192.168.0.0/24</prefix>
  <prefix>192.168.0.0/24</prefix>
</state>
</static>
</static-routes>
</protocol>
</protocols>
<tables xmlns:oc-types="http://openconfig.net/yang/openconfig-types">
  <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family>oc-types:IPV4</address-family>
```

```
<config>
  <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
  <address-family>oc-types:IPV4</address-family>
</config>
</table>
<table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
  <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
  <address-family>oc-types:IPV6</address-family>
  <config>
    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family>oc-types:IPV6</address-family>
  </config>
</table>
<table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
  <protocol>oc-pol-types:STATIC</protocol>
  <address-family>oc-types:IPV4</address-family>
  <config>
    <protocol>oc-pol-types:STATIC</protocol>
    <address-family>oc-types:IPV4</address-family>
  </config>
</table>
</tables>
<interfaces>
  <interface>
    <id>lo.TEST_A8</id>
    <config>
      <interface>lo.TEST_A8</interface>
      <id>lo.TEST_A8</id>
    </config>
  </interface>
  <interface>
    <id>xe2</id>
    <config>
      <interface>xe2</interface>
      <id>xe2</id>
    </config>
  </interface>
  <interface>
    <id>xe4</id>
    <config>
      <interface>xe4</interface>
      <id>xe4</id>
    </config>
  </interface>
</interfaces>
</network-instance>
</network-instances>
```

Restrictions

/network-instances/network-instance/protocols/protocol/static-routes/static/next-hops/next-hop

It is necessary to have at least one entry in this list of next hops

Whenever config/next-hop leaf is configured, the index MUST have the same value as the next-hop. If not, the index must match the interface name built from interface-ref/config/interface and interface-ref/config/subinterface, e.g., "xe1", "xe2.100", etc.

Use cases

Inside this chapter there are scenarios that could be accomplished using openconfig configurations xml files, showing complex interactions between different objects.

L3VPN

Create VRF instance

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

In OpenConfig, VRF instances are represented by network-instances of type L3VRF, while the default VRF is a network-instance of type DEFAULT_INSTANCE. In OcNOS the default instance must have the name "default".

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance"
  <network-instance>
    <name>VRF1</name>
    <config>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
      <router-id>20.20.20.20</router-id>
      <description>"L3VPN Test Instance 1"</description>
      <route-distinguisher>100:1</route-distinguisher>
    </config>
  </network-instance>
</network-instances>
```

OcNOS CLI Command



```
ip vrf VRF1
  description "L3VPN Test Instance 1"
  router-id 20.20.20.20
  rd 100:1
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>VRF1</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>VRF1</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <router-id>20.20.20.20</router-id>
        <description>"L3VPN Test Instance 1"</description>
        <vrf-name>VRF1</vrf-name>
      </config>
      <bgp-vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp-vrf">
        <config>
          <rd-string>100:1</rd-string>
        </config>
      </bgp-vrf>
    </vrf>
  </network-instance>
</network-instances>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <config>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
      <description>"L3VPN Test Instance 1"</description>
      <router-id>20.20.20.20</router-id>
      <route-distinguisher>100:1</route-distinguisher>
    </config>
    <state>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
```



```
<enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
  <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
    <description>"L3VPN Test Instance 1"</description>
    <router-id>20.20.20.20</router-id>
    <route-distinguisher>100:1</route-distinguisher>
  </state>
  <protocols>
    <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
      <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <config>
        <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <enabled>>true</enabled>
      </config>
    </protocol>
  </protocols>
  <tables xmlns:oc-types="http://openconfig.net/yang/openconfig-types">
    <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
      <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family>oc-types:IPV4</address-family>
      <config>
        <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family>oc-types:IPV4</address-family>
      </config>
    </table>
    <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
      <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family>oc-types:IPV6</address-family>
      <config>
        <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family>oc-types:IPV6</address-family>
      </config>
    </table>
  </tables>
  <interfaces>
    <interface>
      <id>lo.VRF1</id>
      <config>
        <interface>lo.VRF1</interface>
        <id>lo.VRF1</id>
      </config>
    </interface>
  </interfaces>
</network-instance>
</network-instances>
```

Restrictions

/network-instances/network-instance/config/enabled



OcNOS does not support disabling the network-instance, so if this parameter is omitted, it will be set to TRUE by default.

/network-instances/network-instance/config/enabled-address-families

OcNOS does not support enabling/disabling address-families per network-instance, so if this parameter is omitted, it will be created by default depending on the instance type.

/network-instances/network-instance/config/type

In OcNOS, the instance type is a mandatory parameter, in OpenConfig, if omitted, it will be set to "L3VRF", unless the instance name is set to "default", in which case the type will be "DEFAULT_INSTANCE".

Configure MPLS label mode

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <config>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
    </config>
    <encapsulation>
      <config>
        <label-allocation-mode xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:PER_PREFIX</label-allocation-mode>
        <encapsulation-type xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:MPLS</encapsulation-type>
      </config>
    </encapsulation>
  </network-instance>
</network-instance>
  <name>default</name>
</protocols>
```



```
<protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
  <identifier>oc-pol-types:BGP</identifier>
  <config>
    <identifier>oc-pol-types:BGP</identifier>
  </config>
</protocol>
</protocols>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
ip vrf VRF1
!
mpls label mode vpnv4 vrf VRF1 per-prefix
!
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>VRF1</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>VRF1</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>VRF1</vrf-name>
      </config>
    </vrf>
  </network-instance>
</network-instances>
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <global>
    <mpls-l3vpn-label-mode>
      <address-family-name>vpnv4</address-family-name>
      <vrf-name>VRF1</vrf-name>
      <config>
        <address-family-name>vpnv4</address-family-name>
        <vrf-name>VRF1</vrf-name>
        <label-alloc-type>per-prefix</label-alloc-type>
      </config>
    </mpls-l3vpn-label-mode>
  </global>
</bgp>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
  </network-instance>
</network-instances>
```

```
<name>VRF1</name>
<type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
<enabled>true</enabled>
<enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
<enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
<description>"L3VPN Test Instance 1"</description>
<router-id>20.20.20.20</router-id>
<route-distinguisher>100:1</route-distinguisher>
</config>
<state>
<name>VRF1</name>
<type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
<enabled>true</enabled>
<enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
<enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
<description>"L3VPN Test Instance 1"</description>
<router-id>20.20.20.20</router-id>
<route-distinguisher>100:1</route-distinguisher>
</state>
<protocols>
<protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
<identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
<name>DIRECTLY_CONNECTED</name>
<config>
<identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
<name>DIRECTLY_CONNECTED</name>
<enabled>true</enabled>
</config>
</protocol>
</protocols>
<tables xmlns:oc-types="http://openconfig.net/yang/openconfig-types">
<table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
<protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
<address-family>oc-types:IPV4</address-family>
<config>
<protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
<address-family>oc-types:IPV4</address-family>
</config>
</table>
<table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
<protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
<address-family>oc-types:IPV6</address-family>
<config>
<protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
<address-family>oc-types:IPV6</address-family>
</config>
</table>
</tables>
```

```

    </table>
  </tables>
  <interfaces>
    <interface>
      <id>lo.VRF1</id>
      <config>
        <interface>lo.VRF1</interface>
        <id>lo.VRF1</id>
      </config>
    </interface>
  </interfaces>
  <encapsulation>
    <config>
      <label-allocation-mode xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:PER_PREFIX</label-allocation-mode>
      <encapsulation-type xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:MPLS</encapsulation-type>
    </config>
  </encapsulation>
</network-instance>
</network-instances>

```

Restrictions

/network-instances/network-instance/encapsulation/config/encapsulation-type

Currently, the only supported encapsulation-type is “MPLS”.

/network-instances/network-instance/encapsulation/config/label-allocation-mode

If encapsulation-type MPLS is configured, this leaf is mandatory. The “PER_NEXTHOP” value is not supported.

Create route-targets

Release

This configuration was introduced in OcNOS version 4.2.

OpenConfig does not support the configuration of route-targets per network-instance, so a proprietary augment was added.

```

module: openconfig-network-instance
  +--rw network-instances
    +--rw network-instance* [name]
      +--rw ipi-oc-ni-augments:route-targets
        +--rw ipi-oc-ni-augments:route-target* [rt-rd-string]
          +--rw ipi-oc-ni-augments:rt-rd-string -> ../config/rt-rd-
string
          +--rw ipi-oc-ni-augments:config
            | +--rw ipi-oc-ni-augments:rt-rd-string?   rt_rd_string_t

```



```
| +--rw ipi-oc-ni-augments:direction          rt_direction_t
+--ro ipi-oc-ni-augments:state
  +--ro ipi-oc-ni-augments:rt-rd-string?     rt_rd_string_t
  +--ro ipi-oc-ni-augments:direction?       rt_direction_t
```

For more information on this issue, please refer to <https://github.com/openconfig/public/issues/392>.

Configuration

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <config>
      <name>VRF1</name>
    </config>
    <route-targets xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-ni-
augments">
      <route-target>
        <rt-rd-string>100:1</rt-rd-string>
        <config>
          <rt-rd-string>100:1</rt-rd-string>
          <direction>EXPORT</direction>
        </config>
      </route-target>
      <route-target>
        <rt-rd-string>200:1</rt-rd-string>
        <config>
          <rt-rd-string>200:1</rt-rd-string>
          <direction>IMPORT</direction>
        </config>
      </route-target>
    </route-targets>
  </network-instance>
</network-instances>
```

OcNOS CLI Command

```
ip vrf VRF1
  route-target export 100:1
  route-target import 200:1
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>VRF1</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>VRF1</instance-name>
      <instance-type>vrf</instance-type>
    </config>
  </network-instance>
</network-instances>
```



```
<vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
  <bgp-vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp-vrf">
    <route-target>
      <rt-rd-string>100:1</rt-rd-string>
      <direction>export</direction>
      <config>
        <rt-rd-string>100:1</rt-rd-string>
        <direction>export</direction>
      </config>
    </route-target>
    <route-target>
      <rt-rd-string>200:1</rt-rd-string>
      <direction>import</direction>
      <config>
        <rt-rd-string>200:1</rt-rd-string>
        <direction>import</direction>
      </config>
    </route-target>
  </bgp-vrf>
</vrf>
</network-instance>
</network-instances>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <config>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
      <description>"L3VPN Test Instance 1"</description>
      <router-id>20.20.20</router-id>
      <route-distinguisher>100:1</route-distinguisher>
    </config>
    <state>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
      <description>"L3VPN Test Instance 1"</description>
      <router-id>20.20.20</router-id>
```

```
<route-distinguisher>100:1</route-distinguisher>
</state>
<protocols>
  <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
    <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
    <name>DIRECTLY_CONNECTED</name>
    <config>
      <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <enabled>>true</enabled>
    </config>
  </protocol>
</protocols>
<tables xmlns:oc-types="http://openconfig.net/yang/openconfig-types">
  <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family>oc-types:IPV4</address-family>
    <config>
      <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family>oc-types:IPV4</address-family>
    </config>
  </table>
  <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family>oc-types:IPV6</address-family>
    <config>
      <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family>oc-types:IPV6</address-family>
    </config>
  </table>
</tables>
<route-targets xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-ni-
augmentations">
  <route-target>
    <rt-rd-string>100:1</rt-rd-string>
    <config>
      <rt-rd-string>100:1</rt-rd-string>
      <direction>EXPORT</direction>
    </config>
    <state>
      <rt-rd-string>100:1</rt-rd-string>
      <direction>EXPORT</direction>
    </state>
  </route-target>
  <route-target>
    <rt-rd-string>200:1</rt-rd-string>
    <config>
      <rt-rd-string>200:1</rt-rd-string>
      <direction>IMPORT</direction>
    </config>
    <state>
      <rt-rd-string>200:1</rt-rd-string>
      <direction>IMPORT</direction>
    </state>
  </route-target>
</route-targets>
```

```
<interfaces>
  <interface>
    <id>lo.VRF1</id>
    <config>
      <interface>lo.VRF1</interface>
      <id>lo.VRF1</id>
    </config>
  </interface>
</interfaces>
<encapsulation>
  <config>
    <label-allocation-mode xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:PER_PREFIX</label-allocation-mode>
    <encapsulation-type xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:MPLS</encapsulation-type>
  </config>
</encapsulation>
</network-instance>
</network-instances>
```

Restrictions

This is a proprietary implementation and it can be changed if the support for this feature is added to OpenConfig in the future.

Create extended community sets

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

OpenConfig NETCONF Payload

```
<routing-policy xmlns="http://openconfig.net/yang/routing-policy">
  <defined-sets>
    <bgp-defined-sets xmlns="http://openconfig.net/yang/bgp-policy">
      <ext-community-sets>
        <ext-community-set>
          <ext-community-set-name>CLIST</ext-community-set-name>
          <config>
            <ext-community-set-name>CLIST</ext-community-set-name>
            <match-set-options>ANY</match-set-options>
            <ext-community-member>route-target:10.10.23.23:30</ext-
community-member>
            <ext-community-member>100:15</ext-community-member>
            <ext-community-member>route-target:12.12.24.24:40</ext-
community-member>
          </config>
        </ext-community-set>
```



```
    </ext-community-sets>  
  </bgp-defined-sets>  
</defined-sets>  
</routing-policy>
```

OcNOS CLI Command

```
ip extcommunity-list standard CLIST permit soo 100:15  
ip extcommunity-list standard CLIST permit rt 10.10.23.23:30  
ip extcommunity-list standard CLIST permit rt 12.12.24.24:40
```

OcNOS NETCONF Payload

```
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">  
  <global>  
    <community-lists>  
      <extended-community>  
        <standard>  
          <name>CLIST</name>  
          <config>  
            <name>CLIST</name>  
          </config>  
          <action-value>  
            <extended-action>permit</extended-action>  
            <route-target-soo>rt</route-target-soo>  
            <value>10.10.23.23:30</value>  
          <config>  
            <extended-action>permit</extended-action>  
            <route-target-soo>rt</route-target-soo>  
            <value>10.10.23.23:30</value>  
          </config>  
          </action-value>  
          <action-value>  
            <extended-action>permit</extended-action>  
            <route-target-soo>soo</route-target-soo>  
            <value>100:15</value>  
          <config>  
            <extended-action>permit</extended-action>  
            <route-target-soo>soo</route-target-soo>  
            <value>100:15</value>  
          </config>  
          </action-value>  
          <action-value>  
            <extended-action>permit</extended-action>  
            <route-target-soo>rt</route-target-soo>  
            <value>12.12.24.24:40</value>  
          <config>  
            <extended-action>permit</extended-action>  
            <route-target-soo>rt</route-target-soo>  
            <value>12.12.24.24:40</value>  
          </config>  
          </action-value>  
        </standard>  
      </extended-community>  
    </community-lists>  
  </global>
```


</bgp>

Validation with NETCONF get

```
<routing-policy xmlns="http://openconfig.net/yang/routing-policy">
  <defined-sets>
    <bgp-defined-sets xmlns="http://openconfig.net/yang/bgp-policy">
      <ext-community-sets>
        <ext-community-set>
          <ext-community-set-name>CLIST</ext-community-set-name>
          <config>
            <ext-community-set-name>CLIST</ext-community-set-name>
            <match-set-options>ANY</match-set-options>
            <ext-community-member>route-target:10.10.23.23:30</ext-
community-member>
            <ext-community-member>100:15</ext-community-member>
            <ext-community-member>route-target:12.12.24.24:40</ext-
community-member>
          </config>
        </ext-community-set>
      </ext-community-sets>
    </bgp-defined-sets>
    <tag-sets>
      <tag-set>
        <name>4294967295</name>
        <config>
          <name>4294967295</name>
          <tag-value>4294967295</tag-value>
        </config>
        <state>
          <name>4294967295</name>
          <tag-value>4294967295</tag-value>
        </state>
      </tag-set>
    </tag-sets>
  </defined-sets>
</routing-policy>
```

Restrictions

/network-instances/network-instance/interfaces/interface/id

This leaf must have the format "<interface>.<subinterface>", e.g., xe10.2, and it is limited to 32 characters.

Add community set to match criteria for route map

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

OpenConfig NETCONF Payload

```
<routing-policy xmlns="http://openconfig.net/yang/routing-policy">
  <policy-definitions>
    <policy-definition>
      <name>in-VRF1</name>
      <statements>
        <statement>
          <name>10</name>
          <config>
            <name>10</name>
          </config>
          <actions>
            <config>
              <policy-result>ACCEPT_ROUTE</policy-result>
            </config>
          </actions>
          <conditions>
            <bgp-conditions
xmlns="http://openconfig.net/yang/bgp-policy">
              <config>
                <ext-community-set>CLIST</ext-community-set>
              </config>
            </bgp-conditions>
          </conditions>
        </statement>
      </statements>
    </config>
      <name>in-VRF1</name>
    </config>
  </policy-definition>
  <policy-definition>
    <name>out-VRF1</name>
    <statements>
      <statement>
        <name>10</name>
        <config>
          <name>10</name>
        </config>
        <actions>
          <config>
            <policy-result>ACCEPT_ROUTE</policy-result>
          </config>
        </actions>
      </statement>
    </statements>
  </config>
    <name>out-VRF1</name>
  </config>
</policy-definition>
</policy-definitions>
</routing-policy>
```

OcNOS CLI Command

```
route-map in-VRF1 permit 10
```



```
match extcommunity CLIST
```

```
route-map out-VRF1  
set extcommunity soo 200:25
```

OcNOS NETCONF Payload

```
<routermaps xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-routemap">  
  <routemap>  
    <routemap-name>in-VRF1</routemap-name>  
    <sequence-id>10</sequence-id>  
    <config>  
      <routemap-name>in-VRF1</routemap-name>  
      <sequence-id>10</sequence-id>  
      <action>permit</action>  
    </config>  
    <match-condition>  
      <extended-communities>  
        <extended-community>  
          <extended-community-identifier>CLIST</extended-community-  
identifier>  
          <config>  
            <extended-community-identifier>CLIST</extended-  
community-identifier>  
            <match-type>no-exact-match</match-type>  
          </config>  
        </extended-community>  
      </extended-communities>  
    </match-condition>  
  </routemap>  
  <routemap>  
    <routemap-name>out-VRF1</routemap-name>  
    <sequence-id>10</sequence-id>  
    <config>  
      <routemap-name>out-VRF1</routemap-name>  
      <sequence-id>10</sequence-id>  
      <action>permit</action>  
    </config>  
    <set-action>  
      <config>  
        <ext-community-site-of-origin>200:25</ext-community-site-of-  
origin>  
      </config>  
    </set-action>  
  </routemap>  
</routermaps>
```

Validation with NETCONF get

```
<routing-policy xmlns="http://openconfig.net/yang/routing-policy">  
  <policy-definitions>  
    <policy-definition>  
      <name>in-VRF1</name>  
      <statements>  
        <statement>  
          <name>10</name>
```

```
<config>
  <name>10</name>
</config>
<actions>
  <config>
    <policy-result>ACCEPT_ROUTE</policy-result>
  </config>
  <state>
    <policy-result>ACCEPT_ROUTE</policy-result>
  </state>
</actions>
<state>
  <name>10</name>
</state>
<conditions>
  <bgp-conditions xmlns="http://openconfig.net/yang/bgp-
policy">
    <config>
      <ext-community-set>CLIST</ext-community-set>
    </config>
  </bgp-conditions>
</conditions>
</statement>
</statements>
<config>
  <name>in-VRF1</name>
</config>
<state>
  <name>in-VRF1</name>
</state>
</policy-definition>
<policy-definition>
  <name>out-VRF1</name>
  <statements>
    <statement>
      <name>10</name>
      <config>
        <name>10</name>
      </config>
      <actions>
        <config>
          <policy-result>ACCEPT_ROUTE</policy-result>
        </config>
        <state>
          <policy-result>ACCEPT_ROUTE</policy-result>
        </state>
        <bgp-actions xmlns="http://openconfig.net/yang/bgp-policy"/>
      </actions>
      <state>
        <name>10</name>
      </state>
    </statement>
  </statements>
</config>
  <name>out-VRF1</name>
</config>
<state>
```

```
    <name>out-VRF1</name>
  </state>
</policy-definition>
</policy-definitions>
</routing-policy>
```

Restrictions

/network-instances/network-instance/interfaces/interface/id

This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

Apply routing policy (route map) as import/export

Release

This configuration was introduced in OcnOS version 4.2.

Configuration

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <config>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
      <router-id>20.20.20.20</router-id>
      <description>"L3VPN Test Instance 1"</description>
      <route-distinguisher>100:1</route-distinguisher>
    </config>
    <inter-instance-policies>
      <apply-policy>
        <config>
          <export-policy>RT_EXPORT_POLICY</export-policy>
          <import-policy>RT_IMPORT_POLICY</import-policy>
        </config>
      </apply-policy>
    </inter-instance-policies>
    <route-targets xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-ni-
augmentations">
      <route-target>
        <rt-rd-string>100:1</rt-rd-string>
```



```
<config>
  <rt-rd-string>100:1</rt-rd-string>
  <direction>BOTH</direction>
</config>
</route-target>
</route-targets>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
route-map RT_IMPORT_POLICY
route-map RT_EXPORT_POLICY
!
ip vrf VRF1
  description "L3VPN Test Instance 1"
  router-id 20.20.20.20
  rd 100:1
  route-target both 100:1
  import map RT_IMPORT_POLICY
  export map RT_EXPORT_POLICY
!
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
network-instance">
  <network-instance>
    <instance-name>VRF1</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>VRF1</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <router-id>20.20.20.20</router-id>
        <description>"L3VPN Test Instance 2039"</description>
        <vrf-name>VRF1</vrf-name>
      </config>
      <bgp-vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp-vrf">
        <config>
          <rd-string>100:1</rd-string>
          <export-map>RT_EXPORT_POLICY</export-map>
          <import-map>RT_IMPORT_POLICY</import-map>
        </config>
        <route-target>
          <rt-rd-string>100:1</rt-rd-string>
          <config>
            <rt-rd-string>100:1</rt-rd-string>
            <direction>import export</direction>
          </config>
        </route-target>
      </bgp-vrf>
    </vrf>
  </network-instance>
```

```
</network-instances>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <config>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
      <description>"L3VPN Test Instance 1"</description>
      <router-id>20.20.20.20</router-id>
      <route-distinguisher>100:1</route-distinguisher>
    </config>
    <state>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
      <description>"L3VPN Test Instance 1"</description>
      <router-id>20.20.20.20</router-id>
      <route-distinguisher>100:1</route-distinguisher>
    </state>
    <protocols>
      <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
        <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <enabled>true</enabled>
        </config>
        <state>
          <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <enabled>true</enabled>
        </state>
      </protocol>
    </protocols>
    <tables xmlns:oc-types="http://openconfig.net/yang/openconfig-types">
      <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
```

```

<protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
<address-family>oc-types:IPV4</address-family>
<config>
  <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
  <address-family>oc-types:IPV4</address-family>
</config>
</state>
  <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
  <address-family>oc-types:IPV4</address-family>
</state>
</table>
<table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
  <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
  <address-family>oc-types:IPV6</address-family>
  <config>
    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family>oc-types:IPV6</address-family>
  </config>
  <state>
    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family>oc-types:IPV6</address-family>
  </state>
</table>
</tables>
<inter-instance-policies>
  <apply-policy>
    <config>
      <import-policy>in-VRF1</import-policy>
      <export-policy>out-VRF1</export-policy>
    </config>
  </apply-policy>
</inter-instance-policies>
<route-targets xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-ni-
augmentations">
  <route-target>
    <rt-rd-string>100:1</rt-rd-string>
    <config>
      <rt-rd-string>100:1</rt-rd-string>
      <direction>EXPORT</direction>
    </config>
    <state>
      <rt-rd-string>100:1</rt-rd-string>
      <direction>EXPORT</direction>
    </state>
  </route-target>
  <route-target>
    <rt-rd-string>200:1</rt-rd-string>
    <config>
      <rt-rd-string>200:1</rt-rd-string>
      <direction>IMPORT</direction>
    </config>
    <state>
      <rt-rd-string>200:1</rt-rd-string>
      <direction>IMPORT</direction>
    </state>
  </route-target>
</route-targets>

```



```
<interfaces>
  <interface>
    <id>lo.VRF1</id>
    <config>
      <interface>lo.VRF1</interface>
      <id>lo.VRF1</id>
    </config>
    <state>
      <interface>lo.VRF1</interface>
      <id>lo.VRF1</id>
    </state>
  </interface>
</interfaces>
<encapsulation>
  <config>
    <label-allocation-mode xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:PER_PREFIX</label-allocation-mode>
    <encapsulation-type xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:MPLS</encapsulation-type>
  </config>
</encapsulation>
</network-instance>
</network-instances>
```

Restrictions

/network-instances/network-instance/interfaces/interface/id

This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

Configure interfaces to access VPN

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <config>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
```



```
<enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
  <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
</config>
<interfaces>
  <interface>
    <id>xe2.2000</id>
    <config>
      <interface>xe2</interface>
      <subinterface>2000</subinterface>
      <id>xe2.2000</id>
    </config>
  </interface>
</interfaces>
</network-instance>
</network-instances>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe2</name>
    <config>
      <name>xe2</name>
    </config>
    <subinterfaces>
      <subinterface>
        <index>2000</index>
        <config>
          <index>2000</index>
        </config>
        <ipv4 xmlns="http://openconfig.net/yang/interfaces/ip">
          <config>
            <mtu>1500</mtu>
          </config>
          <addresses>
            <address>
              <ip>11.12.13.14</ip>
              <config>
                <ip>11.12.13.14</ip>
                <prefix-length>24</prefix-length>
              </config>
            </address>
          </addresses>
        </ipv4>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

OcNOS CLI Command

```
interface xe2.2000
ip vrf forwarding VRF1
ip address 11.12.13.14/24
encapsulation dot1q 2000
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>VRF1</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>VRF1</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>VRF1</vrf-name>
      </config>
    </vrf>
  </network-instance>
</network-instances>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe2.2000</name>
    <config>
      <name>xe2.2000</name>
      <mtu>1500</mtu>
      <vrf-name>VRF1</vrf-name>
    </config>
    <ipv4 xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-ip">
      <config>
        <primary-ip-addr>11.12.13.14/24</primary-ip-addr>
      </config>
    </ipv4>
    <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
extended">
      <subinterface-encapsulation>
        <vlan-service>
          <config>
            <outer-vlan-id>2000</outer-vlan-id>
            <encapsulation-type>dot1q</encapsulation-type>
          </config>
        </vlan-service>
      </subinterface-encapsulation>
    </extended>
  </interface>
</interfaces>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <config>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
```

```
<enabled>true</enabled>
  <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
  <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
  <description>"L3VPN Test Instance 1"</description>
  <router-id>20.20.20.20</router-id>
  <route-distinguisher>100:1</route-distinguisher>
</config>
<state>
  <name>VRF1</name>
  <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
  <enabled>true</enabled>
  <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
  <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
  <description>"L3VPN Test Instance 1"</description>
  <router-id>20.20.20.20</router-id>
  <route-distinguisher>100:1</route-distinguisher>
</state>
<protocols>
  <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
    <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
    <name>DIRECTLY_CONNECTED</name>
    <config>
      <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <enabled>true</enabled>
    </config>
    <state>
      <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <enabled>true</enabled>
    </state>
  </protocol>
</protocols>
<tables xmlns:oc-types="http://openconfig.net/yang/openconfig-types">
  <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family>oc-types:IPV4</address-family>
    <config>
      <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family>oc-types:IPV4</address-family>
    </config>
    <state>
      <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family>oc-types:IPV4</address-family>
    </state>
  </table>
  <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
```

```

<protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
<address-family>oc-types:IPV6</address-family>
<config>
  <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
  <address-family>oc-types:IPV6</address-family>
</config>
<state>
  <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
  <address-family>oc-types:IPV6</address-family>
</state>
</table>
</tables>
<inter-instance-policies>
  <apply-policy>
    <config>
      <import-policy>in-VRF1</import-policy>
      <export-policy>out-VRF1</export-policy>
    </config>
  </apply-policy>
</inter-instance-policies>
<route-targets xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-ni-
augments">
  <route-target>
    <rt-rd-string>100:1</rt-rd-string>
    <config>
      <rt-rd-string>100:1</rt-rd-string>
      <direction>EXPORT</direction>
    </config>
    <state>
      <rt-rd-string>100:1</rt-rd-string>
      <direction>EXPORT</direction>
    </state>
  </route-target>
  <route-target>
    <rt-rd-string>200:1</rt-rd-string>
    <config>
      <rt-rd-string>200:1</rt-rd-string>
      <direction>IMPORT</direction>
    </config>
    <state>
      <rt-rd-string>200:1</rt-rd-string>
      <direction>IMPORT</direction>
    </state>
  </route-target>
</route-targets>
<interfaces>
  <interface>
    <id>lo.VRF1</id>
    <config>
      <interface>lo.VRF1</interface>
      <id>lo.VRF1</id>
    </config>
    <state>
      <interface>lo.VRF1</interface>
      <id>lo.VRF1</id>
    </state>
  </interface>

```

```
<interface>
  <id>xe2.2000</id>
  <config>
    <interface>xe2</interface>
    <subinterface>2000</subinterface>
    <id>xe2.2000</id>
  </config>
  <state>
    <id>xe2</id>
    <interface>xe2</interface>
    <subinterface>2000</subinterface>
  </state>
</interface>
</interfaces>
<encapsulation>
  <config>
    <label-allocation-mode xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:PER_PREFIX</label-allocation-mode>
    <encapsulation-type xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:MPLS</encapsulation-type>
  </config>
</encapsulation>
</network-instance>
</network-instances>
```

Restrictions

/network-instances/network-instance/interfaces/interface/id

This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

Configure BGP with neighbors and route redistribution

Release

This configuration was introduced in OcNOS version 4.2.

Configuration

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <protocols>
      <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
        <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
      </protocol>
    </protocols>
  </network-instance>
</network-instances>
```

```

        <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <enabled>>true</enabled>
    </config>
</protocol>
<protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
    <identifier>oc-pol-types:BGP</identifier>
    <name>100</name>
    <bgp>
        <global>
            <config>
                <as>100</as>
            </config>
        </global>
        <neighbors>
            <neighbor>
                <neighbor-address>11.12.13.15</neighbor-address>
                <afi-safis>
                    <afi-safi xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">
                        <afi-safi-name>oc-bgp-types:IPV4_UNICAST</afi-safi-name>
                        <config>
                            <afi-safi-name>oc-bgp-types:IPV4_UNICAST</afi-safi-
name>
                                    <enabled>true</enabled>
                                </config>
                            </afi-safi>
                        </afi-safis>
                    </config>
                    <neighbor-address>11.12.13.15</neighbor-address>
                    <peer-as>200</peer-as>
                    <enabled>true</enabled>
                </config>
            </neighbor>
        </neighbors>
    </bgp>
    <config>
        <identifier>oc-pol-types:BGP</identifier>
        <name>100</name>
        <enabled>true</enabled>
    </config>
</protocol>
</protocols>
<tables xmlns:oc-types="http://openconfig.net/yang/openconfig-types">
    <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
        <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family>oc-types:IPV4</address-family>
        <config>
            <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family>oc-types:IPV4</address-family>
        </config>
    </table>
    <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
        <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family>oc-types:IPV6</address-family>
        <config>

```

```

        <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family>oc-types:IPV6</address-family>
    </config>
</table>
<table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
    <protocol>oc-pol-types:BGP</protocol>
    <address-family>oc-types:IPV4</address-family>
    <config>
        <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
        <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
            </config>
        </table>
    </tables>
    <table-connections xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">
        <table-connection xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">
            <src-protocol>oc-pol-types:DIRECTLY_CONNECTED</src-protocol>
            <dst-protocol>oc-pol-types:BGP</dst-protocol>
            <address-family>oc-types:IPV4</address-family>
            <config>
                <dst-protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-types:BGP</dst-
protocol>
                <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
                    <dst-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-
ni-augments">100</dst-instance>
                    <default-import-policy>ACCEPT_ROUTE</default-import-policy>
                    <src-protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</src-protocol>
                    </config>
                </table-connection>
            </table-connections>
        </network-instance>
    </network-instance>
    <name>default</name>
    <config>
        <name>default</name>
        <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
        <enabled>true</enabled>
    </config>
    <protocols>
        <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
            <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
            <name>DIRECTLY_CONNECTED</name>
            <config>
                <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
                <name>DIRECTLY_CONNECTED</name>
                <enabled>true</enabled>

```



```

    </config>
  </protocol>
  <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
    <identifier>oc-pol-types:BGP</identifier>
    <name>100</name>
    <config>
      <identifier>oc-pol-types:BGP</identifier>
      <name>100</name>
      <enabled>true</enabled>
    </config>
    <bgp>
      <global>
        <config>
          <as>100</as>
        </config>
      </global>
      <neighbors>
        <neighbor>
          <neighbor-address>2.2.2.2</neighbor-address>
          <afi-safis>
            <afi-safi xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">
              <afi-safi-name>oc-bgp-types:L3VPN_IPV4_UNICAST</afi-safi-
name>
              <config>
                <afi-safi-name>oc-bgp-types:L3VPN_IPV4_UNICAST</afi-
safi-name>
                <enabled>true</enabled>
              </config>
            </afi-safi>
          </afi-safis>
        </neighbor>
        <config>
          <neighbor-address>2.2.2.2</neighbor-address>
          <peer-as>100</peer-as>
        </config>
        <transport>
          <config>
            <local-address>1.1.1.1</local-address>
          </config>
        </transport>
      </neighbor>
    </neighbors>
  </bgp>
</protocol>
</protocols>
<tables xmlns:oc-types="http://openconfig.net/yang/openconfig-types">
  <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family>oc-types:IPV4</address-family>
    <config>
      <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family>oc-types:IPV4</address-family>
    </config>
  </table>
  <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>

```

```
<address-family>oc-types:IPV6</address-family>
<config>
  <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
  <address-family>oc-types:IPV6</address-family>
</config>
</table>
<table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
  <protocol>oc-pol-types:BGP</protocol>
  <address-family>oc-types:IPV4</address-family>
  <config>
    <protocol>oc-pol-types:BGP</protocol>
    <address-family>oc-types:IPV4</address-family>
  </config>
</table>
</tables>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
ip vrf VRF1
  rd 1234:5
!
router bgp 100
  neighbor 2.2.2.2 remote-as 100
  neighbor 2.2.2.2 update-source 1.1.1.1
!
  address-family ipv4 unicast
  exit-address-family
!
  address-family vpv4 unicast
  neighbor 2.2.2.2 activate
  exit-address-family
!
  address-family ipv4 vrf VRF1
  redistribute connected
  neighbor 11.12.13.15 remote-as 200
  neighbor 11.12.13.15 activate
  exit-address-family
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
network-instance">
  <network-instance>
    <instance-name>default</instance-name>
    <instance-type>vrf</instance-type>
    <config>
      <instance-name>default</instance-name>
      <instance-type>vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>default</vrf-name>
      </config>
    </vrf>
  </network-instance>
</network-instances>
```

```
</network-instance>
<network-instance>
  <instance-name>VRF1</instance-name>
  <config>
    <instance-name>VRF1</instance-name>
    <instance-type></instance-type>
  </config>
  <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
    <config>
      <vrf-name>VRF1</vrf-name>
    </config>
    <bgp-vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp-
vrf">
      <config>
        <rd-string>1234:5</rd-string>
      </config>
    </bgp-vrf>
  </vrf>
  <bridge xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bridge">
    <config>
      <protocol>ieee-vlan-bridge</protocol>
    </config>
  </bridge>
</network-instance>
</network-instances>
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>100</bgp-as>
    <config>
      <bgp-as>100</bgp-as>
      <bgp-as>100</bgp-as>
    </config>
    <peer>
      <peer-address>2.2.2.2</peer-address>
      <address-family>
        <afi>ipv4</afi>
        <safi>vpn-unicast</safi>
      <config>
        <afi>ipv4</afi>
        <safi>vpn-unicast</safi>
        <activate />
      </config>
    </address-family>
    <config>
      <peer-address>2.2.2.2</peer-address>
      <peer-as>100</peer-as>
      <source-identifier>1.1.1.1</source-identifier>
    </config>
  </peer>
  <address-family>
    <afi>ipv4</afi>
    <safi>vpn-unicast</safi>
  <config>
    <afi>ipv4</afi>
    <safi>vpn-unicast</safi>
  </config>
</address-family>
```

```
<address-family>
  <afi>ipv4</afi>
  <safi>unicast</safi>
  <config>
    <safi>unicast</safi>
    <afi>ipv4</afi>
  </config>
</address-family>
<address-family-vrf>
  <afi>ipv4</afi>
  <safi>unicast</safi>
  <vrf-name>VRF1</vrf-name>
  <vrf-peer>
    <peer-address>11.12.13.15</peer-address>
    <config>
      <activate />
      <peer-address>11.12.13.15</peer-address>
      <peer-as>200</peer-as>
    </config>
  </vrf-peer>
  <config>
    <afi>ipv4</afi>
    <safi>unicast</safi>
    <vrf-name>VRF1</vrf-name>
  </config>
  <config>
    <safi>unicast</safi>
    <afi>ipv4</afi>
    <vrf-name>VRF1</vrf-name>
  </config>
  <route-redirect-list>
    <protocol-type>connected</protocol-type>
    <config>
      <protocol-type>connected</protocol-type>
    </config>
  </route-redirect-list>
</address-family-vrf>
</bgp-instance>
</bgp>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VRF1</name>
    <config>
      <name>VRF1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
      <enabled>true</enabled>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
      <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
```

```

    <description>"L3VPN Test Instance 1"</description>
    <router-id>20.20.20.20</router-id>
    <route-distinguisher>100:1</route-distinguisher>
  </config>
  <state>
    <name>VRF1</name>
    <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L3VRF</type>
    <enabled>true</enabled>
    <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</enabled-
address-families>
    <enabled-address-families xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV6</enabled-
address-families>
    <description>"L3VPN Test Instance 1"</description>
    <router-id>20.20.20.20</router-id>
    <route-distinguisher>100:1</route-distinguisher>
  </state>
  <protocols>
    <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
      <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <config>
        <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <enabled>true</enabled>
      </config>
      <state>
        <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <enabled>true</enabled>
      </state>
    </protocol>
    <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
      <identifier>oc-pol-types:BGPP</identifier>
      <name>100</name>
      <bgp>
        <global>
          <config>
            <as>100</as>
          </config>
          <state>
            <as>100</as>
          </state>
        </global>
        <neighbors>
          <neighbor>
            <neighbor-address>11.12.13.15</neighbor-address>
            <afi-safis>
              <afi-safi xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">
                <afi-safi-name>oc-bgp-types:IPV4_UNICAST</afi-safi-name>
              </afi-safi>
            </afi-safis>
          </neighbor>
        </neighbors>
      </bgp>
    </protocol>
  </protocols>

```

```
name>
    <afi-safi-name>oc-bgp-types:IPV4_UNICAST</afi-safi-
name>
    <enabled>>true</enabled>
    </config>
    <state>
    <afi-safi-name>oc-bgp-types:IPV4_UNICAST</afi-safi-
name>
    <enabled>>true</enabled>
    </state>
    </afi-safi>
</afi-safis>
<config>
    <neighbor-address>11.12.13.15</neighbor-address>
    <peer-as>200</peer-as>
    <enabled>true</enabled>
</config>
<state>
    <neighbor-address>11.12.13.15</neighbor-address>
    <peer-as>200</peer-as>
    <enabled>true</enabled>
</state>
</neighbor>
</neighbors>
</bgp>
<config>
    <identifier>oc-pol-types:BGP</identifier>
    <name>100</name>
    <enabled>true</enabled>
</config>
<state>
    <identifier>oc-pol-types:BGP</identifier>
    <name>100</name>
    <enabled>true</enabled>
</state>
</protocol>
</protocols>
<tables xmlns:oc-types="http://openconfig.net/yang/openconfig-types">
    <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
        <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family>oc-types:IPV4</address-family>
        <config>
            <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family>oc-types:IPV4</address-family>
        </config>
        <state>
            <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family>oc-types:IPV4</address-family>
        </state>
    </table>
    <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
        <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family>oc-types:IPV6</address-family>
        <config>
            <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family>oc-types:IPV6</address-family>
        </config>
        <state>
```

```

    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family>oc-types:IPV6</address-family>
  </state>
</table>
<table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
  <protocol>oc-pol-types:BGP</protocol>
  <address-family>oc-types:IPV4</address-family>
  <config>
    <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
    <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
      </config>
    </table>
  </tables>
<inter-instance-policies>
  <apply-policy>
    <config>
      <import-policy>in-VRF1</import-policy>
      <export-policy>out-VRF1</export-policy>
    </config>
  </apply-policy>
</inter-instance-policies>
<route-targets xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-ni-
augmentations">
  <route-target>
    <rt-rd-string>100:1</rt-rd-string>
    <config>
      <rt-rd-string>100:1</rt-rd-string>
      <direction>EXPORT</direction>
    </config>
    <state>
      <rt-rd-string>100:1</rt-rd-string>
      <direction>EXPORT</direction>
    </state>
  </route-target>
  <route-target>
    <rt-rd-string>200:1</rt-rd-string>
    <config>
      <rt-rd-string>200:1</rt-rd-string>
      <direction>IMPORT</direction>
    </config>
    <state>
      <rt-rd-string>200:1</rt-rd-string>
      <direction>IMPORT</direction>
    </state>
  </route-target>
</route-targets>
<interfaces>
  <interface>
    <id>lo.VRF1</id>
    <config>
      <interface>lo.VRF1</interface>
      <id>lo.VRF1</id>
    </config>
    <state>

```

```
<interface>lo.VRF1</interface>
  <id>lo.VRF1</id>
</state>
</interface>
<interface>
  <id>xe2.2000</id>
  <config>
    <interface>xe2</interface>
    <subinterface>2000</subinterface>
    <id>xe2.2000</id>
  </config>
  <state>
    <id>xe2</id>
    <interface>xe2</interface>
    <subinterface>2000</subinterface>
  </state>
</interface>
</interfaces>
<encapsulation>
  <config>
    <label-allocation-mode xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:PER_PREFIX</label-allocation-mode>
    <encapsulation-type xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:MPLS</encapsulation-type>
  </config>
</encapsulation>
  <table-connections xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">
    <table-connection xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">
      <src-protocol>oc-pol-types:DIRECTLY_CONNECTED</src-protocol>
      <dst-protocol>oc-pol-types:BGP</dst-protocol>
      <address-family>oc-types:IPV4</address-family>
    <config>
      <dst-protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-types:BGP</dst-
protocol>
      <address-family xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">oc-types:IPV4</address-
family>
      <dst-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-
ni-augments">100</dst-instance>
      <default-import-policy>ACCEPT_ROUTE</default-import-policy>
      <src-protocol xmlns:oc-pol-
types="http://openconfig.net/yang/policy-types">oc-pol-
types:DIRECTLY_CONNECTED</src-protocol>
    </config>
  </table-connection>
</table-connections>
</network-instance>
<network-instance>
  <name>default</name>
  <config>
    <name>default</name>
```




```
<type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
  <enabled>true</enabled>
</config>
<state>
  <name>default</name>
  <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
  <enabled>true</enabled>
</state>
<protocols>
  <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
    <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
    <name>DIRECTLY_CONNECTED</name>
    <config>
      <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <enabled>true</enabled>
    </config>
    <state>
      <identifier>oc-pol-types:DIRECTLY_CONNECTED</identifier>
      <name>DIRECTLY_CONNECTED</name>
      <enabled>true</enabled>
    </state>
  </protocol>
  <protocol xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">
    <identifier>oc-pol-types:BGP</identifier>
    <name>100</name>
    <config>
      <identifier>oc-pol-types:BGP</identifier>
      <name>100</name>
      <enabled>true</enabled>
    </config>
    <bgp>
      <global>
        <config>
          <as>100</as>
        </config>
        <state>
          <as>100</as>
        </state>
      </global>
      <neighbors>
        <neighbor>
          <neighbor-address>2.2.2.2</neighbor-address>
          <afi-safis>
            <afi-safi xmlns:oc-bgp-
types="http://openconfig.net/yang/bgp-types">
              <afi-safi-name>oc-bgp-types:L3VPN_IPV4_UNICAST</afi-safi-
name>
              <config>
                <afi-safi-name>oc-bgp-types:L3VPN_IPV4_UNICAST</afi-
safi-name>
                <enabled>true</enabled>
              </config>
```

```

    <state>
      <afi-safi-name>oc-bgp-types:L3VPN_IPV4_UNICAST</afi-
safi-name>
      <enabled>true</enabled>
      <enabled>true</enabled>
    </state>
  </afi-safi>
</afi-safis>
<config>
  <neighbor-address>2.2.2.2</neighbor-address>
  <peer-as>100</peer-as>
</config>
<transport>
  <config>
    <local-address>1.1.1.1</local-address>
  </config>
  <state>
    <local-address>1.1.1.1</local-address>
  </state>
</transport>
<state>
  <neighbor-address>2.2.2.2</neighbor-address>
  <peer-as>100</peer-as>
</state>
</neighbor>
</neighbors>
</bgp>
<state>
  <enabled>true</enabled>
  <identifier>oc-pol-types:BGP</identifier>
  <name>100</name>
</state>
</protocol>
</protocols>
<tables xmlns:oc-types="http://openconfig.net/yang/openconfig-types">
  <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family>oc-types:IPV4</address-family>
    <config>
      <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family>oc-types:IPV4</address-family>
    </config>
    <state>
      <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family>oc-types:IPV4</address-family>
    </state>
  </table>
  <table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
    <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family>oc-types:IPV6</address-family>
    <config>
      <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family>oc-types:IPV6</address-family>
    </config>
    <state>
      <protocol>oc-pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family>oc-types:IPV6</address-family>
    </state>
  </table>

```

```
</state>
</table>
<table xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">
  <protocol>oc-pol-types:BGP</protocol>
  <address-family>oc-types:IPV4</address-family>
  <config>
    <protocol>oc-pol-types:BGP</protocol>
    <address-family>oc-types:IPV4</address-family>
  </config>
</table>
</tables>
<interfaces>
  <interface>
    <id>ce49</id>
    <config>
      <interface>ce49</interface>
      <id>ce49</id>
    </config>
    <state>
      <interface>ce49</interface>
      <id>ce49</id>
    </state>
  </interface>
  <interface>
    <id>ce50</id>
    <config>
      <interface>ce50</interface>
      <id>ce50</id>
    </config>
    <state>
      <interface>ce50</interface>
      <id>ce50</id>
    </state>
  </interface>
  <interface>
    <id>ce51</id>
    <config>
      <interface>ce51</interface>
      <id>ce51</id>
    </config>
    <state>
      <interface>ce51</interface>
      <id>ce51</id>
    </state>
  </interface>
  <interface>
    <id>ce52</id>
    <config>
      <interface>ce52</interface>
      <id>ce52</id>
    </config>
    <state>
      <interface>ce52</interface>
      <id>ce52</id>
    </state>
  </interface>
</interface>
```

```
<id>ce53</id>
<config>
  <interface>ce53</interface>
  <id>ce53</id>
</config>
<state>
  <interface>ce53</interface>
  <id>ce53</id>
</state>
</interface>
<interface>
  <id>ce54</id>
  <config>
    <interface>ce54</interface>
    <id>ce54</id>
  </config>
  <state>
    <interface>ce54</interface>
    <id>ce54</id>
  </state>
</interface>
<interface>
  <id>lo</id>
  <config>
    <interface>lo</interface>
    <id>lo</id>
  </config>
  <state>
    <interface>lo</interface>
    <id>lo</id>
  </state>
</interface>
<interface>
  <id>xel</id>
  <config>
    <interface>xel</interface>
    <id>xel</id>
  </config>
  <state>
    <interface>xel</interface>
    <id>xel</id>
  </state>
</interface>
<interface>
  <id>xel0</id>
  <config>
    <interface>xel0</interface>
    <id>xel0</id>
  </config>
  <state>
    <interface>xel0</interface>
    <id>xel0</id>
  </state>
</interface>
<interface>
  <id>xel1</id>
  <config>
```

```
<interface>xel1</interface>
  <id>xel1</id>
</config>
<state>
  <interface>xel1</interface>
  <id>xel1</id>
</state>
</interface>
<interface>
  <id>xel2</id>
  <config>
    <interface>xel2</interface>
    <id>xel2</id>
  </config>
  <state>
    <interface>xel2</interface>
    <id>xel2</id>
  </state>
</interface>
<interface>
  <id>xel3</id>
  <config>
    <interface>xel3</interface>
    <id>xel3</id>
  </config>
  <state>
    <interface>xel3</interface>
    <id>xel3</id>
  </state>
</interface>
<interface>
  <id>xel4</id>
  <config>
    <interface>xel4</interface>
    <id>xel4</id>
  </config>
  <state>
    <interface>xel4</interface>
    <id>xel4</id>
  </state>
</interface>
<interface>
  <id>xel5</id>
  <config>
    <interface>xel5</interface>
    <id>xel5</id>
  </config>
  <state>
    <interface>xel5</interface>
    <id>xel5</id>
  </state>
</interface>
<interface>
  <id>xel6</id>
  <config>
    <interface>xel6</interface>
    <id>xel6</id>
```

```
</config>
<state>
  <interface>xe16</interface>
  <id>xe16</id>
</state>
</interface>
<interface>
  <id>xe17</id>
  <config>
    <interface>xe17</interface>
    <id>xe17</id>
  </config>
  <state>
    <interface>xe17</interface>
    <id>xe17</id>
  </state>
</interface>
<interface>
  <id>xe18</id>
  <config>
    <interface>xe18</interface>
    <id>xe18</id>
  </config>
  <state>
    <interface>xe18</interface>
    <id>xe18</id>
  </state>
</interface>
<interface>
  <id>xe19</id>
  <config>
    <interface>xe19</interface>
    <id>xe19</id>
  </config>
  <state>
    <interface>xe19</interface>
    <id>xe19</id>
  </state>
</interface>
<interface>
  <id>xe2</id>
  <config>
    <interface>xe2</interface>
    <id>xe2</id>
  </config>
  <state>
    <interface>xe2</interface>
    <id>xe2</id>
  </state>
</interface>
<interface>
  <id>xe20</id>
  <config>
    <interface>xe20</interface>
    <id>xe20</id>
  </config>
  <state>
```

```
<interface>xe20</interface>
  <id>xe20</id>
</state>
</interface>
<interface>
  <id>xe21</id>
  <config>
    <interface>xe21</interface>
    <id>xe21</id>
  </config>
  <state>
    <interface>xe21</interface>
    <id>xe21</id>
  </state>
</interface>
<interface>
  <id>xe22</id>
  <config>
    <interface>xe22</interface>
    <id>xe22</id>
  </config>
  <state>
    <interface>xe22</interface>
    <id>xe22</id>
  </state>
</interface>
<interface>
  <id>xe23</id>
  <config>
    <interface>xe23</interface>
    <id>xe23</id>
  </config>
  <state>
    <interface>xe23</interface>
    <id>xe23</id>
  </state>
</interface>
<interface>
  <id>xe24</id>
  <config>
    <interface>xe24</interface>
    <id>xe24</id>
  </config>
  <state>
    <interface>xe24</interface>
    <id>xe24</id>
  </state>
</interface>
<interface>
  <id>xe25</id>
  <config>
    <interface>xe25</interface>
    <id>xe25</id>
  </config>
  <state>
    <interface>xe25</interface>
    <id>xe25</id>
  </state>
</interface>
```

```
</state>
</interface>
<interface>
  <id>xe26</id>
  <config>
    <interface>xe26</interface>
    <id>xe26</id>
  </config>
  <state>
    <interface>xe26</interface>
    <id>xe26</id>
  </state>
</interface>
<interface>
  <id>xe27</id>
  <config>
    <interface>xe27</interface>
    <id>xe27</id>
  </config>
  <state>
    <interface>xe27</interface>
    <id>xe27</id>
  </state>
</interface>
<interface>
  <id>xe28</id>
  <config>
    <interface>xe28</interface>
    <id>xe28</id>
  </config>
  <state>
    <interface>xe28</interface>
    <id>xe28</id>
  </state>
</interface>
<interface>
  <id>xe29</id>
  <config>
    <interface>xe29</interface>
    <id>xe29</id>
  </config>
  <state>
    <interface>xe29</interface>
    <id>xe29</id>
  </state>
</interface>
<interface>
  <id>xe3</id>
  <config>
    <interface>xe3</interface>
    <id>xe3</id>
  </config>
  <state>
    <interface>xe3</interface>
    <id>xe3</id>
  </state>
</interface>
```



```
<interface>
  <id>xe30</id>
  <config>
    <interface>xe30</interface>
    <id>xe30</id>
  </config>
  <state>
    <interface>xe30</interface>
    <id>xe30</id>
  </state>
</interface>
<interface>
  <id>xe31</id>
  <config>
    <interface>xe31</interface>
    <id>xe31</id>
  </config>
  <state>
    <interface>xe31</interface>
    <id>xe31</id>
  </state>
</interface>
<interface>
  <id>xe32</id>
  <config>
    <interface>xe32</interface>
    <id>xe32</id>
  </config>
  <state>
    <interface>xe32</interface>
    <id>xe32</id>
  </state>
</interface>
<interface>
  <id>xe33</id>
  <config>
    <interface>xe33</interface>
    <id>xe33</id>
  </config>
  <state>
    <interface>xe33</interface>
    <id>xe33</id>
  </state>
</interface>
<interface>
  <id>xe34</id>
  <config>
    <interface>xe34</interface>
    <id>xe34</id>
  </config>
  <state>
    <interface>xe34</interface>
    <id>xe34</id>
  </state>
</interface>
<interface>
  <id>xe35</id>
```

```
<config>
  <interface>xe35</interface>
  <id>xe35</id>
</config>
<state>
  <interface>xe35</interface>
  <id>xe35</id>
</state>
</interface>
<interface>
  <id>xe36</id>
  <config>
    <interface>xe36</interface>
    <id>xe36</id>
  </config>
  <state>
    <interface>xe36</interface>
    <id>xe36</id>
  </state>
</interface>
<interface>
  <id>xe37</id>
  <config>
    <interface>xe37</interface>
    <id>xe37</id>
  </config>
  <state>
    <interface>xe37</interface>
    <id>xe37</id>
  </state>
</interface>
<interface>
  <id>xe38</id>
  <config>
    <interface>xe38</interface>
    <id>xe38</id>
  </config>
  <state>
    <interface>xe38</interface>
    <id>xe38</id>
  </state>
</interface>
<interface>
  <id>xe39</id>
  <config>
    <interface>xe39</interface>
    <id>xe39</id>
  </config>
  <state>
    <interface>xe39</interface>
    <id>xe39</id>
  </state>
</interface>
<interface>
  <id>xe4</id>
  <config>
    <interface>xe4</interface>
```

```
<id>xe4</id>
</config>
<state>
  <interface>xe4</interface>
  <id>xe4</id>
</state>
</interface>
<interface>
  <id>xe40</id>
  <config>
    <interface>xe40</interface>
    <id>xe40</id>
  </config>
  <state>
    <interface>xe40</interface>
    <id>xe40</id>
  </state>
</interface>
<interface>
  <id>xe41</id>
  <config>
    <interface>xe41</interface>
    <id>xe41</id>
  </config>
  <state>
    <interface>xe41</interface>
    <id>xe41</id>
  </state>
</interface>
<interface>
  <id>xe42</id>
  <config>
    <interface>xe42</interface>
    <id>xe42</id>
  </config>
  <state>
    <interface>xe42</interface>
    <id>xe42</id>
  </state>
</interface>
<interface>
  <id>xe43</id>
  <config>
    <interface>xe43</interface>
    <id>xe43</id>
  </config>
  <state>
    <interface>xe43</interface>
    <id>xe43</id>
  </state>
</interface>
<interface>
  <id>xe44</id>
  <config>
    <interface>xe44</interface>
    <id>xe44</id>
  </config>
```

```
<state>
  <interface>xe44</interface>
  <id>xe44</id>
</state>
</interface>
<interface>
  <id>xe45</id>
  <config>
    <interface>xe45</interface>
    <id>xe45</id>
  </config>
  <state>
    <interface>xe45</interface>
    <id>xe45</id>
  </state>
</interface>
<interface>
  <id>xe46</id>
  <config>
    <interface>xe46</interface>
    <id>xe46</id>
  </config>
  <state>
    <interface>xe46</interface>
    <id>xe46</id>
  </state>
</interface>
<interface>
  <id>xe47</id>
  <config>
    <interface>xe47</interface>
    <id>xe47</id>
  </config>
  <state>
    <interface>xe47</interface>
    <id>xe47</id>
  </state>
</interface>
<interface>
  <id>xe48</id>
  <config>
    <interface>xe48</interface>
    <id>xe48</id>
  </config>
  <state>
    <interface>xe48</interface>
    <id>xe48</id>
  </state>
</interface>
<interface>
  <id>xe5</id>
  <config>
    <interface>xe5</interface>
    <id>xe5</id>
  </config>
  <state>
    <interface>xe5</interface>
```

```
<id>xe5</id>
</state>
</interface>
<interface>
  <id>xe6</id>
  <config>
    <interface>xe6</interface>
    <id>xe6</id>
  </config>
  <state>
    <interface>xe6</interface>
    <id>xe6</id>
  </state>
</interface>
<interface>
  <id>xe7</id>
  <config>
    <interface>xe7</interface>
    <id>xe7</id>
  </config>
  <state>
    <interface>xe7</interface>
    <id>xe7</id>
  </state>
</interface>
<interface>
  <id>xe8</id>
  <config>
    <interface>xe8</interface>
    <id>xe8</id>
  </config>
  <state>
    <interface>xe8</interface>
    <id>xe8</id>
  </state>
</interface>
<interface>
  <id>xe9</id>
  <config>
    <interface>xe9</interface>
    <id>xe9</id>
  </config>
  <state>
    <interface>xe9</interface>
    <id>xe9</id>
  </state>
</interface>
</interfaces>
</network-instance>
</network-instances>
```

Restrictions

/network-instances/network-instance/interfaces/interface/id



This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

L2VPN

Configure VPLS with Ethernet type

When the value of attribute pw-encapsulation is PWE_ETHERNET_RAW_MODE, the VPLS will be created with Ethernet type

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe24</name>
    <config>
      <name>xe24</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>1</index>
        <config>
          <index>1</index>
          <enabled>true</enabled>
        </config>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VPLS-TEST</name>
    <config>
      <name>VPLS-TEST</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
      <enabled>true</enabled>
    </config>
    <connection-points>
      <connection-point>
        <connection-point-id>default</connection-point-id>
        <endpoints>
          <endpoint>
            <endpoint-id>1</endpoint-id>
          </endpoint>
        </endpoints>
      </connection-point>
    </connection-points>
  </network-instance>
</network-instances>
```

```
        <precedence>1</precedence>
        <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
    </config>
    <state>
        <precedence>1</precedence>
    </state>
    <remote>
        <config>
            <virtual-circuit-identifier>400</virtual-circuit-
identifier>
            <remote-system>4.4.4.4</remote-system>
        </config>
    </remote>
</endpoint>
</endpoints>
<config>
    <connection-point-id>default</connection-point-id>
</config>
</connection-point>
</connection-points>
<interfaces>
    <interface>
        <id>xe24.1</id>
        <config>
            <id>xe24.1</id>
            <interface>xe24</interface>
            <subinterface>1</subinterface>
        </config>
    </interface>
</interfaces>
<mpls>
    <global>
        <config>
            <pw-encapsulation>PWE_ETHERNET_RAW_MODE</pw-encapsulation>
        </config>
    </global>
</mpls>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
mpls vpls VPLS-TEST1 400
signaling ldp
  vpls-type ethernet
  vpls-peer 4.4.4.4
  exit-signaling
exit-vpls
!
interface xe24.1 switchport
  encapsulation default
  access-if-vpls
  mpls-vpls VPLS-TEST1
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <global xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-extended">
    <error-disable>
      <config>
        <error-disable-stp-bpdu-guard>true</error-disable-stp-bpdu-
guard>
      </config>
    </error-disable>
  </global>
  <interface>
    <name>xe24</name>
    <config>
      <name>xe24</name>
    </config>
  </interface>
  <interface>
    <name>xe24.1</name>
    <config>
      <name>xe24.1</name>
      <enable-switchport />
    </config>
    <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
extended">
      <subinterface-encapsulation>
        <config>
          <encap-default />
        </config>
      </subinterface-encapsulation>
    </extended>
  </interface>
</interfaces>
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
network-instance">
  <network-instance>
    <instance-name>VPLS-TEST1</instance-name>
    <instance-type>vpls</instance-type>
    <config>
      <instance-name>VPLS-TEST1</instance-name>
      <instance-type>vpls</instance-type>
    </config>
    <vpls-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
l2vpn-vpls">
      <vpls-peers>
        <vpls-peer>
          <peer-address>4.4.4.4</peer-address>
          <config>
            <peer-address>4.4.4.4</peer-address>
          </config>
        </vpls-peer>
      </vpls-peers>
      <config>
        <signaling-protocol-ldp />
        <vpls-encapsulation-type>ethernet</vpls-encapsulation-type>
      </config>
    </vpls-instance>
  </network-instance>
</network-instances>
  <vpls-identifier>400</vpls-identifier>
</config>
```



```
</vpls-instance>
</network-instance>
</network-instances>
<vpls xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-l2vpn-vpls">
  <interfaces>
    <interface>
      <name>xe24.1</name>
      <vpls-access>
        <config>
          <vpls-name>VPLS-TEST1</vpls-name>
          <enable />
        </config>
      </vpls-access>
      <config>
        <name>xe24.1</name>
      </config>
    </interface>
  </interfaces>
</vpls>
```

Validation with NETCONF get

```
<network-instance>
  <name>VPLS-TEST</name>
  <config>
    <name>VPLS-TEST</name>
    <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
    <enabled>true</enabled>
  </config>
  <connection-points>
    <connection-point>
      <connection-point-id>default</connection-point-id>
      <endpoints>
        <endpoint>
          <endpoint-id>1</endpoint-id>
          <state>
            <precedence>1</precedence>
            <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
            <endpoint-id>1</endpoint-id>
          </state>
          <config>
            <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
            <endpoint-id>1</endpoint-id>
          </config>
          <remote>
            <config>
              <virtual-circuit-identifier>400</virtual-circuit-
identifier>
              <remote-system>4.4.4.4</remote-system>
            </config>
          <state>
            <virtual-circuit-identifier>400</virtual-circuit-
identifier>
```

```
        <remote-system>4.4.4.4</remote-system>
      </state>
    </remote>
  </endpoint>
</endpoints>
<state>
  <connection-point-id>default</connection-point-id>
</state>
<config>
  <connection-point-id>default</connection-point-id>
</config>
</connection-point>
</connection-points>
<state>
  <name>VPLS-TEST</name>
  <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
  <enabled>true</enabled>
</state>
<mpls>
  <global>
    <config>
      <pw-encapsulation>PWE_ETHERNET_RAW_MODE</pw-encapsulation>
    </config>
    <state>
      <pw-encapsulation>PWE_ETHERNET_RAW_MODE</pw-encapsulation>
    </state>
  </global>
</mpls>
<interfaces>
  <interface>
    <id>xe24.1</id>
    <config>
      <id>xe24.1</id>
      <interface>xe24</interface>
      <subinterface>1</subinterface>
    </config>
    <state>
      <id>xe24.1</id>
      <interface>xe24</interface>
      <subinterface>1</subinterface>
    </state>
  </interface>
</interfaces>
<fdb>
  <config>
    <mac-learning>true</mac-learning>
  </config>
  <state>
    <mac-learning>true</mac-learning>
  </state>
</fdb>
</network-instance>
```

Restrictions

/network-instances/network-instance/interfaces/interface/id

This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

Currently encapsulation supported is *ethernet*. On OcNOS the the *vpls-type* must always be set as *ethernet*.

Configure VPLS with VLAN type

When the value of attribute pw-encapsulation is PWE_ETHERNET_TAGGED_MODE, the VPLS will be created with VLAN type

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe25</name>
    <config>
      <name>xe25</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>1</index>
        <config>
          <index>1</index>
          <enabled>true</enabled>
        </config>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VPLS-FULL</name>
    <config>
      <name>VPLS-FULL</name>
      <type
xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
      <enabled>true</enabled>
    </config>
    <connection-points>
      <connection-point>
        <connection-point-id>default</connection-point-id>
      </connection-point>
    </connection-points>
  </network-instance>
</network-instances>
```

```

<endpoints>
  <endpoint>
    <endpoint-id>1</endpoint-id>
    <config>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
      <endpoint-id>1</endpoint-id>
      <precedence>1</precedence>
    </config>
    <remote>
      <config>
        <remote-system>6.6.6.6</remote-system>
        <virtual-circuit-
identifier>600</virtual-circuit-
identifier>
      </config>
    </remote>
  </endpoint>
</endpoints>
  <config>
    <connection-point-id>default</connection-point-id>
  </config>
</connection-point>
</connection-points>
<interfaces>
  <interface>
    <id>xe25.1</id>
    <config>
      <id>xe25.1</id>
      <interface>xe25</interface>
      <subinterface>1</subinterface>
    </config>
  </interface>
</interfaces>
<mpls>
  <global>
    <config>
      <pw-encapsulation>PWE_ETHERNET_TAGGED_MODE</pw-encapsulation>
    </config>
  </global>
</mpls>
</network-instance>
</network-instances>

```

OcNOS CLI Command

```

mpls vpls VPLS-FULL1 600
  signaling ldp
  vpls-type vlan
  vpls-peer 6.6.6.6
  exit-signaling
  exit-vpls
!
interface xe25.1 switchport
  encapsulation default
  access-if-vpls

```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <global xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-extended">
    <error-disable>
      <config>
        <error-disable-stp-bpdu-guard>true</error-disable-stp-bpdu-
guard>
      </config>
    </error-disable>
  </global>
  <interface>
    <name>xe25</name>
    <config>
      <name>xe25</name>
    </config>
  </interface>
  <interface>
    <name>xe25.1</name>
    <config>
      <name>xe25.1</name>
      <enable-switchport />
    </config>
    <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
extended">
      <subinterface-encapsulation>
        <config>
          <encap-default />
        </config>
      </subinterface-encapsulation>
    </extended>
  </interface>
</interfaces>
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
network-instance">
  <network-instance>
    <instance-name>VPLS-FULL1</instance-name>
    <instance-type>vpls</instance-type>
    <config>
      <instance-name>VPLS-FULL1</instance-name>
      <instance-type>vpls</instance-type>
    </config>
    <vpls-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
l2vpn-vpls">
      <vpls-peers>
        <vpls-peer>
          <peer-address>6.6.6.6</peer-address>
          <config>
            <peer-address>6.6.6.6</peer-address>
          </config>
        </vpls-peer>
      </vpls-peers>
      <config>
        <signaling-protocol-ldp />
        <vpls-encapsulation-type>vlan</vpls-encapsulation-type>
      </config>
    </vpls-instance>
  </network-instance>
</network-instances>
```

```
        </config>
    </vpls-peers>
</config>
    <vpls-identifier>600</vpls-identifier>
</config>
</vpls-instance>
</network-instance>
</network-instances>
<vpls xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-l2vpn-vpls">
    <interfaces>
        <interface>
            <name>xe25.1</name>
            <vpls-access>
                <config>
                    <vpls-name>VPLS-FULL1</vpls-name>
                    <enable />
                </config>
            </vpls-access>
            <config>
                <name>xe25.1</name>
            </config>
        </interface>
    </interfaces>
</vpls>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
    <network-instance>
        <name>VPLS-FULL</name>
        <config>
            <name>VPLS-FULL</name>
            <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
            <enabled>true</enabled>
        </config>
        <connection-points>
            <connection-point>
                <connection-point-id>default</connection-point-id>
                <endpoints>
                    <endpoint>
                        <endpoint-id>1</endpoint-id>
                        <state>
                            <precedence>1</precedence>
                            <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
                            <endpoint-id>1</endpoint-id>
                        </state>
                    </config>
                    <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
                    <endpoint-id>1</endpoint-id>
                </config>
            </remote>
        </config>
```

```

        <virtual-circuit-identifier>600</virtual-circuit-
identifier>
        <remote-system>6.6.6.6</remote-system>
        </config>
        <state>
        <virtual-circuit-identifier>600</virtual-circuit-
identifier>
        <remote-system>6.6.6.6</remote-system>
        </state>
        </remote>
        </endpoint>
        </endpoints>
        <state>
        <connection-point-id>default</connection-point-id>
        </state>
        <config>
        <connection-point-id>default</connection-point-id>
        </config>
        </connection-point>
        </connection-points>
        <state>
        <name>VPLS-FULL</name>
        <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
        <enabled>true</enabled>
        </state>
        <mpls>
        <global>
        <config>
        <pw-encapsulation>PWE_ETHERNET_TAGGED_MODE</pw-encapsulation>
        </config>
        <state>
        <pw-encapsulation>PWE_ETHERNET_TAGGED_MODE</pw-encapsulation>
        </state>
        </global>
        </mpls>
        <interfaces>
        <interface>
        <id>xe25.1</id>
        <config>
        <id>xe25.1</id>
        <interface>xe25</interface>
        <subinterface>1</subinterface>
        </config>
        <state>
        <id>xe25.1</id>
        <interface>xe25</interface>
        <subinterface>1</subinterface>
        </state>
        </interface>
        </interfaces>
        <fdb>
        <config>
        <mac-learning>true</mac-learning>
        </config>
        <state>
        <mac-learning>true</mac-learning>

```

```
    </state>  
  </fdb>  
</network-instance>
```

Restrictions

/network-instances/network-instance/interfaces/interface/id

This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

Currently encapsulation supported is *ethernet*. On OcNOS the the *vpls-type* must always be set as *ethernet*.

Disabling VPLS mac-learning

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">  
  <interface>  
    <name>xe2</name>  
    <config>  
      <name>xe2</name>  
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-  
type">ianaift:ethernetCsmacd</type>  
    </config>  
    <subinterfaces>  
      <subinterface>  
        <index>1</index>  
        <config>  
          <index>1</index>  
          <enabled>true</enabled>  
        </config>  
      </subinterface>  
    </subinterfaces>  
  </interface>  
</interfaces>  
<network-instances xmlns="http://openconfig.net/yang/network-instance">  
  <network-instance>  
    <name>VPLS-TEST</name>  
    <config>  
      <name>VPLS-TEST</name>  
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-  
types">oc-ni-types:L2VSI</type>  
      <enabled>true</enabled>  
    </config>  
    <connection-points>
```



```
<connection-point>
  <connection-point-id>default</connection-point-id>
  <endpoints>
    <endpoint>
      <endpoint-id>1</endpoint-id>
      <config>
        <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
        <endpoint-id>1</endpoint-id>
      </config>
      <remote>
        <config>
          <virtual-circuit-identifier>101</virtual-circuit-
identifier>
          <remote-system>3.3.3.3</remote-system>
        </config>
      </remote>
    </endpoint>
  </endpoints>
</connection-point>
</connection-points>
<interfaces>
  <interface>
    <id>xe2.1</id>
    <config>
      <id>xe2.1</id>
      <interface>xe2</interface>
      <subinterface>1</subinterface>
    </config>
  </interface>
</interfaces>
<fdb>
  <config>
    <mac-learning>>false</mac-learning>
  </config>
</fdb>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
mpls vpls VPLS-TEST1 101
  signaling ldp
  vpls-peer 3.3.3.3
  exit-signaling
exit-vpls
!
interface xe2.1 switchport
  encapsulation default
  access-if-vpls
  mpls-vpls VPLS-TEST1
  learning disable
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
```

```
<interface>
  <name>xe2</name>
  <config>
    <name>xe2</name>
  </config>
</interface>
<interface>
  <name>xe2.1</name>
  <config>
    <name>xe2.1</name>
    <enable-switchport />
  </config>
  <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-extended">
    <subinterface-encapsulation>
      <config>
        <encap-default />
      </config>
    </subinterface-encapsulation>
  </extended>
</interface>
</interfaces>
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>VPLS-TEST1</instance-name>
    <instance-type>vpls</instance-type>
    <config>
      <instance-name>VPLS-TEST1</instance-name>
      <instance-type>vpls</instance-type>
    </config>
    <vpls-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-l2vpn-
vpls">
      <vpls-peers>
        <vpls-peer>
          <peer-address>3.3.3.3</peer-address>
          <config>
            <peer-address>3.3.3.3</peer-address>
          </config>
        </vpls-peer>
      </vpls-peers>
      <config>
        <signaling-protocol-ldp />
      </config>
    </vpls-instance>
  </network-instance>
</network-instances>
<vpls xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-l2vpn-vpls">
  <interfaces>
    <interface>
      <name>xe2.1</name>
      <vpls-access>
        <config>
          <vpls-name>VPLS-TEST1</vpls-name>
          <disable-mac-learning />
        </config>
      </vpls-access>
    </interface>
  </interfaces>
</vpls>
```

```

        <enable />
    </config>
</vpls-access>
<config>
    <name>xe2.1</name>
</config>
</interface>
</interfaces>
</vpls>

```

Validation with NETCONF get

```

<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VPLS-TEST</name>
    <config>
      <name>VPLS-TEST</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
      <enabled>true</enabled>
    </config>
    <connection-points>
      <connection-point>
        <connection-point-id>default</connection-point-id>
        <endpoints>
          <endpoint>
            <endpoint-id>1</endpoint-id>
            <config>
              <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
              <endpoint-id>1</endpoint-id>
            </config>
            <remote>
              <config>
                <virtual-circuit-identifier>101</virtual-circuit-
identifier>
                <remote-system>3.3.3.3</remote-system>
              </config>
            <state>
              <virtual-circuit-identifier>101</virtual-circuit-
identifier>
              <remote-system>3.3.3.3</remote-system>
            </state>
          </remote>
          <state>
            <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
            <endpoint-id>1</endpoint-id>
          </state>
        </endpoint>
      </endpoints>
    </connection-point>
  </connection-points>
  <state>
    <name>VPLS-TEST</name>

```

```
<type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
  <enabled>true</enabled>
</state>
<interfaces>
  <interface>
    <id>xe2.1</id>
    <config>
      <id>xe2.1</id>
      <interface>xe2</interface>
      <subinterface>1</subinterface>
    </config>
    <state>
      <id>xe2.1</id>
      <interface>xe2</interface>
      <subinterface>1</subinterface>
    </state>
  </interface>
</interfaces>
<fdb>
  <config>
    <mac-learning>>false</mac-learning>
  </config>
  <state>
    <mac-learning>>false</mac-learning>
  </state>
</fdb>
</network-instance>
</network-instances>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe2</name>
    <config>
      <name>xe2</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <state>
      <name>xe2</name>
      <logical>>false</logical>
      <last-change>550600</last-change>
      <oper-status>UP</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>10002</ifindex>
      <counters>
        <last-clear>Never</last-clear>
        <out-errors>0</out-errors>
        <out-discards>0</out-discards>
        <out-multicast-pkts>86</out-multicast-pkts>
        <out-broadcast-pkts>0</out-broadcast-pkts>
        <out-unicast-pkts>0</out-unicast-pkts>
        <out-pkts>86</out-pkts>
        <out-octets>9780</out-octets>
        <in-fcs-errors>0</in-fcs-errors>
        <in-errors>0</in-errors>
        <in-discards>0</in-discards>
        <in-multicast-pkts>3485</in-multicast-pkts>
      </counters>
    </state>
  </interface>
</interfaces>
```

```
<in-broadcast-pkts>0</in-broadcast-pkts>
<in-unicast-pkts>0</in-unicast-pkts>
<in-pkts>3485</in-pkts>
<in-octets>279684</in-octets>
</counters>
<type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
</state>
<ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
  <state>
    <negotiated-port-speed>SPEED_10GB</negotiated-port-speed>
    <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
    <hw-mac-address>b86a.97be.193f</hw-mac-address>
  </state>
</ethernet>
<subinterfaces>
  <subinterface>
    <index>0</index>
    <config>
      <index>0</index>
    </config>
  </subinterface>
  <subinterface>
    <index>1</index>
    <config>
      <index>1</index>
    </config>
    <state>
      <name>xe2.1</name>
      <logical>>true</logical>
      <oper-status>UP</oper-status>
      <ifindex>20484097</ifindex>
      <counters>
        <last-clear>Never</last-clear>
        <out-pkts>0</out-pkts>
        <out-octets>0</out-octets>
        <in-pkts>0</in-pkts>
        <in-octets>0</in-octets>
      </counters>
    </state>
  <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
    <switched-vlan xmlns="http://openconfig.net/yang/vlan">
      <state>
        <interface-mode>ACCESS</interface-mode>
      </state>
    </switched-vlan>
  </ethernet>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
```

Restrictions

/network-instances/network-instance/interfaces/interface/id



This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

Configure VPWS

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe1</name>
    <config>
      <name>xe1</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>1</index>
        <config>
          <index>1</index>
          <enabled>true</enabled>
        </config>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VPWS-TEST</name>
    <config>
      <name>VPWS-TEST</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:L2P2P</type>
      <enabled>true</enabled>
    </config>
    <connection-points>
      <connection-point>
        <connection-point-id>default</connection-point-id>
        <endpoints>
          <endpoint>
            <endpoint-id>1</endpoint-id>
            <remote>
              <config>
                <virtual-circuit-identifier>100</virtual-
circuit-identifier>
                <remote-system>2.2.2.2</remote-system>
              </config>
            </remote>
          </endpoint>
        </endpoints>
      </connection-point>
    </connection-points>
  </network-instance>
</network-instances>
```

```
        <config>
          <type xmlns:oc-ni-
types="http://openconfig.net/yang/network-instance-types">oc-ni-
types:REMOTE</type>
          <endpoint-id>1</endpoint-id>
          <precedence>1</precedence>
        </config>
      </endpoint>
    </endpoints>
  </connection-point>
</connection-points>
<interfaces>
  <interface>
    <id>xel.1</id>
    <config>
      <id>xel.1</id>
      <interface>xel</interface>
      <subinterface>1</subinterface>
    </config>
  </interface>
</interfaces>
</network-instance>
</network-instances>
```

OcNOS CLI Command

```
mpls l2-circuit VPWS-TEST1 100 2.2.2.2
!
interface xel.1 switchport
 encapsulation default
 access-if-vpws
 mpls-l2-circuit VPWS-TEST1 primary
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xel</name>
    <config>
      <name>xel</name>
    </config>
  </interface>
  <interface>
    <name>xel.1</name>
    <config>
      <name>xel.1</name>
      <enable-switchport />
    </config>
    <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-extended">
      <subinterface-encapsulation>
        <config>
          <encap-default />
        </config>
      </subinterface-encapsulation>
    </extended>
  </interface>
```

```
</interfaces>
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>VPWS-TEST1</instance-name>
    <instance-type>vpws</instance-type>
    <config>
      <instance-name>VPWS-TEST1</instance-name>
      <instance-type>vpws</instance-type>
    </config>
    <vpws-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-l2vpn-
vpws">
      <pseudowire>
        <pseudowire-identifier>100</pseudowire-identifier>
        <peer-address>2.2.2.2</peer-address>
        <config>
          <pseudowire-identifier>100</pseudowire-identifier>
          <peer-address>2.2.2.2</peer-address>
        </config>
        <default-tagged>
          <config>
            <enable-default-tagged-mode />
          </config>
        </default-tagged>
      </pseudowire>
    </vpws-instance>
  </network-instance>
</network-instances>
<vpws xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-l2vpn-vpws">
  <interfaces>
    <interface>
      <name>xel.1</name>
      <vpws-access>
        <config>
          <enable />
        </config>
        <bindings>
          <binding>
            <vpws-name>VPWS-TEST1</vpws-name>
            <config>
              <vpws-name>VPWS-TEST1</vpws-name>
              <pseudowire-link-mode>primary</pseudowire-link-mode>
            </config>
          </binding>
        </bindings>
      </vpws-access>
    </config>
    <name>xel.1</name>
  </config>
</interface>
</interfaces>
</vpws>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
```



```

<network-instance>
  <name>VPWS-TEST</name>
  <config>
    <name>VPWS-TEST</name>
    <type
      xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2P2P</type>
    <enabled>true</enabled>
  </config>
  <connection-points>
    <connection-point>
      <connection-point-id>default</connection-point-id>
      <endpoints>
        <endpoint>
          <endpoint-id>1</endpoint-id>
          <remote>
            <config>
              <virtual-circuit-identifier>100</virtual-circuit-
identifier>
              <remote-system>2.2.2.2</remote-system>
            </config>
            <state>
              <virtual-circuit-identifier>100</virtual-circuit-
identifier>
              <remote-system>2.2.2.2</remote-system>
            </state>
          </remote>
          <config>
            <type
              xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
            <endpoint-id>1</endpoint-id>
            <precedence>1</precedence>
          </config>
          <state>
            <type
              xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
            <endpoint-id>1</endpoint-id>
            <precedence>1</precedence>
          </state>
        </endpoint>
      </endpoints>
    </connection-point>
  </connection-points>
  <interfaces>
    <interface>
      <id>xel1.1</id>
      <config>
        <id>xel1.1</id>
        <interface>xel</interface>
        <subinterface>1</subinterface>
      </config>
      <state>
        <id>xel1.1</id>
        <interface>xel</interface>
        <subinterface>1</subinterface>
      </state>
    </interface>
  </interfaces>

```

```
        </state>
      </interface>
    </interfaces>
  </network-instance>
</network-instances>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe1</name>
    <config>
      <name>xe1</name>
    </config>
    <subinterfaces>
      <subinterface>
        <index>1</index>
        <config>
          <index>1</index>
        </config>
        <state>
          <name>xe1.1</name>
          <logical>true</logical>
          <oper-status>DOWN</oper-status>
          <ifindex>20482049</ifindex>
          <counters>
            <last-clear>0</last-clear>
            <out-pkts>0</out-pkts>
            <out-octets>0</out-octets>
            <in-pkts>0</in-pkts>
            <in-octets>0</in-octets>
          </counters>
        </state>
        <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
          <switched-vlan xmlns="http://openconfig.net/yang/vlan">
            <state>
              <interface-mode>ACCESS</interface-mode>
            </state>
          </switched-vlan>
        </ethernet>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

Restrictions

/network-instances/network-instance/interfaces/interface/id

This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

Configure VPWS precedence

Release

This configuration was introduced in OcnOS version 5.1.

Configuration

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xel</name>
    <config>
      <name>xel</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>1</index>
        <config>
          <index>1</index>
        </config>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VPWS-TEST</name>
    <config>
      <name>VPWS-TEST</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2P2P</type>
      <enabled>>true</enabled>
    </config>
    <connection-points>
      <connection-point>
        <connection-point-id>default</connection-point-id>
        <endpoints>
          <endpoint>
            <endpoint-id>1</endpoint-id>
            <remote>
              <config>
                <virtual-circuit-identifier>100</virtual-circuit-
identifier>
                <remote-system>2.2.2.2</remote-system>
              </config>
            </remote>
          </endpoint>
          <endpoint>
            <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
            <endpoint-id>1</endpoint-id>
            <precedence>1</precedence>
          </config>
        </endpoint>
        <endpoint>
          <endpoint-id>2</endpoint-id>
          <remote>
            <config>
```

```

    <virtual-circuit-identifier>200</virtual-circuit-
identifier>
    <remote-system>3.3.3.3</remote-system>
  </config>
</remote>
<config>
  <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
  <endpoint-id>2</endpoint-id>
  <precedence>2</precedence>
</config>
</endpoint>
</endpoints>
</connection-point>
</connection-points>
<interfaces>
  <interface>
    <id>xel.1</id>
    <config>
      <id>xel.1</id>
      <interface>xel</interface>
      <subinterface>1</subinterface>
    </config>
  </interface>
</interfaces>
</network-instance>
</network-instances>

```

OcNOS CLI Command

```

mpls 12-circuit VPWS-TEST1 100 2.2.2.2
mpls 12-circuit VPWS-TEST2 200 3.3.3.3
!
interface xel.1 switchport
  encapsulation default
  access-if-vpws
    mpls-12-circuit VPWS-TEST1 primary
    mpls-12-circuit VPWS-TEST2 secondary

```

OcNOS NETCONF Payload

```

<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xel</name>
    <config>
      <name>xel</name>
    </config>
  </interface>
  <interface>
    <name>xel.1</name>
    <config>
      <name>xel.1</name>
      <enable-switchport />
    </config>
    <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-extended">
      <subinterface-encapsulation>

```

```
<config>
  <encap-default />
</config>
</subinterface-encapsulation>
</extended>
</interface>
</interfaces>
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>VPWS-TEST1</instance-name>
    <instance-type>vpws</instance-type>
    <config>
      <instance-name>VPWS-TEST1</instance-name>
      <instance-type>vpws</instance-type>
    </config>
    <vpws-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-l2vpn-
vpws">
      <pseudowire>
        <pseudowire-identifier>100</pseudowire-identifier>
        <peer-address>2.2.2.2</peer-address>
        <config>
          <pseudowire-identifier>100</pseudowire-identifier>
          <peer-address>2.2.2.2</peer-address>
        </config>
        <default-tagged>
          <config>
            <enable-default-tagged-mode />
          </config>
        </default-tagged>
      </pseudowire>
    </vpws-instance>
  </network-instance>
  <network-instance>
    <instance-name>VPWS-TEST2</instance-name>
    <instance-type>vpws</instance-type>
    <config>
      <instance-name>VPWS-TEST2</instance-name>
      <instance-type>vpws</instance-type>
    </config>
    <vpws-instance xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-l2vpn-
vpws">
      <pseudowire>
        <pseudowire-identifier>200</pseudowire-identifier>
        <peer-address>3.3.3.3</peer-address>
        <config>
          <pseudowire-identifier>200</pseudowire-identifier>
          <peer-address>3.3.3.3</peer-address>
        </config>
        <default-tagged>
          <config>
            <enable-default-tagged-mode />
          </config>
        </default-tagged>
      </pseudowire>
    </vpws-instance>
  </network-instance>
```

```
</network-instances>
<vpws xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-l2vpn-vpws">
  <interfaces>
    <interface>
      <name>xel.1</name>
      <vpws-access>
        <config>
          <enable />
        </config>
        <bindings>
          <binding>
            <vpws-name>VPWS-TEST1</vpws-name>
            <config>
              <vpws-name>VPWS-TEST1</vpws-name>
              <pseudowire-link-mode>primary</pseudowire-link-mode>
            </config>
          </binding>
          <binding>
            <vpws-name>VPWS-TEST2</vpws-name>
            <config>
              <vpws-name>VPWS-TEST2</vpws-name>
              <pseudowire-link-mode>secondary</pseudowire-link-mode>
            </config>
          </binding>
        </bindings>
      </vpws-access>
    </config>
    <name>xel.1</name>
  </config>
</interface>
</interfaces>
</vpws>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>VPWS-TEST</name>
    <config>
      <name>VPWS-TEST</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2P2P</type>
      <enabled>true</enabled>
    </config>
    <connection-points>
      <connection-point>
        <connection-point-id>default</connection-point-id>
        <endpoints>
          <endpoint>
            <endpoint-id>1</endpoint-id>
            <remote>
              <config>
                <virtual-circuit-identifier>100</virtual-circuit-
identifier>
                <remote-system>2.2.2.2</remote-system>
              </config>
            </remote>
          </endpoint>
        </endpoints>
      </connection-point>
    </connection-points>
  </network-instance>
</network-instances>
```

```

        <state>
          <virtual-circuit-identifier>100</virtual-circuit-
identifier>
          <remote-system>2.2.2.2</remote-system>
        </state>
      </remote>
    </config>
    <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
    <endpoint-id>1</endpoint-id>
    <precedence>1</precedence>
  </config>
  <state>
    <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
    <endpoint-id>1</endpoint-id>
    <precedence>1</precedence>
  </state>
</endpoint>
<endpoint>
  <endpoint-id>2</endpoint-id>
  <remote>
    <config>
      <virtual-circuit-identifier>200</virtual-circuit-
identifier>
      <remote-system>3.3.3.3</remote-system>
    </config>
    <state>
      <virtual-circuit-identifier>200</virtual-circuit-
identifier>
      <remote-system>3.3.3.3</remote-system>
    </state>
  </remote>
  <config>
    <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
    <endpoint-id>2</endpoint-id>
    <precedence>2</precedence>
  </config>
  <state>
    <type xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:REMOTE</type>
    <endpoint-id>2</endpoint-id>
    <precedence>2</precedence>
  </state>
</endpoint>
</endpoints>
</connection-point>
</connection-points>
<state>
  <name>VPWS-TEST</name>
  <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2P2P</type>
  <enabled>true</enabled>
</state>
<interfaces>
  <interface>

```

```

<id>xe1.1</id>
<config>
  <id>xe1.1</id>
  <interface>xe1</interface>
  <subinterface>1</subinterface>
</config>
<state>
  <id>xe1.1</id>
  <interface>xe1</interface>
  <subinterface>1</subinterface>
  </state>
</interface>
</interfaces>
</network-instance>
</network-instances>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe1</name>
    <config>
      <name>xe1</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <state>
      <name>xe1</name>
      <logical>false</logical>
      <last-change>15100</last-change>
      <oper-status>UP</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>10001</ifindex>
      <counters>
        <last-clear>Never</last-clear>
        <out-errors>0</out-errors>
        <out-discards>0</out-discards>
        <out-multicast-pkts>6</out-multicast-pkts>
        <out-broadcast-pkts>0</out-broadcast-pkts>
        <out-unicast-pkts>0</out-unicast-pkts>
        <out-pkts>6</out-pkts>
        <out-octets>640</out-octets>
        <in-fcs-errors>0</in-fcs-errors>
        <in-errors>0</in-errors>
        <in-discards>0</in-discards>
        <in-multicast-pkts>7</in-multicast-pkts>
        <in-broadcast-pkts>0</in-broadcast-pkts>
        <in-unicast-pkts>0</in-unicast-pkts>
        <in-pkts>7</in-pkts>
        <in-octets>814</in-octets>
      </counters>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </state>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <state>
        <negotiated-port-speed>SPEED_10GB</negotiated-port-speed>
        <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
        <hw-mac-address>b86a.97be.193e</hw-mac-address>
      </state>
    </ethernet>
  </interface>
</interfaces>

```



```
</ethernet>
<subinterfaces>
  <subinterface>
    <index>0</index>
    <config>
      <index>0</index>
    </config>
  </subinterface>
  <subinterface>
    <index>1</index>
    <config>
      <index>1</index>
    </config>
    <state>
      <name>xe1.1</name>
      <logical>true</logical>
      <oper-status>UP</oper-status>
      <ifindex>20482049</ifindex>
      <counters>
        <last-clear>Never</last-clear>
        <out-pkts>0</out-pkts>
        <out-octets>0</out-octets>
        <in-pkts>0</in-pkts>
        <in-octets>0</in-octets>
      </counters>
    </state>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <switched-vlan xmlns="http://openconfig.net/yang/vlan">
        <state>
          <interface-mode>ACCESS</interface-mode>
        </state>
      </switched-vlan>
    </ethernet>
  </subinterface>
</subinterfaces>
</interface>
</interfaces>
```

Restrictions

/network-instances/network-instance/interfaces/interface/id

This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

OpenConfig state attributes

Platform

The read-only state attributes listed here are valid for the platform Edgecore 5912-54X-O-AC-F.

FAN

Display fan status of the boards.

OpenConfig Filter

```
<filter type="subtree">
  <components xmlns="http://openconfig.net/yang/platform">
    <component>
      <state>
        <type>oc-platform-types:FAN</type>
      </state>
      <fan></fan>
    </component>
  </components>
</filter>
```

OpenConfig get result

```
<components xmlns="http://openconfig.net/yang/platform">
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>FAN-1/1</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>FAN-1/1</id>
      <name>FAN-1/1</name>
      <parent>FAN_TRAY-1</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>false</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>1</location>
      <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
    </state>
    <fan>
      <state>
        <speed xmlns="http://openconfig.net/yang/platform/fan">9800</speed>
      </state>
    </fan>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>FAN-1/2</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>FAN-1/2</id>
      <name>FAN-1/2</name>
      <parent>FAN_TRAY-1</parent>
```



```
<oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
  <removable>>false</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>2</location>
  <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
    </state>
    <fan>
      <state>
        <speed xmlns="http://openconfig.net/yang/platform/fan">8300</speed>
      </state>
    </fan>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>FAN-2/1</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>FAN-2/1</id>
      <name>FAN-2/1</name>
      <parent>FAN_TRAY-2</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
        <removable>>false</removable>
        <part-no>NA</part-no>
        <serial-no>NA</serial-no>
        <software-version>NA</software-version>
        <firmware-version>NA</firmware-version>
        <hardware-version>NA</hardware-version>
        <description>NA</description>
        <mfg-name>NA</mfg-name>
        <location>1</location>
        <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
          </state>
          <fan>
            <state>
              <speed
xmlns="http://openconfig.net/yang/platform/fan">10400</speed>
            </state>
          </fan>
        </component>
        <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
          <name>FAN-2/2</name>
```



```
<state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
  <id>FAN-2/2</id>
  <name>FAN-2/2</name>
  <parent>FAN_TRAY-2</parent>
  <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
  <removable>>false</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>2</location>
  <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
</state>
<fan>
  <state>
    <speed xmlns="http://openconfig.net/yang/platform/fan">8700</speed>
  </state>
</fan>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>FAN-3/1</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>FAN-3/1</id>
    <name>FAN-3/1</name>
    <parent>FAN_TRAY-3</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>>false</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>1</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
  </state>
  <fan>
    <state>
      <speed
xmlns="http://openconfig.net/yang/platform/fan">10300</speed>
    </state>
  </fan>
</component>
</state>
</fan>
```

```
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>FAN-3/2</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>FAN-3/2</id>
    <name>FAN-3/2</name>
    <parent>FAN_TRAY-3</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>>false</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>2</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
  </state>
  <fan>
    <state>
      <speed xmlns="http://openconfig.net/yang/platform/fan">8700</speed>
    </state>
  </fan>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>FAN-4/1</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>FAN-4/1</id>
    <name>FAN-4/1</name>
    <parent>FAN_TRAY-4</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>>false</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>1</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
  </state>
  <fan>
    <state>
```

```

    <speed
xmlns="http://openconfig.net/yang/platform/fan">10200</speed>
    </state>
  </fan>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>FAN-4/2</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>FAN-4/2</id>
    <name>FAN-4/2</name>
    <parent>FAN_TRAY-4</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>false</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>2</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
  </state>
  <fan>
    <state>
      <speed xmlns="http://openconfig.net/yang/platform/fan">8600</speed>
    </state>
  </fan>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>FAN-5/1</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>FAN-5/1</id>
    <name>FAN-5/1</name>
    <parent>FAN_TRAY-5</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>false</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>1</location>

```



```
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
  </state>
  <fan>
    <state>
      <speed
xmlns="http://openconfig.net/yang/platform/fan">10000</speed>
      </state>
    </fan>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>FAN-5/2</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>FAN-5/2</id>
      <name>FAN-5/2</name>
      <parent>FAN_TRAY-5</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>false</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>2</location>
      <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
      </state>
      <fan>
        <state>
          <speed xmlns="http://openconfig.net/yang/platform/fan">8400</speed>
          </state>
        </fan>
      </component>
      <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
        <name>FAN-6/1</name>
        <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
          <id>FAN-6/1</id>
          <name>FAN-6/1</name>
          <parent>FAN_TRAY-6</parent>
          <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
          <removable>false</removable>
          <part-no>NA</part-no>
          <serial-no>NA</serial-no>
          <software-version>NA</software-version>
          <firmware-version>NA</firmware-version>
```

```

    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>1</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
    </state>
    <fan>
      <state>
        <speed
xmlns="http://openconfig.net/yang/platform/fan">10100</speed>
        </state>
      </fan>
    </component>
    <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
      <name>FAN-6/2</name>
      <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
        <id>FAN-6/2</id>
        <name>FAN-6/2</name>
        <parent>FAN_TRAY-6</parent>
        <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
        <removable>>false</removable>
        <part-no>NA</part-no>
        <serial-no>NA</serial-no>
        <software-version>NA</software-version>
        <firmware-version>NA</firmware-version>
        <hardware-version>NA</hardware-version>
        <description>NA</description>
        <mfg-name>NA</mfg-name>
        <location>2</location>
        <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:FAN</type>
        </state>
      </fan>
      <state>
        <speed xmlns="http://openconfig.net/yang/platform/fan">8500</speed>
        </state>
      </fan>
    </component>

```

OcNOS get result

```

<components xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <component>
    <name>FAN-1/1</name>
    <state>
      <name>FAN-1/1</name>
      <parent>FAN_TRAY-1</parent>
      <product-name>NA</product-name>
      <oper-status>NA</oper-status>
    </state>
  </component>

```



```
<removable>>false</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>1</location>
<type>fan</type>
</state>
<fan>
  <state>
    <fan-location>front</fan-location>
    <fan-status>running</fan-status>
    <maximum-rpm>21500</maximum-rpm>
    <minimum-rpm>10000</minimum-rpm>
    <rpm>9800</rpm>
    <fan-index>1</fan-index>
  </state>
</fan>
</component>
<component>
  <name>FAN-1/2</name>
  <state>
    <name>FAN-1/2</name>
    <parent>FAN_TRAY-1</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>false</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>2</location>
    <type>fan</type>
  </state>
  <fan>
    <state>
      <fan-location>rear</fan-location>
      <fan-status>running</fan-status>
      <maximum-rpm>18000</maximum-rpm>
      <minimum-rpm>8500</minimum-rpm>
      <rpm>8300</rpm>
      <fan-index>2</fan-index>
    </state>
  </fan>
</component>
<component>
  <name>FAN-2/1</name>
  <state>
    <name>FAN-2/1</name>
    <parent>FAN_TRAY-2</parent>
    <product-name>NA</product-name>
```

```
<oper-status>NA</oper-status>
<removable>>false</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>1</location>
<type>fan</type>
</state>
<fan>
  <state>
    <fan-location>front</fan-location>
    <fan-status>running</fan-status>
    <maximum-rpm>21500</maximum-rpm>
    <minimum-rpm>10000</minimum-rpm>
    <rpm>10400</rpm>
    <fan-index>1</fan-index>
  </state>
</fan>
</component>
<component>
  <name>FAN-2/2</name>
  <state>
    <name>FAN-2/2</name>
    <parent>FAN_TRAY-2</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>false</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>2</location>
    <type>fan</type>
  </state>
</fan>
  <state>
    <fan-location>rear</fan-location>
    <fan-status>running</fan-status>
    <maximum-rpm>18000</maximum-rpm>
    <minimum-rpm>8500</minimum-rpm>
    <rpm>8700</rpm>
    <fan-index>2</fan-index>
  </state>
</fan>
</component>
<component>
  <name>FAN-3/1</name>
  <state>
    <name>FAN-3/1</name>
    <parent>FAN_TRAY-3</parent>
```

```
<product-name>NA</product-name>
<oper-status>NA</oper-status>
<removable>>false</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>1</location>
<type>fan</type>
</state>
<fan>
  <state>
    <fan-location>front</fan-location>
    <fan-status>running</fan-status>
    <maximum-rpm>21500</maximum-rpm>
    <minimum-rpm>10000</minimum-rpm>
    <rpm>10300</rpm>
    <fan-index>1</fan-index>
  </state>
</fan>
</component>
<component>
  <name>FAN-3/2</name>
  <state>
    <name>FAN-3/2</name>
    <parent>FAN_TRAY-3</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>false</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>2</location>
    <type>fan</type>
  </state>
  <fan>
    <state>
      <fan-location>rear</fan-location>
      <fan-status>running</fan-status>
      <maximum-rpm>18000</maximum-rpm>
      <minimum-rpm>8500</minimum-rpm>
      <rpm>8700</rpm>
      <fan-index>2</fan-index>
    </state>
  </fan>
</component>
<component>
  <name>FAN-4/1</name>
  <state>
    <name>FAN-4/1</name>
```

```
<parent>FAN_TRAY-4</parent>
<product-name>NA</product-name>
<oper-status>NA</oper-status>
<removable>>false</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>1</location>
<type>fan</type>
</state>
<fan>
  <state>
    <fan-location>front</fan-location>
    <fan-status>running</fan-status>
    <maximum-rpm>21500</maximum-rpm>
    <minimum-rpm>10000</minimum-rpm>
    <rpm>10200</rpm>
    <fan-index>1</fan-index>
  </state>
</fan>
</component>
<component>
  <name>FAN-4/2</name>
  <state>
    <name>FAN-4/2</name>
    <parent>FAN_TRAY-4</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>false</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>2</location>
    <type>fan</type>
  </state>
  <fan>
    <state>
      <fan-location>rear</fan-location>
      <fan-status>running</fan-status>
      <maximum-rpm>18000</maximum-rpm>
      <minimum-rpm>8500</minimum-rpm>
      <rpm>8600</rpm>
      <fan-index>2</fan-index>
    </state>
  </fan>
</component>
<component>
  <name>FAN-5/1</name>
  <state>
```

```
<name>FAN-5/1</name>
<parent>FAN_TRAY-5</parent>
<product-name>NA</product-name>
<oper-status>NA</oper-status>
<removable>false</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>1</location>
<type>fan</type>
</state>
<fan>
  <state>
    <fan-location>front</fan-location>
    <fan-status>running</fan-status>
    <maximum-rpm>21500</maximum-rpm>
    <minimum-rpm>10000</minimum-rpm>
    <rpm>10000</rpm>
    <fan-index>1</fan-index>
  </state>
</fan>
</component>
<component>
  <name>FAN-5/2</name>
  <state>
    <name>FAN-5/2</name>
    <parent>FAN_TRAY-5</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>false</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>2</location>
    <type>fan</type>
  </state>
  <fan>
    <state>
      <fan-location>rear</fan-location>
      <fan-status>running</fan-status>
      <maximum-rpm>18000</maximum-rpm>
      <minimum-rpm>8500</minimum-rpm>
      <rpm>8400</rpm>
      <fan-index>2</fan-index>
    </state>
  </fan>
</component>
<component>
  <name>FAN-6/1</name>
```

```
<state>
  <name>FAN-6/1</name>
  <parent>FAN_TRAY-6</parent>
  <product-name>NA</product-name>
  <oper-status>NA</oper-status>
  <removable>false</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>1</location>
  <type>fan</type>
</state>
<fan>
  <state>
    <fan-location>front</fan-location>
    <fan-status>running</fan-status>
    <maximum-rpm>21500</maximum-rpm>
    <minimum-rpm>10000</minimum-rpm>
    <rpm>10100</rpm>
    <fan-index>1</fan-index>
  </state>
</fan>
</component>
<component>
  <name>FAN-6/2</name>
  <state>
    <name>FAN-6/2</name>
    <parent>FAN_TRAY-6</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>false</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>2</location>
    <type>fan</type>
  </state>
  <fan>
    <state>
      <fan-location>rear</fan-location>
      <fan-status>running</fan-status>
      <maximum-rpm>18000</maximum-rpm>
      <minimum-rpm>8500</minimum-rpm>
      <rpm>8500</rpm>
      <fan-index>2</fan-index>
    </state>
  </fan>
</component>
```

Show command

```
OcNOS#show hardware-information fan
```

Codes : R - Rear Fan, F - Front Fan, U - Unknown

FAN TRAY	FAN	RPM	MINRPM	MAXRPM
1	1 (F)	9800	10000	21500
1	2 (R)	8300	8500	18000
2	1 (F)	10400	10000	21500
2	2 (R)	8700	8500	18000
3	1 (F)	10300	10000	21500
3	2 (R)	8700	8500	18000
4	1 (F)	10100	10000	21500
4	2 (R)	8600	8500	18000
5	1 (F)	10000	10000	21500
5	2 (R)	8400	8500	18000
6	1 (F)	10100	10000	21500
6	2 (R)	8500	8500	18000

RAM

Display memory information of the boards.

Filter

```
<filter type="subtree">
  <components xmlns="http://openconfig.net/yang/platform">
    <component>
      <name>RAM</name>
    </component>
  </components>
</filter>
```

OpenConfig get result

```
<components xmlns="http://openconfig.net/yang/platform">
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>RAM</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>RAM</id>
      <name>RAM</name>
      <parent>CHASSIS</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>>false</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
```

```
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>0</location>
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:RAM</type>
  <memory>
    <utilized>1118830592</utilized>
    <available>16792944640</available>
  </memory>
</state>
</component>
</components>
```

OcNOS get result

```
<components xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <component>
    <name>RAM</name>
    <state>
      <name>RAM</name>
      <parent>CHASSIS</parent>
      <product-name>NA</product-name>
      <oper-status>NA</oper-status>
      <removable>false</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>0</location>
      <type>ram</type>
      <memory>
        <utilized>1066</utilized>
        <available>16015</available>
      </memory>
    </state>
  </component>
  <ram>
    <state>
      <usage-alert-threshold>90</usage-alert-threshold>
      <usage-critical-threshold>80</usage-critical-threshold>
      <unit-size>1</unit-size>
      <available-high-memory>0</available-high-memory>
      <total-high-memory>0</total-high-memory>
      <current-process-count>214</current-process-count>
      <free-swap>0</free-swap>
      <total-swap>0</total-swap>
      <buffers>18</buffers>
      <shared-memory>8</shared-memory>
      <available-memory>14948</available-memory>
      <used-memory>1066</used-memory>
      <total-memory>16015</total-memory>
    </state>
  </ram>
</components>
```



```
</ram>  
</component>  
</components>
```

Show command

```
OcNOS#show hardware-information memory
```

```
-----  
RAM INFORMATION  
-----  
Total           : 16015 MB  
Used            : 1067 MB (7 %)  
Free           : 14947 MB (93 %)  
Shared         : 8 MB  
Buffers        : 17 MB  
Total Swap     : 0 MB  
Free Swap     : 0 MB  
Current Processes : 217  
Total High Memory : 0 MB  
Available High Memory : 0 MB  
Unit Size      : 1 Bytes  
Alert Threshold : 90 %  
Critical Threshold : 80 %  
-----
```

```
HARD DISK INFORMATION  
-----  
Serial Number      : F929740043  
Model Number      : TS32GMSA370  
Firmware Revision : P1225CH1TS32GMSA370  
Cylinders         : 16383  
Heads             : 16  
Sectors          : 62533296  
Unformatted Bytes/Track : 0  
Unformatted Bytes/Sector : 0  
Revision No      : 1008.0  
Usage Alert Threshold : 90 %  
Usage Critical Threshold : 80 %  
-----
```

Filesystem	Total	Used	Free	Use%
/	22000	6446	15554	29%
/cfg	476	90	386	19%
/installers	4911	282	4629	6%

Hard-disk

Display hard-disk information of the boards.

Filter

```
<filter type="subtree">  
  <components xmlns="http://openconfig.net/yang/platform">
```



```
<component>
  <name>HARD-DISK</name>
</component>
</components>
</filter>
```

OpenConfig get result

```
<components xmlns="http://openconfig.net/yang/platform">
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>HARD-DISK</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>HARD-DISK</id>
      <name>HARD-DISK</name>
      <parent>CHASSIS</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>false</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>0</location>
      <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:STORAGE</type>
      <memory>
        <utilized>6759120896</utilized>
        <available>23068672000</available>
      </memory>
    </state>
  </component>
</components>
```

OcNOS get result

```
<components xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <component>
    <name>HARD-DISK</name>
    <state>
      <name>HARD-DISK</name>
      <parent>CHASSIS</parent>
      <product-name>NA</product-name>
      <oper-status>NA</oper-status>
      <removable>false</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
```

```

<description>NA</description>
<mfg-name>NA</mfg-name>
<location>0</location>
<type>storage</type>
<memory>
  <utilized>6446</utilized>
  <available>22000</available>
</memory>
</state>
<storage>
  <state>
    <usage-alert-threshold>90</usage-alert-threshold>
    <usage-critical-threshold>80</usage-critical-threshold>
    <free-memory>15554</free-memory>
    <used-memory>6446</used-memory>
    <total-memory>22000</total-memory>
    <revision-number>1008.0</revision-number>
    <unformatted-bytes-or-sector>0</unformatted-bytes-or-sector>
    <unformatted-bytes-or-track>0</unformatted-bytes-or-track>
    <sector-count>62533296</sector-count>
    <head-count>16</head-count>
    <cylinder-count>16383</cylinder-count>
    <firmware-revision>P1225CH1TS32GMSA370          </firmware-
revision>
    <model-number>TS32GMSA370          </model-number>
    <serial-number>F929740043          </serial-number>
  </state>
  <mounted-filefilesystems>
    <mounted-filesystem>
      <mount-point>/</mount-point>
      <state>
        <mount-point>/</mount-point>
        <usage>29</usage>
        <free>15554</free>
        <used>6446</used>
        <total>22000</total>
      </state>
    </mounted-filesystem>
    <mounted-filesystem>
      <mount-point>/cfg</mount-point>
      <state>
        <mount-point>/cfg</mount-point>
        <usage>19</usage>
        <free>386</free>
        <used>90</used>
        <total>476</total>
      </state>
    </mounted-filesystem>
    <mounted-filesystem>
      <mount-point>/installers</mount-point>
      <state>
        <mount-point>/installers</mount-point>
        <usage>6</usage>
        <free>4629</free>
        <used>282</used>
        <total>4911</total>
      </state>
  </mounted-filefilesystems>

```

```
</mounted-filesystem>  
</mounted-filesystems>  
</storage>  
</component>  
</components>
```

Show command

```
OcNOS#show hardware-information memory
```

```
-----  
RAM INFORMATION  
-----  
Total           : 16015 MB  
Used            : 1067 MB (7 %)  
Free           : 14947 MB (93 %)  
Shared         : 8 MB  
Buffers        : 17 MB  
Total Swap     : 0 MB  
Free Swap      : 0 MB  
Current Processes : 217  
Total High Memory : 0 MB  
Available High Memory : 0 MB  
Unit Size      : 1 Bytes  
Alert Threshold : 90 %  
Critical Threshold : 80 %  
-----
```

```
HARD DISK INFORMATION  
-----  
Serial Number      : F929740043  
Model Number       : TS32GMSA370  
Firmware Revision  : P1225CH1TS32GMSA370  
Cylinders          : 16383  
Heads              : 16  
Sectors            : 62533296  
Unformatted Bytes/Track : 0  
Unformatted Bytes/Sector : 0  
Revision No        : 1008.0  
Usage Alert Threshold : 90 %  
Usage Critical Threshold : 80 %  
-----
```

Filesystem	Total	Used	Free	Use%
/	22000	6446	15554	29%
/cfg	476	90	386	19%
/installers	4911	282	4629	6%

PSU

Display PSU information.

Filter

```
<filter type="subtree">
  <components xmlns="http://openconfig.net/yang/platform">
    <component>
      <state>
        <type>oc-platform-types:POWER_SUPPLY</type>
      </state>
    </component>
  </components>
</filter>
```

OpenConfig get result

```
<components xmlns="http://openconfig.net/yang/platform">
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>PSU-1</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>PSU-1</id>
      <name>PSU-1</name>
      <parent>CHASSIS</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>true</removable>
      <part-no>YM-2651Y</part-no>
      <serial-no>TA100V582031000097</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>3Y POWER</mfg-name>
      <location>1</location>
      <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:POWER_SUPPLY</type>
    </state>
    <power-supply>
      <state>
        <output-current
xmlns="http://openconfig.net/yang/platform/psu">8.88</output-current>
        <output-voltage
xmlns="http://openconfig.net/yang/platform/psu">11.81</output-voltage>
        <output-power
xmlns="http://openconfig.net/yang/platform/psu">104.00</output-power>
        <enabled
xmlns="http://openconfig.net/yang/platform/psu">true</enabled>
      </state>
    </power-supply>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>PSU-2</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
```

```

    <id>PSU-2</id>
    <name>PSU-2</name>
    <parent>CHASSIS</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>2</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:POWER_SUPPLY</type>
    </state>
    <power-supply>
    <state>
    <enabled
xmlns="http://openconfig.net/yang/platform/psu">>false</enabled>
    </state>
    </power-supply>
  </component>
</components>

```

OcNOS get result

```

<components xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <component>
    <name>PSU-1</name>
    <state>
      <name>PSU-1</name>
      <parent>CHASSIS</parent>
      <product-name>NA</product-name>
      <oper-status>NA</oper-status>
      <removable>>true</removable>
      <part-no>YM-2651Y</part-no>
      <serial-no>TA100V582031000097</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>3Y POWER</mfg-name>
      <location>1</location>
      <type>power-supply</type>
    </state>
    <power-supply>
      <state>
        <supported-parameters>volt-in volt-out curr-in curr-out power-in
power-out temp-1 temp-2 fan-1 fan-2</supported-parameters>
        <output-power-status>good</output-power-status>
        <input-power-status>good</input-power-status>
        <fan1-rpm>26688</fan1-rpm>
      </state>
    </power-supply>
  </component>
</components>

```

```
<temperature-sensor2>31.00</temperature-sensor2>
<temperature-sensor1>27.00</temperature-sensor1>
<output-current>8.88</output-current>
<output-voltage>11.81</output-voltage>
<power-consumption>105.00</power-consumption>
<hot-swap-state>unknown</hot-swap-state>
<operational-status>running</operational-status>
</state>
</power-supply>
</component>
<component>
  <name>PSU-2</name>
  <state>
    <name>PSU-2</name>
    <parent>CHASSIS</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>2</location>
    <type>power-supply</type>
  </state>
  <power-supply>
    <state>
      <supported-parameters>volt-in volt-out curr-in curr-out power-in
power-out temp-1 temp-2 fan-1 fan-2</supported-parameters>
      <output-power-status>fail</output-power-status>
      <input-power-status>fail</input-power-status>
      <temperature-sensor2>0.00</temperature-sensor2>
      <temperature-sensor1>0.00</temperature-sensor1>
      <hot-swap-state>unknown</hot-swap-state>
      <operational-status>faulty</operational-status>
    </state>
  </power-supply>
</component>

<components xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <component>
    <name>POWER-RAIL</name>
    <state>
      <name>POWER-RAIL</name>
      <parent>CHASSIS</parent>
      <product-name>NA</product-name>
      <oper-status>NA</oper-status>
      <removable>false</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
    </state>
  </component>
</components>
```

```

    <mfg-name>NA</mfg-name>
    <location>0</location>
    <type>power-rail</type>
  </state>
  <power-rail>
    <state>
      <power-supply-2-ac-alert-power-rail>fail</power-supply-2-ac-alert-
power-rail>
      <power-supply-1-ac-alert-power-rail>good</power-supply-1-ac-alert-
power-rail>
      <power-supply-2-v12-power-rail>fail</power-supply-2-v12-power-rail>
      <power-supply-1-v12-power-rail>good</power-supply-1-v12-power-rail>
    </state>
  </power-rail>
</component>
</components>

```

Show command

```
OcNOS#show hardware-information power
```

```

-----
      System Power Information
-----
CMM_PS1_12V_PG           : GOOD
CMM_PS2_12V_PG           : FAIL
CMM_PS1_AC_ALERT         : GOOD
CMM_PS2_AC_ALERT         : FAIL

Codes:      * Not Supported by device   NA Not Applicable

PSU          VOLT-IN   VOLT-OUT   CURR-IN    CURR-OUT   PWR-IN     PWR-OUT
TEMP-1       TEMP-2     FAN-1     FAN-2     PWR_OUT_MAX
(Celsius)   (Volt)    (Volt)    (Ampere)  (Ampere)   (Watt)     (Watt)
            (Celsius) (Rpm)    (Rpm)

-----
1           NA         11.82     NA         8.80      NA         104.00
27.00      31.00      26688    NA*        NA*

```

Temperature

Display temperature sensor information of the boards.

Filter

```

<filter type="subtree">
  <components xmlns="http://openconfig.net/yang/platform">
    <component>
      <state>
        <temperature/>
      </state>
    </component>
  </components>
</filter>

```


OpenConfig get result

```
<components xmlns="http://openconfig.net/yang/platform">
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>TEMPERATURE-SENSOR1</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>TEMPERATURE-SENSOR1</id>
      <name>TEMPERATURE-SENSOR1</name>
      <temperature xmlns="http://openconfig.net/yang/platform">
        <alarm-severity>oc-alarm-types:UNKNOWN</alarm-severity>
        <alarm-threshold>0</alarm-threshold>
        <alarm-status>false</alarm-status>
        <interval xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">60000000000</interval>
        <avg xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">29.98</avg>
        <max xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">30.00</max>
        <min xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">29.00</min>
        <instant xmlns:oc-platform-
types="http://openconfig.net/yang/platform-types">30.00</instant>
      </temperature>
    </state>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>TEMPERATURE-SENSOR2</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>TEMPERATURE-SENSOR2</id>
      <name>TEMPERATURE-SENSOR2</name>
      <temperature xmlns="http://openconfig.net/yang/platform">
        <alarm-severity>oc-alarm-types:UNKNOWN</alarm-severity>
        <alarm-threshold>0</alarm-threshold>
        <alarm-status>false</alarm-status>
        <interval xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">60000000000</interval>
        <avg xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">28.98</avg>
        <max xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">29.00</max>
        <min xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">28.00</min>
        <instant xmlns:oc-platform-
types="http://openconfig.net/yang/platform-types">29.00</instant>
      </temperature>
    </state>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>TEMPERATURE-SENSOR3</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
```

```
<id>TEMPERATURE-SENSOR3</id>
<name>TEMPERATURE-SENSOR3</name>
<temperature xmlns="http://openconfig.net/yang/platform">
  <alarm-severity>oc-alarm-types:UNKNOWN</alarm-severity>
  <alarm-threshold>0</alarm-threshold>
  <alarm-status>false</alarm-status>
  <interval xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">60000000000</interval>
  <avg xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">28.07</avg>
  <max xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">29.00</max>
  <min xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">28.00</min>
  <instant xmlns:oc-platform-
types="http://openconfig.net/yang/platform-types">28.00</instant>
</temperature>
</state>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>TEMPERATURE-BCM Chip</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>TEMPERATURE-BCM Chip</id>
    <name>TEMPERATURE-BCM Chip</name>
    <temperature xmlns="http://openconfig.net/yang/platform">
      <alarm-severity>oc-alarm-types:UNKNOWN</alarm-severity>
      <alarm-threshold>0</alarm-threshold>
      <alarm-status>false</alarm-status>
      <interval xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">60000000000</interval>
      <avg xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">48.49</avg>
      <max xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">49.60</max>
      <min xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">45.70</min>
      <instant xmlns:oc-platform-
types="http://openconfig.net/yang/platform-types">48.60</instant>
    </temperature>
  </state>
</component>
</components>
```

OcNOS get result

```
<components xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <component>
    <name>TEMPERATURE-SENSOR1</name>
    <state>
      <name>TEMPERATURE-SENSOR1</name>
      <temperature>
        <maximum-critical-temperature>60.00</maximum-critical-temperature>
        <minimum-critical-temperature>10.00</minimum-critical-temperature>
        <maximum-alert-temperature>65.00</maximum-alert-temperature>
      </temperature>
    </state>
  </component>
</components>
```

```
<minimum-alert-temperature>5.00</minimum-alert-temperature>
<maximum-emergency-temperature>70.00</maximum-emergency-
temperature>
  <minimum-emergency-temperature>0.00</minimum-emergency-temperature>
  <alarm-severity>indeterminate</alarm-severity>
  <alarm-threshold>0.00</alarm-threshold>
  <alarm-status>false</alarm-status>
  <sensor-index>0</sensor-index>
  <sensor-name>TEMPERATURE-SENSOR1</sensor-name>
  <interval>60</interval>
  <avg>29.98</avg>
  <max>30.00</max>
  <min>29.00</min>
  <instant>30.00</instant>
</temperature>
</state>
</component>
<component>
  <name>TEMPERATURE-SENSOR2</name>
  <state>
    <name>TEMPERATURE-SENSOR2</name>
    <temperature>
      <maximum-critical-temperature>60.00</maximum-critical-temperature>
      <minimum-critical-temperature>10.00</minimum-critical-temperature>
      <maximum-alert-temperature>65.00</maximum-alert-temperature>
      <minimum-alert-temperature>5.00</minimum-alert-temperature>
      <maximum-emergency-temperature>70.00</maximum-emergency-
temperature>
      <minimum-emergency-temperature>0.00</minimum-emergency-temperature>
      <alarm-severity>indeterminate</alarm-severity>
      <alarm-threshold>0.00</alarm-threshold>
      <alarm-status>false</alarm-status>
      <sensor-index>1</sensor-index>
      <sensor-name>TEMPERATURE-SENSOR2</sensor-name>
      <interval>60</interval>
      <avg>28.98</avg>
      <max>29.00</max>
      <min>28.00</min>
      <instant>29.00</instant>
    </temperature>
  </state>
</component>
<component>
  <name>TEMPERATURE-SENSOR3</name>
  <state>
    <name>TEMPERATURE-SENSOR3</name>
    <temperature>
      <maximum-critical-temperature>60.00</maximum-critical-temperature>
      <minimum-critical-temperature>10.00</minimum-critical-temperature>
      <maximum-alert-temperature>65.00</maximum-alert-temperature>
      <minimum-alert-temperature>5.00</minimum-alert-temperature>
      <maximum-emergency-temperature>70.00</maximum-emergency-
temperature>
      <minimum-emergency-temperature>0.00</minimum-emergency-temperature>
      <alarm-severity>indeterminate</alarm-severity>
      <alarm-threshold>0.00</alarm-threshold>
      <alarm-status>false</alarm-status>
```

```

    <sensor-index>2</sensor-index>
    <sensor-name>TEMPERATURE-SENSOR3</sensor-name>
    <interval>60</interval>
    <avg>28.07</avg>
    <max>29.00</max>
    <min>28.00</min>
    <instant>28.00</instant>
  </temperature>
</state>
</component>
<component>
  <name>TEMPERATURE-BCM Chip</name>
  <state>
    <name>TEMPERATURE-BCM Chip</name>
    <temperature>
      <maximum-critical-temperature>75.00</maximum-critical-temperature>
      <minimum-critical-temperature>14.00</minimum-critical-temperature>
      <maximum-alert-temperature>80.00</maximum-alert-temperature>
      <minimum-alert-temperature>10.00</minimum-alert-temperature>
      <maximum-emergency-temperature>95.00</maximum-emergency-
temperature>
      <minimum-emergency-temperature>0.00</minimum-emergency-temperature>
      <alarm-severity>indeterminate</alarm-severity>
      <alarm-threshold>0.00</alarm-threshold>
      <alarm-status>false</alarm-status>
      <sensor-index>3</sensor-index>
      <sensor-name>TEMPERATURE-BCM Chip</sensor-name>
      <interval>60</interval>
      <avg>48.49</avg>
      <max>49.60</max>
      <min>45.70</min>
      <instant>48.60</instant>
    </temperature>
  </state>
</component>
</components>

```

Show command

```
OcNOS#show hardware-information temperature
```

```
Board Temp Sensors Temperature in Degree C
```

```

-----
SENSOR TYPE                CURR  EMER  ALRT CRIT CRIT  ALRT  EMER  MIN-
TEMP  MAX-TEMP  AVG-TEMP                TEMP  MIN   MIN  MIN  MAX  MAX  MAX
(Monitored since 00 hour,59 min)
-----

```

```

SENSOR1                30.00  0    5    10   60   65   70
29.00   30.00   29.98
SENSOR2                29.00  0    5    10   60   65   70
28.00   29.00   28.98

```

```

SENSOR3                28.00  0    5    10    60    65    70
28.00    29.00    28.07
BCM Chip                48.10  0   10   14   75   80   95
45.70    49.60    48.48

```

BCM Chip Internal Temperature

```

-----
TEMP MONITOR    CURRENT TEMP    PEAK TEMP
                (Degree C)    (Degree C)
-----
1                48.10          49.10
2                48.10          50.10
3                42.70          45.20
4                47.70          50.60

```

Transceiver

Display transceiver presence status and supported list of transceivers.

Filter

```

<filter type="subtree">
  <components xmlns="http://openconfig.net/yang/platform">
    <component>
      <state>
        <type>oc-platform-types:TRANSCEIVER</type>
      </state>
      <transceiver/>
    </component>
  </components>
</filter>

```

OpenConfig get result

```

<components xmlns="http://openconfig.net/yang/platform">
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>SFP-1</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>SFP-1</id>
      <name>SFP-1</name>
      <parent>PORT-xe1</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>true</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>1</location>
    </state>
  </component>
</components>

```



```
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <date-code>150908</date-code>
      <serial-no>CN0V250M58V91KC </serial-no>
      <vendor-rev>C </vendor-rev>
      <vendor-part>616740001 </vendor-part>
      <vendor>Amphenol </vendor>
      <connector-type>ipi-oc-transport-types-
deviations:COPPER_PIGTAIL_CONNECTOR</connector-type>
      <form-factor>oc-opt-types:SFP_PLUS</form-factor>
      <present>PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-2</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-2</id>
    <name>SFP-2</name>
    <parent>PORT-xe2</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>2</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
    </state>
    <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
      <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
        <date-code>151119</date-code>
        <serial-no>CN0V250M5BB2NMD </serial-no>
        <vendor-rev>C </vendor-rev>
        <vendor-part>616740001 </vendor-part>
        <vendor>Amphenol </vendor>
        <connector-type>ipi-oc-transport-types-
deviations:COPPER_PIGTAIL_CONNECTOR</connector-type>
        <form-factor>oc-opt-types:SFP_PLUS</form-factor>
        <present>PRESENT</present>
      </state>
    </transceiver>
  </state>
</component>
```

```
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-3</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-3</id>
    <name>SFP-3</name>
    <parent>PORT-xe3</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>3</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <date-code>151119</date-code>
      <serial-no>CN0V250M5BB2NEE </serial-no>
      <vendor-rev>C </vendor-rev>
      <vendor-part>616740001 </vendor-part>
      <vendor>Amphenol </vendor>
      <connector-type>ipi-oc-transport-types-
deviations:COPPER_PIGTAIL_CONNECTOR</connector-type>
      <form-factor>oc-opt-types:SFP_PLUS</form-factor>
      <present>PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-4</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-4</id>
    <name>SFP-4</name>
    <parent>PORT-xe4</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
```



```
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>4</location>
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <date-code>150907</date-code>
      <serial-no>CN0V250M58V91K9 </serial-no>
      <vendor-rev>C </vendor-rev>
      <vendor-part>616740001 </vendor-part>
      <vendor>Amphenol </vendor>
      <connector-type>ipi-oc-transport-types-
deviations:COPPER_PIGTAIL_CONNECTOR</connector-type>
      <form-factor>oc-opt-types:SFP_PLUS</form-factor>
      <present>PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-5</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-5</id>
    <name>SFP-5</name>
    <parent>PORT-xe5</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>5</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
```



```

    </component>
    <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
      <name>SFP-6</name>
      <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
        <id>SFP-6</id>
        <name>SFP-6</name>
        <parent>PORT-xe6</parent>
        <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
        <removable>true</removable>
        <part-no>NA</part-no>
        <serial-no>NA</serial-no>
        <software-version>NA</software-version>
        <firmware-version>NA</firmware-version>
        <hardware-version>NA</hardware-version>
        <description>NA</description>
        <mfg-name>NA</mfg-name>
        <location>6</location>
        <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
      </state>
      <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
        <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
          <date-code>150908</date-code>
          <serial-no>CN0V250M58V920E </serial-no>
          <vendor-rev>C </vendor-rev>
          <vendor-part>616740001 </vendor-part>
          <vendor>Amphenol </vendor>
          <connector-type>ipi-oc-transport-types-
deviations:COPPER_PIGTAIL_CONNECTOR</connector-type>
          <form-factor>oc-opt-types:SFP_PLUS</form-factor>
          <present>PRESENT</present>
        </state>
      </transceiver>
    </component>
    <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
      <name>SFP-7</name>
      <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
        <id>SFP-7</id>
        <name>SFP-7</name>
        <parent>PORT-xe7</parent>
        <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
        <removable>true</removable>
        <part-no>NA</part-no>
        <serial-no>NA</serial-no>
        <software-version>NA</software-version>
        <firmware-version>NA</firmware-version>

```



```
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>7</location>
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
</state>
<transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
  <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
    <present>NOT_PRESENT</present>
  </state>
</transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-8</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-8</id>
    <name>SFP-8</name>
    <parent>PORT-xe8</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>8</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-9</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-9</id>
    <name>SFP-9</name>
    <parent>PORT-xe9</parent>
```

```

    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>9</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
    </state>
    <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
        <present>NOT_PRESENT</present>
    </state>
    </transceiver>
</component>
    <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>SFP-10</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-10</id>
    <name>SFP-10</name>
    <parent>PORT-xe10</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>10</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
    </state>
    <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
        <date-code>161221</date-code>
        <serial-no>J11836008016 </serial-no>
        <vendor-rev>01 </vendor-rev>
        <vendor-part>ET5402-DAC-3M </vendor-part>
        <vendor>Edgecore </vendor>

```

```

    <connector-type>ipi-oc-transport-types-
deviations:COPPER_PIGTAIL_CONNECTOR</connector-type>
    <form-factor>oc-opt-types:SFP_PLUS</form-factor>
    <present>PRESENT</present>
  </state>
</transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-11</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-11</id>
    <name>SFP-11</name>
    <parent>PORT-xe11</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>11</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <date-code>100101</date-code>
      <serial-no>NCI80T1328 </serial-no>
      <vendor-rev>1.0 </vendor-rev>
      <vendor-part>SFP-T </vendor-part>
      <vendor>OEM </vendor>
      <ethernet-pmd>ipi-oc-transport-types-
deviations:ETH_1000BASE_T</ethernet-pmd>
      <connector-type>oc-opt-types:LC_CONNECTOR</connector-type>
      <form-factor>oc-opt-types:SFP_PLUS</form-factor>
      <present>PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-12</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-12</id>
    <name>SFP-12</name>
    <parent>PORT-xe12</parent>

```



```
<oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
  <removable>true</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>12</location>
  <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
    </state>
    <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
      <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
        <present>NOT_PRESENT</present>
      </state>
    </transceiver>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>SFP-13</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>SFP-13</id>
      <name>SFP-13</name>
      <parent>PORT-xe13</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>true</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>13</location>
      <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
        </state>
        <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
          <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
            <present>NOT_PRESENT</present>
          </state>
        </transceiver>
      </component>
```



```
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-14</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-14</id>
    <name>SFP-14</name>
    <parent>PORT-xe14</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>14</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-15</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-15</id>
    <name>SFP-15</name>
    <parent>PORT-xe15</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>15</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
```



```
<state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
  <present>NOT_PRESENT</present>
</state>
</transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-16</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-16</id>
    <name>SFP-16</name>
    <parent>PORT-xel6</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>16</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-17</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-17</id>
    <name>SFP-17</name>
    <parent>PORT-xel7</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
```

```
<mfg-name>NA</mfg-name>
<location>17</location>
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
</state>
<transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
  <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
    <present>NOT_PRESENT</present>
  </state>
</transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-18</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-18</id>
    <name>SFP-18</name>
    <parent>PORT-xe18</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>18</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-19</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-19</id>
    <name>SFP-19</name>
    <parent>PORT-xe19</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
```



```
<removable>true</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>19</location>
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
</state>
<transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
  <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
    <present>NOT_PRESENT</present>
  </state>
</transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-20</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-20</id>
    <name>SFP-20</name>
    <parent>PORT-xe20</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>20</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
    </state>
    <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
      <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
        <present>NOT_PRESENT</present>
      </state>
    </transceiver>
  </component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-21</name>
```



```
<state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
  <id>SFP-21</id>
  <name>SFP-21</name>
  <parent>PORT-xe21</parent>
  <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
  <removable>true</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>21</location>
  <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
</state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-22</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-22</id>
    <name>SFP-22</name>
    <parent>PORT-xe22</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>22</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
```

```
        <present>NOT_PRESENT</present>
      </state>
    </transceiver>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>SFP-23</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>SFP-23</id>
      <name>SFP-23</name>
      <parent>PORT-xe23</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>true</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>23</location>
      <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
    </state>
    <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
      <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
        <present>NOT_PRESENT</present>
      </state>
    </transceiver>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>SFP-24</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>SFP-24</id>
      <name>SFP-24</name>
      <parent>PORT-xe24</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>true</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>24</location>
```

```
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-25</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-25</id>
    <name>SFP-25</name>
    <parent>PORT-xe25</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>25</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-26</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-26</id>
    <name>SFP-26</name>
    <parent>PORT-xe26</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
```

```
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>26</location>
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-27</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-27</id>
    <name>SFP-27</name>
    <parent>PORT-xe27</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>27</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
    </state>
    <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
      <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
        <present>NOT_PRESENT</present>
      </state>
    </transceiver>
  </component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-28</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-28</id>
```

```
<name>SFP-28</name>
<parent>PORT-xe28</parent>
<oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
  <removable>true</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>28</location>
  <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
</state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-29</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-29</id>
    <name>SFP-29</name>
    <parent>PORT-xe29</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>29</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
```



```
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-30</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-30</id>
    <name>SFP-30</name>
    <parent>PORT-xe30</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>30</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-31</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-31</id>
    <name>SFP-31</name>
    <parent>PORT-xe31</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>31</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
```

```
<transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
  <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
    <present>NOT_PRESENT</present>
  </state>
</transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-32</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-32</id>
    <name>SFP-32</name>
    <parent>PORT-xe32</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>32</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-33</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-33</id>
    <name>SFP-33</name>
    <parent>PORT-xe33</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
```



```
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>33</location>
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
</state>
<transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
  <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
    <present>NOT_PRESENT</present>
  </state>
</transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-34</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-34</id>
    <name>SFP-34</name>
    <parent>PORT-xe34</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>34</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-35</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-35</id>
    <name>SFP-35</name>
    <parent>PORT-xe35</parent>
```



```
<oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
  <removable>true</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>35</location>
  <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
    </state>
    <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
      <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
        <present>NOT_PRESENT</present>
      </state>
    </transceiver>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>SFP-36</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>SFP-36</id>
      <name>SFP-36</name>
      <parent>PORT-xe36</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>true</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>36</location>
      <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
        </state>
        <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
          <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
            <present>NOT_PRESENT</present>
          </state>
        </transceiver>
      </component>
```



```
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-37</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-37</id>
    <name>SFP-37</name>
    <parent>PORT-xe37</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>37</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-38</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-38</id>
    <name>SFP-38</name>
    <parent>PORT-xe38</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>38</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
```



```
<state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
  <present>NOT_PRESENT</present>
</state>
</transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-39</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-39</id>
    <name>SFP-39</name>
    <parent>PORT-xe39</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>39</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-40</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-40</id>
    <name>SFP-40</name>
    <parent>PORT-xe40</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
```

```
    <mfg-name>NA</mfg-name>
    <location>40</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
    </state>
    <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
      <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
        <present>NOT_PRESENT</present>
      </state>
    </transceiver>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>SFP-41</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>SFP-41</id>
      <name>SFP-41</name>
      <parent>PORT-xe41</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>true</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>41</location>
      <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
    </state>
    <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
      <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
        <present>NOT_PRESENT</present>
      </state>
    </transceiver>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>SFP-42</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>SFP-42</id>
      <name>SFP-42</name>
      <parent>PORT-xe42</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
```

```
<removable>true</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>42</location>
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
</state>
<transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
  <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
    <present>NOT_PRESENT</present>
  </state>
</transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-43</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-43</id>
    <name>SFP-43</name>
    <parent>PORT-xe43</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>43</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-44</name>
```



```
<state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
  <id>SFP-44</id>
  <name>SFP-44</name>
  <parent>PORT-xe44</parent>
  <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
  <removable>true</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>44</location>
  <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
</state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-45</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-45</id>
    <name>SFP-45</name>
    <parent>PORT-xe45</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>45</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
```

```
        <present>NOT_PRESENT</present>
      </state>
    </transceiver>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>SFP-46</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>SFP-46</id>
      <name>SFP-46</name>
      <parent>PORT-xe46</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>true</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>46</location>
      <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
    </state>
    <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
      <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
        <present>NOT_PRESENT</present>
      </state>
    </transceiver>
  </component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>SFP-47</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>SFP-47</id>
      <name>SFP-47</name>
      <parent>PORT-xe47</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>true</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>47</location>
```



```
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>SFP-48</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>SFP-48</id>
    <name>SFP-48</name>
    <parent>PORT-xe48</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>48</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>QSFP-49</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>QSFP-49</id>
    <name>QSFP-49</name>
    <parent>PORT-ce49</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
```



```
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>49</location>
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
</state>
<transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
  <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
    <date-code>150727</date-code>
    <serial-no>CN05NP8R57Q7T6J </serial-no>
    <vendor-rev>C </vendor-rev>
    <vendor-part>616750001 </vendor-part>
    <vendor>Amphenol </vendor>
    <ethernet-pmd>oc-opt-types:ETH_40GBASE_CR4</ethernet-pmd>
    <connector-type>ipi-oc-transport-types-
deviations:NO_SEPARABLE_CONNECTOR</connector-type>
    <form-factor>oc-opt-types:QSFP_PLUS</form-factor>
    <present>PRESENT</present>
  </state>
  <physical-channels
xmlns="http://openconfig.net/yang/platform/transceiver">
    <channel>
      <index>1</index>
      <state>
        <index>1</index>
        <laser-bias-current
xmlns="http://openconfig.net/yang/platform/transceiver">
          <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
        </laser-bias-current>
        <output-power
xmlns="http://openconfig.net/yang/platform/transceiver">
          <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
        </output-power>
        <input-power
xmlns="http://openconfig.net/yang/platform/transceiver">
          <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
        </input-power>
      </state>
    </channel>
    <channel>
      <index>2</index>
      <state>
        <index>2</index>
        <laser-bias-current
xmlns="http://openconfig.net/yang/platform/transceiver">
          <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
```

```
        </laser-bias-current>
        <output-power
xmlns="http://openconfig.net/yang/platform/transceiver">
        <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
        </output-power>
        <input-power
xmlns="http://openconfig.net/yang/platform/transceiver">
        <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
        </input-power>
    </state>
</channel>
<channel>
    <index>3</index>
    <state>
        <index>3</index>
        <laser-bias-current
xmlns="http://openconfig.net/yang/platform/transceiver">
        <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
        </laser-bias-current>
        <output-power
xmlns="http://openconfig.net/yang/platform/transceiver">
        <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
        </output-power>
        <input-power
xmlns="http://openconfig.net/yang/platform/transceiver">
        <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
        </input-power>
    </state>
</channel>
<channel>
    <index>4</index>
    <state>
        <index>4</index>
        <laser-bias-current
xmlns="http://openconfig.net/yang/platform/transceiver">
        <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
        </laser-bias-current>
        <output-power
xmlns="http://openconfig.net/yang/platform/transceiver">
        <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
        </output-power>
        <input-power
xmlns="http://openconfig.net/yang/platform/transceiver">
        <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
        </input-power>
    </state>
</channel>
</physical-channels>
</transceiver>
```



```
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>QSFP-50</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>QSFP-50</id>
    <name>QSFP-50</name>
    <parent>PORT-ce50</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>50</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
    <physical-channels
xmlns="http://openconfig.net/yang/platform/transceiver">
      <channel>
        <index>1</index>
      </channel>
      <channel>
        <index>2</index>
      </channel>
      <channel>
        <index>3</index>
      </channel>
      <channel>
        <index>4</index>
      </channel>
    </physical-channels>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>QSFP-51</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>QSFP-51</id>
    <name>QSFP-51</name>
    <parent>PORT-ce51</parent>
```

```
<oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
  <removable>true</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>51</location>
  <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <date-code>170628</date-code>
      <serial-no>J11836008038 </serial-no>
      <vendor-rev>01</vendor-rev>
      <vendor-part>ET7402-100DAC-1M</vendor-part>
      <vendor>Edgecore </vendor>
      <ethernet-pmd>oc-opt-types:ETH_100GBASE_CR4</ethernet-pmd>
      <connector-type>ipi-oc-transport-types-
deviations:NO_SEPARABLE_CONNECTOR</connector-type>
      <form-factor>oc-opt-types:QSFP28</form-factor>
      <present>PRESENT</present>
    </state>
    <physical-channels
xmlns="http://openconfig.net/yang/platform/transceiver">
      <channel>
        <index>1</index>
        <state>
          <index>1</index>
          <laser-bias-current
xmlns="http://openconfig.net/yang/platform/transceiver">
            <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
          </laser-bias-current>
          <output-power
xmlns="http://openconfig.net/yang/platform/transceiver">
            <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
          </output-power>
          <input-power
xmlns="http://openconfig.net/yang/platform/transceiver">
            <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
          </input-power>
        </state>
      </channel>
      <channel>
        <index>2</index>
        <state>
```

```
<index>2</index>
  <laser-bias-current
xmlns="http://openconfig.net/yang/platform/transceiver">
  <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
  </laser-bias-current>
  <output-power
xmlns="http://openconfig.net/yang/platform/transceiver">
  <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
  </output-power>
  <input-power
xmlns="http://openconfig.net/yang/platform/transceiver">
  <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
  </input-power>
</state>
</channel>
<channel>
  <index>3</index>
  <state>
    <index>3</index>
    <laser-bias-current
xmlns="http://openconfig.net/yang/platform/transceiver">
    <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
    </laser-bias-current>
    <output-power
xmlns="http://openconfig.net/yang/platform/transceiver">
    <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
    </output-power>
    <input-power
xmlns="http://openconfig.net/yang/platform/transceiver">
    <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
    </input-power>
  </state>
</channel>
<channel>
  <index>4</index>
  <state>
    <index>4</index>
    <laser-bias-current
xmlns="http://openconfig.net/yang/platform/transceiver">
    <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
    </laser-bias-current>
    <output-power
xmlns="http://openconfig.net/yang/platform/transceiver">
    <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
    </output-power>
    <input-power
xmlns="http://openconfig.net/yang/platform/transceiver">
    <instant xmlns:oc-
types="http://openconfig.net/yang/openconfig-types">0.000</instant>
```

```
        </input-power>
      </state>
    </channel>
  </physical-channels>
</transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>QSFP-52</name>
  <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
    <id>QSFP-52</id>
    <name>QSFP-52</name>
    <parent>PORT-ce52</parent>
    <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>52</location>
    <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
    <physical-channels
xmlns="http://openconfig.net/yang/platform/transceiver">
      <channel>
        <index>1</index>
      </channel>
      <channel>
        <index>2</index>
      </channel>
      <channel>
        <index>3</index>
      </channel>
      <channel>
        <index>4</index>
      </channel>
    </physical-channels>
  </transceiver>
</component>
<component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
  <name>QSFP-53</name>
```



```
<state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
  <id>QSFP-53</id>
  <name>QSFP-53</name>
  <parent>PORT-ce53</parent>
  <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
  <removable>true</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>53</location>
  <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
</state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
    <physical-channels
xmlns="http://openconfig.net/yang/platform/transceiver">
      <channel>
        <index>1</index>
      </channel>
      <channel>
        <index>2</index>
      </channel>
      <channel>
        <index>3</index>
      </channel>
      <channel>
        <index>4</index>
      </channel>
    </physical-channels>
  </transceiver>
</component>
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>QSFP-54</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>QSFP-54</id>
      <name>QSFP-54</name>
      <parent>PORT-ce54</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>true</removable>
      <part-no>NA</part-no>
```




```
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>54</location>
<type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:TRANSCEIVER</type>
  </state>
  <transceiver xmlns="http://openconfig.net/yang/platform/transceiver">
    <state xmlns:ipi-oc-transport-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-transport-types-
deviations">
      <present>NOT_PRESENT</present>
    </state>
    <physical-channels
xmlns="http://openconfig.net/yang/platform/transceiver">
      <channel>
        <index>1</index>
      </channel>
      <channel>
        <index>2</index>
      </channel>
      <channel>
        <index>3</index>
      </channel>
      <channel>
        <index>4</index>
      </channel>
    </physical-channels>
  </transceiver>
</component>
</components>
```

OcNOS get result

```
<components xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <component>
    <name>SFP-1</name>
    <state>
      <name>SFP-1</name>
      <parent>PORT-xel</parent>
      <product-name>NA</product-name>
      <oper-status>NA</oper-status>
      <removable>true</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>1</location>
      <type>transceiver</type>
```

```
</state>
<transceiver>
  <state>
    <ddm-type>no</ddm-type>
    <vendor-manufacturing-date>150908 </vendor-manufacturing-date>
    <vendor-serial-number>CN0V250M58V91KC </vendor-serial-number>
    <minimum-signalling-rate>0</minimum-signalling-rate>
    <maximum-signalling-rate>0</maximum-signalling-rate>
    <nominal-signalling-rate>103</nominal-signalling-rate>
    <extended-check-code>0x4d</extended-check-code>
    <check-code>0xdf</check-code>
    <vendor-revision-number>C </vendor-revision-number>
    <vendor-part-number>616740001 </vendor-part-number>
    <vendor-ieee-id>0x78 0xa7 0x14</vendor-ieee-id>
    <vendor-name>Amphenol </vendor-name>
    <om4-link-length>1</om4-link-length>
    <om3-link-length>0</om3-link-length>
    <om2-link-length>0</om2-link-length>
    <om1-link-length>0</om1-link-length>
    <link-length-meter>0</link-length-meter>
    <link-length-kilometer>0</link-length-kilometer>
    <serial-encoding-algorithm>enc-undefined</serial-encoding-
algorithm>
    <fiber-channel-transmission-media>twinaxial-pair</fiber-channel-
transmission-media>
    <fiber-channel-transmission-technology>electricalInter-Enclosure
electricalIntra-Enclosure</fiber-channel-transmission-technology>
    <fiber-channel-link-length>short</fiber-channel-link-length>
    <connector-type>copper-pigtail</connector-type>
    <transceiver-identifier>sfp-or-sfpplus-or-sfp28</transceiver-
identifier>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Present</presence>
    <port-no>1</port-no>
  </state>
  <sfp>
    <state>
      <sfp-plus-cable-technology>passive</sfp-plus-cable-technology>
      <sfp-infiniband-compliance-code>ibc-1xcopperpassive</sfp-
infiniband-compliance-code>
      <fiber-channel-sfp-speed>fcs-800mbps fcs-400mbps fcs-200mbps fcs-
100mbps</fiber-channel-sfp-speed>
      <sfp-options-implemented>power-level1</sfp-options-implemented>
      <sfp-identifier>gbic-or-sfp-definedby-twowire-interfaceid-
only</sfp-identifier>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>on</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-2</name>
  <state>
    <name>SFP-2</name>
    <parent>PORT-xe2</parent>
```

```
<product-name>NA</product-name>
<oper-status>NA</oper-status>
<removable>>true</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>2</location>
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <ddm-type>no</ddm-type>
    <vendor-manufacturing-date>151119 </vendor-manufacturing-date>
    <vendor-serial-number>CN0V250M5BB2NMD </vendor-serial-number>
    <minimum-signalling-rate>0</minimum-signalling-rate>
    <maximum-signalling-rate>0</maximum-signalling-rate>
    <nominal-signalling-rate>103</nominal-signalling-rate>
    <extended-check-code>0x57</extended-check-code>
    <check-code>0xdf</check-code>
    <vendor-revision-number>C </vendor-revision-number>
    <vendor-part-number>616740001 </vendor-part-number>
    <vendor-ieee-id>0x78 0xa7 0x14</vendor-ieee-id>
    <vendor-name>Amphenol </vendor-name>
    <om4-link-length>1</om4-link-length>
    <om3-link-length>0</om3-link-length>
    <om2-link-length>0</om2-link-length>
    <om1-link-length>0</om1-link-length>
    <link-length-meter>0</link-length-meter>
    <link-length-kilometer>0</link-length-kilometer>
    <serial-encoding-algorithm>enc-undefined</serial-encoding-
algorithm>
    <fiber-channel-transmission-media>twinaxial-pair</fiber-channel-
transmission-media>
    <fiber-channel-transmission-technology>electricalInter-Enclosure
electricalIntra-Enclosure</fiber-channel-transmission-technology>
    <fiber-channel-link-length>short</fiber-channel-link-length>
    <connector-type>copper-pigtail</connector-type>
    <transceiver-identifier>sfp-or-sfpplus-or-sfp28</transceiver-
identifier>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Present</presence>
    <port-no>2</port-no>
  </state>
<sfp>
  <state>
    <sfp-plus-cable-technology>passive</sfp-plus-cable-technology>
    <sfp-infiniband-compliance-code>ibc-1xcopperpassive</sfp-
infiniband-compliance-code>
    <fiber-channel-sfp-speed>fcs-800mbps fcs-400mbps fcs-200mbps fcs-
100mbps</fiber-channel-sfp-speed>
    <sfp-options-implemented>power-level1</sfp-options-implemented>
```

```

    <sfp-identifier>gbic-or-sfp-definedby-twowire-interfaceid-
only</sfp-identifier>
    <recieve-loss-status>NA</recieve-loss-status>
    <transmit-status>on</transmit-status>
  </state>
</sfp>
</transceiver>
</component>
<component>
  <name>SFP-3</name>
  <state>
    <name>SFP-3</name>
    <parent>PORT-xe3</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>3</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <ddm-type>no</ddm-type>
      <vendor-manufacturing-date>151119 </vendor-manufacturing-date>
      <vendor-serial-number>CN0V250M5BB2NEE </vendor-serial-number>
      <minimum-signalling-rate>0</minimum-signalling-rate>
      <maximum-signalling-rate>0</maximum-signalling-rate>
      <nominal-signalling-rate>103</nominal-signalling-rate>
      <extended-check-code>0x50</extended-check-code>
      <check-code>0xdf</check-code>
      <vendor-revision-number>C </vendor-revision-number>
      <vendor-part-number>616740001 </vendor-part-number>
      <vendor-ieee-id>0x78 0xa7 0x14</vendor-ieee-id>
      <vendor-name>Amphenol </vendor-name>
      <om4-link-length>1</om4-link-length>
      <om3-link-length>0</om3-link-length>
      <om2-link-length>0</om2-link-length>
      <om1-link-length>0</om1-link-length>
      <link-length-meter>0</link-length-meter>
      <link-length-kilometer>0</link-length-kilometer>
      <serial-encoding-algorithm>enc-unspecified</serial-encoding-
algorithm>
      <fiber-channel-transmission-media>twinaxial-pair</fiber-channel-
transmission-media>
      <fiber-channel-transmission-technology>electricalInter-Enclosure
electricalIntra-Enclosure</fiber-channel-transmission-technology>
      <fiber-channel-link-length>short</fiber-channel-link-length>
      <connector-type>copper-pigtail</connector-type>
      <transceiver-identifier>sfp-or-sfpplus-or-sfp28</transceiver-
identifier>
      <channel-count>1</channel-count>

```

```

    <type>sfp</type>
    <presence>Present</presence>
    <port-no>3</port-no>
  </state>
</sfp>
<state>
  <sfp-plus-cable-technology>passive</sfp-plus-cable-technology>
  <sfp-infiniband-compliance-code>ibc-1xcopperpassive</sfp-
infiniband-compliance-code>
  <fiber-channel-sfp-speed>fcs-800mbps fcs-400mbps fcs-200mbps fcs-
100mbps</fiber-channel-sfp-speed>
  <sfp-options-implemented>power-level1</sfp-options-implemented>
  <sfp-identifier>gbic-or-sfp-definedby-twowire-interfaceid-
only</sfp-identifier>
  <recieve-loss-status>NA</recieve-loss-status>
  <transmit-status>on</transmit-status>
</state>
</sfp>
</transceiver>
</component>
<component>
  <name>SFP-4</name>
  <state>
    <name>SFP-4</name>
    <parent>PORT-xe4</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>4</location>
    <type>transceiver</type>
  </state>
<transceiver>
  <state>
    <ddm-type>no</ddm-type>
    <vendor-manufacturing-date>150907 </vendor-manufacturing-date>
    <vendor-serial-number>CN0V250M58V91K9 </vendor-serial-number>
    <minimum-signalling-rate>0</minimum-signalling-rate>
    <maximum-signalling-rate>0</maximum-signalling-rate>
    <nominal-signalling-rate>103</nominal-signalling-rate>
    <extended-check-code>0x42</extended-check-code>
    <check-code>0xdf</check-code>
    <vendor-revision-number>C </vendor-revision-number>
    <vendor-part-number>616740001 </vendor-part-number>
    <vendor-ieee-id>0x78 0xa7 0x14</vendor-ieee-id>
    <vendor-name>Amphenol </vendor-name>
    <om4-link-length>1</om4-link-length>
    <om3-link-length>0</om3-link-length>
    <om2-link-length>0</om2-link-length>
    <om1-link-length>0</om1-link-length>
    <link-length-meter>0</link-length-meter>
  </state>
</transceiver>

```

```

    <link-length-kilometer>0</link-length-kilometer>
    <serial-encoding-algorithm>enc-unspecified</serial-encoding-
algorithm>
    <fiber-channel-transmission-media>twinaxial-pair</fiber-channel-
transmission-media>
    <fiber-channel-transmission-technology>electricalInter-Enclosure
electricalIntra-Enclosure</fiber-channel-transmission-technology>
    <fiber-channel-link-length>short</fiber-channel-link-length>
    <connector-type>copper-pigtail</connector-type>
    <transceiver-identifier>sfp-or-sfpplus-or-sfp28</transceiver-
identifier>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Present</presence>
    <port-no>4</port-no>
  </state>
  <sfp>
    <state>
      <sfp-plus-cable-technology>passive</sfp-plus-cable-technology>
      <sfp-infiniband-compliance-code>ibc-1xcopperpassive</sfp-
infiniband-compliance-code>
      <fiber-channel-sfp-speed>fcs-800mbps fcs-400mbps fcs-200mbps fcs-
100mbps</fiber-channel-sfp-speed>
      <sfp-options-implemented>power-level1</sfp-options-implemented>
      <sfp-identifier>gbic-or-sfp-definedby-twowire-interfaceid-
only</sfp-identifier>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>on</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-5</name>
  <state>
    <name>SFP-5</name>
    <parent>PORT-xe5</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>5</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>5</port-no>
    </state>
  </transceiver>
</component>

```

```

    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-6</name>
  <state>
    <name>SFP-6</name>
    <parent>PORT-xe6</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>6</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <ddm-type>no</ddm-type>
      <vendor-manufacturing-date>150908 </vendor-manufacturing-date>
      <vendor-serial-number>CN0V250M58V920E </vendor-serial-number>
      <minimum-signalling-rate>0</minimum-signalling-rate>
      <maximum-signalling-rate>0</maximum-signalling-rate>
      <nominal-signalling-rate>103</nominal-signalling-rate>
      <extended-check-code>0x35</extended-check-code>
      <check-code>0xdf</check-code>
      <vendor-revision-number>C </vendor-revision-number>
      <vendor-part-number>616740001 </vendor-part-number>
      <vendor-ieee-id>0x78 0xa7 0x14</vendor-ieee-id>
      <vendor-name>Amphenol </vendor-name>
      <om4-link-length>1</om4-link-length>
      <om3-link-length>0</om3-link-length>
      <om2-link-length>0</om2-link-length>
      <om1-link-length>0</om1-link-length>
      <link-length-meter>0</link-length-meter>
      <link-length-kilometer>0</link-length-kilometer>
      <serial-encoding-algorithm>enc-undefined</serial-encoding-
algorithm>
      <fiber-channel-transmission-media>twinaxial-pair</fiber-channel-
transmission-media>
      <fiber-channel-transmission-technology>electricalInter-Enclosure
electricalIntra-Enclosure</fiber-channel-transmission-technology>
      <fiber-channel-link-length>short</fiber-channel-link-length>
      <connector-type>copper-pigtail</connector-type>
      <transceiver-identifier>sfp-or-sfpplus-or-sfp28</transceiver-
identifier>
      <channel-count>1</channel-count>

```

```
<type>sfp</type>
<presence>Present</presence>
<port-no>6</port-no>
</state>
<sfp>
  <state>
    <sfp-plus-cable-technology>passive</sfp-plus-cable-technology>
    <sfp-infiniband-compliance-code>ibc-1xcopperpassive</sfp-
infiniband-compliance-code>
    <fiber-channel-sfp-speed>fcs-800mbps fcs-400mbps fcs-200mbps fcs-
100mbps</fiber-channel-sfp-speed>
    <sfp-options-implemented>power-level1</sfp-options-implemented>
    <sfp-identifier>gbic-or-sfp-definedby-twowire-interfaceid-
only</sfp-identifier>
    <recieve-loss-status>NA</recieve-loss-status>
    <transmit-status>on</transmit-status>
  </state>
</sfp>
</transceiver>
</component>
<component>
  <name>SFP-7</name>
  <state>
    <name>SFP-7</name>
    <parent>PORT-xe7</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>7</location>
    <type>transceiver</type>
  </state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>7</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-8</name>
  <state>
    <name>SFP-8</name>
```



```
<parent>PORT-xe8</parent>
<product-name>NA</product-name>
<oper-status>NA</oper-status>
<removable>>true</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>8</location>
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>8</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-9</name>
  <state>
    <name>SFP-9</name>
    <parent>PORT-xe9</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>9</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>9</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
```

```
        <transmit-status>off</transmit-status>
    </state>
</sfp>
</transceiver>
</component>
<component>
  <name>SFP-10</name>
  <state>
    <name>SFP-10</name>
    <parent>PORT-xe10</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>10</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <ddm-type>no</ddm-type>
      <vendor-manufacturing-date>161221 </vendor-manufacturing-date>
      <vendor-serial-number>J11836008016 </vendor-serial-number>
      <minimum-signalling-rate>0</minimum-signalling-rate>
      <maximum-signalling-rate>0</maximum-signalling-rate>
      <nominal-signalling-rate>103</nominal-signalling-rate>
      <extended-check-code>0x69</extended-check-code>
      <check-code>0x6d</check-code>
      <vendor-revision-number>01 </vendor-revision-number>
      <vendor-part-number>ET5402-DAC-3M </vendor-part-number>
      <vendor-ieee-id>0x70 0x72 0xcf</vendor-ieee-id>
      <vendor-name>Edgecore </vendor-name>
      <om4-link-length>3</om4-link-length>
      <om3-link-length>0</om3-link-length>
      <om2-link-length>0</om2-link-length>
      <om1-link-length>0</om1-link-length>
      <link-length-meter>0</link-length-meter>
      <link-length-kilometer>0</link-length-kilometer>
      <serial-encoding-algorithm>enc-undefined</serial-encoding-
algorithm>
      <connector-type>copper-pigtail</connector-type>
      <transceiver-identifier>sfp-or-sfpplus-or-sfp28</transceiver-
identifier>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Present</presence>
      <port-no>10</port-no>
    </state>
  </sfp>
  <state>
    <sfp-plus-cable-technology>passive</sfp-plus-cable-technology>
    <sfp-options-implemented>power-level1</sfp-options-implemented>
```

```

        <sfp-identifier>gbic-or-sfp-definedby-twowire-interfaceid-
only</sfp-identifier>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>on</transmit-status>
    </state>
</sfp>
</transceiver>
</component>
<component>
    <name>SFP-11</name>
    <state>
        <name>SFP-11</name>
        <parent>PORT-xe11</parent>
        <product-name>NA</product-name>
        <oper-status>NA</oper-status>
        <removable>>true</removable>
        <part-no>NA</part-no>
        <serial-no>NA</serial-no>
        <software-version>NA</software-version>
        <firmware-version>NA</firmware-version>
        <hardware-version>NA</hardware-version>
        <description>NA</description>
        <mfg-name>NA</mfg-name>
        <location>11</location>
        <type>transceiver</type>
    </state>
    <transceiver>
        <state>
            <ddm-type>no</ddm-type>
            <vendor-manufacturing-date>100101 </vendor-manufacturing-date>
            <vendor-serial-number>NCI80T1328 </vendor-serial-number>
            <minimum-signalling-rate>0</minimum-signalling-rate>
            <maximum-signalling-rate>0</maximum-signalling-rate>
            <nominal-signalling-rate>13</nominal-signalling-rate>
            <extended-check-code>0x87</extended-check-code>
            <check-code>0x82</check-code>
            <vendor-revision-number>1.0 </vendor-revision-number>
            <vendor-part-number>SFP-T </vendor-part-number>
            <vendor-ieee-id>0x0 0x0 0x0</vendor-ieee-id>
            <vendor-name>OEM </vendor-name>
            <om4-link-length>100</om4-link-length>
            <om3-link-length>0</om3-link-length>
            <om2-link-length>0</om2-link-length>
            <om1-link-length>0</om1-link-length>
            <link-length-meter>0</link-length-meter>
            <link-length-kilometer>0</link-length-kilometer>
            <serial-encoding-algorithm>enc-8b-or-10b</serial-encoding-
algorithm>
            <ethernet-compliance-code>ec-1000base-t</ethernet-compliance-code>
            <connector-type>lucent-connector</connector-type>
            <transceiver-identifier>sfp-or-sfpplus-or-sfp28</transceiver-
identifier>
            <channel-count>1</channel-count>
            <type>sfp</type>
            <presence>Present</presence>
            <port-no>11</port-no>
        </state>

```

```
<sfp>
  <state>
    <sfp-options-implemented>power-level1</sfp-options-implemented>
    <sfp-identifier>gbic-or-sfp-definedby-twowire-interfaceid-
only</sfp-identifier>
    <recieve-loss-status>on</recieve-loss-status>
    <transmit-status>on</transmit-status>
  </state>
</sfp>
</transceiver>
</component>
<component>
  <name>SFP-12</name>
  <state>
    <name>SFP-12</name>
    <parent>PORT-xe12</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>12</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>12</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-13</name>
  <state>
    <name>SFP-13</name>
    <parent>PORT-xe13</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
```

```
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>13</location>
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>13</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-14</name>
  <state>
    <name>SFP-14</name>
    <parent>PORT-xe14</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>14</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>14</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-15</name>
  <state>
    <name>SFP-15</name>
```

```
<parent>PORT-xe15</parent>
<product-name>NA</product-name>
<oper-status>NA</oper-status>
<removable>>true</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>15</location>
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>15</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-16</name>
  <state>
    <name>SFP-16</name>
    <parent>PORT-xe16</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>16</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>16</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
```

```
        <transmit-status>off</transmit-status>
    </state>
</sfp>
</transceiver>
</component>
<component>
    <name>SFP-17</name>
    <state>
        <name>SFP-17</name>
        <parent>PORT-xe17</parent>
        <product-name>NA</product-name>
        <oper-status>NA</oper-status>
        <removable>>true</removable>
        <part-no>NA</part-no>
        <serial-no>NA</serial-no>
        <software-version>NA</software-version>
        <firmware-version>NA</firmware-version>
        <hardware-version>NA</hardware-version>
        <description>NA</description>
        <mfg-name>NA</mfg-name>
        <location>17</location>
        <type>transceiver</type>
    </state>
    <transceiver>
        <state>
            <channel-count>1</channel-count>
            <type>sfp</type>
            <presence>Not-Present</presence>
            <port-no>17</port-no>
        </state>
        <sfp>
            <state>
                <recieve-loss-status>NA</recieve-loss-status>
                <transmit-status>off</transmit-status>
            </state>
        </sfp>
    </transceiver>
</component>
<component>
    <name>SFP-18</name>
    <state>
        <name>SFP-18</name>
        <parent>PORT-xe18</parent>
        <product-name>NA</product-name>
        <oper-status>NA</oper-status>
        <removable>>true</removable>
        <part-no>NA</part-no>
        <serial-no>NA</serial-no>
        <software-version>NA</software-version>
        <firmware-version>NA</firmware-version>
        <hardware-version>NA</hardware-version>
        <description>NA</description>
        <mfg-name>NA</mfg-name>
        <location>18</location>
        <type>transceiver</type>
    </state>
    <transceiver>
```

```
<state>
  <channel-count>1</channel-count>
  <type>sfp</type>
  <presence>Not-Present</presence>
  <port-no>18</port-no>
</state>
<sfp>
  <state>
    <recieve-loss-status>NA</recieve-loss-status>
    <transmit-status>off</transmit-status>
  </state>
</sfp>
</transceiver>
</component>
<component>
  <name>SFP-19</name>
  <state>
    <name>SFP-19</name>
    <parent>PORT-xe19</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>19</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>19</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-20</name>
  <state>
    <name>SFP-20</name>
    <parent>PORT-xe20</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
```



```
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>20</location>
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>20</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-21</name>
  <state>
    <name>SFP-21</name>
    <parent>PORT-xe21</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>21</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>21</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
```

```
<name>SFP-22</name>
<state>
  <name>SFP-22</name>
  <parent>PORT-xe22</parent>
  <product-name>NA</product-name>
  <oper-status>NA</oper-status>
  <removable>true</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>22</location>
  <type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>22</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-23</name>
  <state>
    <name>SFP-23</name>
    <parent>PORT-xe23</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>23</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>23</port-no>
    </state>
  </transceiver>
</component>
```

```
<sfp>
  <state>
    <recieve-loss-status>NA</recieve-loss-status>
    <transmit-status>off</transmit-status>
  </state>
</sfp>
</transceiver>
</component>
<component>
  <name>SFP-24</name>
  <state>
    <name>SFP-24</name>
    <parent>PORT-xe24</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>24</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>24</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-25</name>
  <state>
    <name>SFP-25</name>
    <parent>PORT-xe25</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>25</location>
```

```
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>25</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-26</name>
  <state>
    <name>SFP-26</name>
    <parent>PORT-xe26</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>26</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>26</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-27</name>
  <state>
    <name>SFP-27</name>
    <parent>PORT-xe27</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
```

```
<removable>true</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>27</location>
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>27</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-28</name>
  <state>
    <name>SFP-28</name>
    <parent>PORT-xe28</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>28</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>28</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
```

```
</transceiver>
</component>
<component>
  <name>SFP-29</name>
  <state>
    <name>SFP-29</name>
    <parent>PORT-xe29</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>29</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>29</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-30</name>
  <state>
    <name>SFP-30</name>
    <parent>PORT-xe30</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>30</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
```

```
<presence>Not-Present</presence>
  <port-no>30</port-no>
</state>
<sfp>
  <state>
    <recieve-loss-status>NA</recieve-loss-status>
    <transmit-status>off</transmit-status>
  </state>
</sfp>
</transceiver>
</component>
<component>
  <name>SFP-31</name>
  <state>
    <name>SFP-31</name>
    <parent>PORT-xe31</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>31</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>31</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-32</name>
  <state>
    <name>SFP-32</name>
    <parent>PORT-xe32</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
```

```
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>32</location>
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>32</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-33</name>
  <state>
    <name>SFP-33</name>
    <parent>PORT-xe33</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>33</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>33</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-34</name>
  <state>
    <name>SFP-34</name>
```



```
<parent>PORT-xe34</parent>
<product-name>NA</product-name>
<oper-status>NA</oper-status>
<removable>true</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>34</location>
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>34</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-35</name>
  <state>
    <name>SFP-35</name>
    <parent>PORT-xe35</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>35</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>35</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
```

```
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-36</name>
  <state>
    <name>SFP-36</name>
    <parent>PORT-xe36</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>36</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>36</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-37</name>
  <state>
    <name>SFP-37</name>
    <parent>PORT-xe37</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>37</location>
    <type>transceiver</type>
  </state>
  <transceiver>
```

```
<state>
  <channel-count>1</channel-count>
  <type>sfp</type>
  <presence>Not-Present</presence>
  <port-no>37</port-no>
</state>
<sfp>
  <state>
    <recieve-loss-status>NA</recieve-loss-status>
    <transmit-status>off</transmit-status>
  </state>
</sfp>
</transceiver>
</component>
<component>
  <name>SFP-38</name>
  <state>
    <name>SFP-38</name>
    <parent>PORT-xe38</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>38</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>38</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-39</name>
  <state>
    <name>SFP-39</name>
    <parent>PORT-xe39</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
```

```
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>39</location>
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>39</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-40</name>
  <state>
    <name>SFP-40</name>
    <parent>PORT-xe40</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>40</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>40</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
```

```
<name>SFP-41</name>
<state>
  <name>SFP-41</name>
  <parent>PORT-xe41</parent>
  <product-name>NA</product-name>
  <oper-status>NA</oper-status>
  <removable>true</removable>
  <part-no>NA</part-no>
  <serial-no>NA</serial-no>
  <software-version>NA</software-version>
  <firmware-version>NA</firmware-version>
  <hardware-version>NA</hardware-version>
  <description>NA</description>
  <mfg-name>NA</mfg-name>
  <location>41</location>
  <type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>41</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-42</name>
  <state>
    <name>SFP-42</name>
    <parent>PORT-xe42</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>42</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>42</port-no>
    </state>
  </transceiver>
</component>
```

```
<sfp>
  <state>
    <recieve-loss-status>NA</recieve-loss-status>
    <transmit-status>off</transmit-status>
  </state>
</sfp>
</transceiver>
</component>
<component>
  <name>SFP-43</name>
  <state>
    <name>SFP-43</name>
    <parent>PORT-xe43</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>43</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>43</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-44</name>
  <state>
    <name>SFP-44</name>
    <parent>PORT-xe44</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>44</location>
```

```
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>44</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-45</name>
  <state>
    <name>SFP-45</name>
    <parent>PORT-xe45</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>45</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>45</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>SFP-46</name>
  <state>
    <name>SFP-46</name>
    <parent>PORT-xe46</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
```

```
<removable>true</removable>
<part-no>NA</part-no>
<serial-no>NA</serial-no>
<software-version>NA</software-version>
<firmware-version>NA</firmware-version>
<hardware-version>NA</hardware-version>
<description>NA</description>
<mfg-name>NA</mfg-name>
<location>46</location>
<type>transceiver</type>
</state>
<transceiver>
  <state>
    <channel-count>1</channel-count>
    <type>sfp</type>
    <presence>Not-Present</presence>
    <port-no>46</port-no>
  </state>
  <sfp>
    <state>
      <recieve-loss-status>NA</recieve-loss-status>
      <transmit-status>off</transmit-status>
    </state>
  </sfp>
</transceiver>
</component>
<component>
  <name>SFP-47</name>
  <state>
    <name>SFP-47</name>
    <parent>PORT-xe47</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>47</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>47</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
```



```
</transceiver>
</component>
<component>
  <name>SFP-48</name>
  <state>
    <name>SFP-48</name>
    <parent>PORT-xe48</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>48</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>1</channel-count>
      <type>sfp</type>
      <presence>Not-Present</presence>
      <port-no>48</port-no>
    </state>
    <sfp>
      <state>
        <recieve-loss-status>NA</recieve-loss-status>
        <transmit-status>off</transmit-status>
      </state>
    </sfp>
  </transceiver>
</component>
<component>
  <name>QSFP-49</name>
  <state>
    <name>QSFP-49</name>
    <parent>PORT-ce49</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>49</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <maximum-case-temperature>70.00</maximum-case-temperature>
      <ddm-type>no</ddm-type>
```

```
<vendor-manufacturing-date>150727 </vendor-manufacturing-date>
<vendor-serial-number>CN05NP8R57Q7T6J </vendor-serial-number>
<nominal-signalling-rate>103</nominal-signalling-rate>
<extended-check-code>0x7c</extended-check-code>
<check-code>0x98</check-code>
<vendor-revision-number>C </vendor-revision-number>
<vendor-part-number>616750001 </vendor-part-number>
<vendor-ieee-id>0x78 0xa7 0x14</vendor-ieee-id>
<vendor-name>Amphenol </vendor-name>
<om4-link-length>1</om4-link-length>
<om3-link-length>0</om3-link-length>
<om2-link-length>0</om2-link-length>
<om1-link-length>0</om1-link-length>
<link-length-kilometer>0</link-length-kilometer>
<serial-encoding-algorithm>enc-undefined</serial-encoding-
algorithm>
<fiber-channel-transmission-media>twinaxial-pair</fiber-channel-
transmission-media>
<fiber-channel-transmission-technology>electricalInter-Enclosure
electricalIntra-Enclosure</fiber-channel-transmission-technology>
<fiber-channel-link-length>short</fiber-channel-link-length>
<ethernet-compliance-code>ec-40gbase-cr4</ethernet-compliance-code>
<connector-type>no-separable-connector</connector-type>
<transceiver-identifier>qsfpplus-or-later</transceiver-identifier>
<channel-count>4</channel-count>
<type>qsfp</type>
<presence>Present</presence>
<port-no>49</port-no>
</state>
<qsfp>
<state>
<qsfp-options-implemented>tx-cdr-on-or-off-fixed rx-cdr-on-or-
off-fixed rateselect-fixed</qsfp-options-implemented>
<fiber-channel-qsfp-speed>fcs-800mbps fcs-400mbps fcs-200mbps
fcs-100mbps</fiber-channel-qsfp-speed>
<qsfp-identifier>powerclass1-1dot5wmax</qsfp-identifier>
<lane4-recieve-loss>off</lane4-recieve-loss>
<lane4-transmission-loss>off</lane4-transmission-loss>
<lane4-transmission>on</lane4-transmission>
<lane3-recieve-loss>off</lane3-recieve-loss>
<lane3-transmission-loss>off</lane3-transmission-loss>
<lane3-transmission>on</lane3-transmission>
<lane2-recieve-loss>off</lane2-recieve-loss>
<lane2-transmission-loss>off</lane2-transmission-loss>
<lane2-transmission>on</lane2-transmission>
<lane1-recieve-loss>off</lane1-recieve-loss>
<lane1-transmission-loss>off</lane1-transmission-loss>
<lane1-transmission>on</lane1-transmission>
<power>High</power>
<reset-status>Normal</reset-status>
</state>
</qsfp>
<channels>
<channel>
<index>1</index>
<state>
<index>1</index>
```

```
<laser-bias-current>0.000</laser-bias-current>
<output-power>0.000</output-power>
<input-power>0.000</input-power>
</state>
</channel>
<channel>
  <index>2</index>
  <state>
    <index>2</index>
    <laser-bias-current>0.000</laser-bias-current>
    <output-power>0.000</output-power>
    <input-power>0.000</input-power>
  </state>
</channel>
<channel>
  <index>3</index>
  <state>
    <index>3</index>
    <laser-bias-current>0.000</laser-bias-current>
    <output-power>0.000</output-power>
    <input-power>0.000</input-power>
  </state>
</channel>
<channel>
  <index>4</index>
  <state>
    <index>4</index>
    <laser-bias-current>0.000</laser-bias-current>
    <output-power>0.000</output-power>
    <input-power>0.000</input-power>
  </state>
</channel>
</channels>
</transceiver>
</component>
<component>
  <name>QSFP-50</name>
  <state>
    <name>QSFP-50</name>
    <parent>PORT-ce50</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>50</location>
    <type>transceiver</type>
  </state>
</transceiver>
  <state>
    <channel-count>4</channel-count>
    <type>qsfps</type>
```

```
<presence>Not-Present</presence>
<port-no>50</port-no>
</state>
<qsfp>
  <state>
    <lane4-recieve-loss>off</lane4-recieve-loss>
    <lane4-transmission-loss>off</lane4-transmission-loss>
    <lane4-transmission>off</lane4-transmission>
    <lane3-recieve-loss>off</lane3-recieve-loss>
    <lane3-transmission-loss>off</lane3-transmission-loss>
    <lane3-transmission>off</lane3-transmission>
    <lane2-recieve-loss>off</lane2-recieve-loss>
    <lane2-transmission-loss>off</lane2-transmission-loss>
    <lane2-transmission>off</lane2-transmission>
    <lane1-recieve-loss>off</lane1-recieve-loss>
    <lane1-transmission-loss>off</lane1-transmission-loss>
    <lane1-transmission>off</lane1-transmission>
    <power>Low</power>
    <reset-status>Reset</reset-status>
  </state>
</qsfp>
<channels>
  <channel>
    <index>1</index>
  </channel>
  <channel>
    <index>2</index>
  </channel>
  <channel>
    <index>3</index>
  </channel>
  <channel>
    <index>4</index>
  </channel>
</channels>
</transceiver>
</component>
<component>
  <name>QSFP-51</name>
  <state>
    <name>QSFP-51</name>
    <parent>PORT-ce51</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>51</location>
    <type>transceiver</type>
  </state>
</transceiver>
<state>
```

```
<maximum-case-temperature>70.00</maximum-case-temperature>
<ddm-type>no</ddm-type>
<vendor-manufacturing-date>170628 </vendor-manufacturing-date>
<vendor-serial-number>J11836008038 </vendor-serial-number>
<nominal-signalling-rate>255</nominal-signalling-rate>
<extended-check-code>0x83</extended-check-code>
<check-code>0x90</check-code>
<vendor-revision-number>01</vendor-revision-number>
<vendor-part-number>ET7402-100DAC-1M</vendor-part-number>
<vendor-ieee-id>0x70 0x72 0xcf</vendor-ieee-id>
<vendor-name>Edgecore </vendor-name>
<om4-link-length>1</om4-link-length>
<om3-link-length>0</om3-link-length>
<om2-link-length>0</om2-link-length>
<om1-link-length>0</om1-link-length>
<link-length-kilometer>0</link-length-kilometer>
<serial-encoding-algorithm>enc-undefined</serial-encoding-
algorithm>
<extended-ethernet-compliance-code>eec-100gbase-cr4-or-25gbase-
crca-1</extended-ethernet-compliance-code>
<connector-type>no-separable-connector</connector-type>
<transceiver-identifier>qsfp28-or-later</transceiver-identifier>
<channel-count>4</channel-count>
<type>qsfp</type>
<presence>Present</presence>
<port-no>51</port-no>
</state>
<qsfp>
<state>
<qsfp-options-implemented>tx-cdr-on-or-off-fixed rx-cdr-on-or-
off-fixed rateselect-fixed</qsfp-options-implemented>
<qsfp-identifier>powerclass1-1dot5wmax</qsfp-identifier>
<lane4-recv-loss>off</lane4-recv-loss>
<lane4-transmission-loss>off</lane4-transmission-loss>
<lane4-transmission>on</lane4-transmission>
<lane3-recv-loss>off</lane3-recv-loss>
<lane3-transmission-loss>off</lane3-transmission-loss>
<lane3-transmission>on</lane3-transmission>
<lane2-recv-loss>off</lane2-recv-loss>
<lane2-transmission-loss>off</lane2-transmission-loss>
<lane2-transmission>on</lane2-transmission>
<lane1-recv-loss>off</lane1-recv-loss>
<lane1-transmission-loss>off</lane1-transmission-loss>
<lane1-transmission>on</lane1-transmission>
<power>High</power>
<reset-status>Normal</reset-status>
</state>
</qsfp>
<channels>
<channel>
<index>1</index>
<state>
<index>1</index>
<laser-bias-current>0.000</laser-bias-current>
<output-power>0.000</output-power>
<input-power>0.000</input-power>
</state>
```

```
</channel>
<channel>
  <index>2</index>
  <state>
    <index>2</index>
    <laser-bias-current>0.000</laser-bias-current>
    <output-power>0.000</output-power>
    <input-power>0.000</input-power>
  </state>
</channel>
<channel>
  <index>3</index>
  <state>
    <index>3</index>
    <laser-bias-current>0.000</laser-bias-current>
    <output-power>0.000</output-power>
    <input-power>0.000</input-power>
  </state>
</channel>
<channel>
  <index>4</index>
  <state>
    <index>4</index>
    <laser-bias-current>0.000</laser-bias-current>
    <output-power>0.000</output-power>
    <input-power>0.000</input-power>
  </state>
</channel>
</channels>
</transceiver>
</component>
<component>
  <name>QSFP-52</name>
  <state>
    <name>QSFP-52</name>
    <parent>PORT-ce52</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>52</location>
    <type>transceiver</type>
  </state>
<transceiver>
  <state>
    <channel-count>4</channel-count>
    <type>qsfp</type>
    <presence>Not-Present</presence>
    <port-no>52</port-no>
  </state>
<qsfp>
```

```
<state>
  <lane4-recv-loss>off</lane4-recv-loss>
  <lane4-transmission-loss>off</lane4-transmission-loss>
  <lane4-transmission>off</lane4-transmission>
  <lane3-recv-loss>off</lane3-recv-loss>
  <lane3-transmission-loss>off</lane3-transmission-loss>
  <lane3-transmission>off</lane3-transmission>
  <lane2-recv-loss>off</lane2-recv-loss>
  <lane2-transmission-loss>off</lane2-transmission-loss>
  <lane2-transmission>off</lane2-transmission>
  <lane1-recv-loss>off</lane1-recv-loss>
  <lane1-transmission-loss>off</lane1-transmission-loss>
  <lane1-transmission>off</lane1-transmission>
  <power>Low</power>
  <reset-status>Reset</reset-status>
</state>
</qsfp>
<channels>
  <channel>
    <index>1</index>
  </channel>
  <channel>
    <index>2</index>
  </channel>
  <channel>
    <index>3</index>
  </channel>
  <channel>
    <index>4</index>
  </channel>
</channels>
</transceiver>
</component>
<component>
  <name>QSFP-53</name>
  <state>
    <name>QSFP-53</name>
    <parent>PORT-ce53</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>53</location>
    <type>transceiver</type>
  </state>
  <transceiver>
    <state>
      <channel-count>4</channel-count>
      <type>qsfp</type>
      <presence>Not-Present</presence>
      <port-no>53</port-no>
```

```
</state>
<qsfp>
  <state>
    <lane4-recieve-loss>off</lane4-recieve-loss>
    <lane4-transmission-loss>off</lane4-transmission-loss>
    <lane4-transmission>off</lane4-transmission>
    <lane3-recieve-loss>off</lane3-recieve-loss>
    <lane3-transmission-loss>off</lane3-transmission-loss>
    <lane3-transmission>off</lane3-transmission>
    <lane2-recieve-loss>off</lane2-recieve-loss>
    <lane2-transmission-loss>off</lane2-transmission-loss>
    <lane2-transmission>off</lane2-transmission>
    <lane1-recieve-loss>off</lane1-recieve-loss>
    <lane1-transmission-loss>off</lane1-transmission-loss>
    <lane1-transmission>off</lane1-transmission>
    <power>Low</power>
    <reset-status>Reset</reset-status>
  </state>
</qsfp>
<channels>
  <channel>
    <index>1</index>
  </channel>
  <channel>
    <index>2</index>
  </channel>
  <channel>
    <index>3</index>
  </channel>
  <channel>
    <index>4</index>
  </channel>
</channels>
</transceiver>
</component>
<component>
  <name>QSFP-54</name>
  <state>
    <name>QSFP-54</name>
    <parent>PORT-ce54</parent>
    <product-name>NA</product-name>
    <oper-status>NA</oper-status>
    <removable>true</removable>
    <part-no>NA</part-no>
    <serial-no>NA</serial-no>
    <software-version>NA</software-version>
    <firmware-version>NA</firmware-version>
    <hardware-version>NA</hardware-version>
    <description>NA</description>
    <mfg-name>NA</mfg-name>
    <location>54</location>
    <type>transceiver</type>
  </state>
<transceiver>
  <state>
    <channel-count>4</channel-count>
    <type>qsfp</type>
```




```
<presence>Not-Present</presence>
<port-no>54</port-no>
</state>
<qsfp>
  <state>
    <lane4-recieve-loss>off</lane4-recieve-loss>
    <lane4-transmission-loss>off</lane4-transmission-loss>
    <lane4-transmission>off</lane4-transmission>
    <lane3-recieve-loss>off</lane3-recieve-loss>
    <lane3-transmission-loss>off</lane3-transmission-loss>
    <lane3-transmission>off</lane3-transmission>
    <lane2-recieve-loss>off</lane2-recieve-loss>
    <lane2-transmission-loss>off</lane2-transmission-loss>
    <lane2-transmission>off</lane2-transmission>
    <lane1-recieve-loss>off</lane1-recieve-loss>
    <lane1-transmission-loss>off</lane1-transmission-loss>
    <lane1-transmission>off</lane1-transmission>
    <power>Low</power>
    <reset-status>Reset</reset-status>
  </state>
</qsfp>
<channels>
  <channel>
    <index>1</index>
  </channel>
  <channel>
    <index>2</index>
  </channel>
  <channel>
    <index>3</index>
  </channel>
  <channel>
    <index>4</index>
  </channel>
</channels>
</transceiver>
</component>
</components>
```

Show command

```
OcNOS#show hardware-information transceiver
```

```
TX      : Transmit status
RX-Los  : Receive status
RESET   : Normal (Out of reset), Reset (In reset)
POWER   : Power level Low/High
-       : NotApplicable
```

```
SFP: [1-48]
```

PORT	PRESENCE	Tx	Rx-Los
1	Present	On	-
2	Present	On	-
3	Present	On	-

4	Present	On	-
5	Not Present	Off	-
6	Present	On	-
7	Not Present	Off	-
8	Not Present	Off	-
9	Not Present	Off	-
10	Present	On	-
11	Present	On	On
12	Not Present	Off	-
13	Not Present	Off	-
14	Not Present	Off	-
15	Not Present	Off	-
16	Not Present	Off	-
17	Not Present	Off	-
18	Not Present	Off	-
19	Not Present	Off	-
20	Not Present	Off	-
21	Not Present	Off	-
22	Not Present	Off	-
23	Not Present	Off	-
24	Not Present	Off	-
25	Not Present	Off	-
26	Not Present	Off	-
27	Not Present	Off	-
28	Not Present	Off	-
29	Not Present	Off	-
30	Not Present	Off	-
31	Not Present	Off	-
32	Not Present	Off	-
33	Not Present	Off	-
34	Not Present	Off	-
35	Not Present	Off	-
36	Not Present	Off	-
37	Not Present	Off	-
38	Not Present	Off	-
39	Not Present	Off	-
40	Not Present	Off	-
41	Not Present	Off	-
42	Not Present	Off	-
43	Not Present	Off	-
44	Not Present	Off	-
45	Not Present	Off	-
46	Not Present	Off	-
47	Not Present	Off	-
48	Not Present	Off	-

QSFP: [49-54]

PORT	PRESENCE	RESET	POWER	LANE
3	4		1	2

49	Present		Normal	High	Tx	on	on
on	on				Rx-Los	Off	Off
Off	Off				Tx-Los	Off	Off
Off	Off				Rx-Los	Off	Off
50	Not Present		Reset	Low	Tx	off	off
off	off				Rx-Los	Off	Off
Off	Off				Tx-Los	Off	Off
Off	Off				Rx-Los	Off	Off
51	Present		Normal	High	Tx	on	on
on	on				Rx-Los	Off	Off
Off	Off				Tx-Los	Off	Off
Off	Off				Rx-Los	Off	Off
52	Not Present		Reset	Low	Tx	off	off
off	off				Rx-Los	Off	Off
Off	Off				Tx-Los	Off	Off
Off	Off				Rx-Los	Off	Off
53	Not Present		Reset	Low	Tx	off	off
off	off				Rx-Los	Off	Off
Off	Off				Tx-Los	Off	Off
Off	Off				Rx-Los	Off	Off
54	Not Present		Reset	Low	Tx	off	off
off	off				Rx-Los	Off	Off
Off	Off				Tx-Los	Off	Off
Off	Off				Rx-Los	Off	Off

EEPROM

Display board EEPROM details.

Filter

```
<filter type="subtree">
  <components xmlns="http://openconfig.net/yang/platform">
    <component>
      <state>
        <name>CHASSIS</name>
      </state>
    </component>
  </components>
</filter>
```

OpenConfig get result



```
<components xmlns="http://openconfig.net/yang/platform">
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>CHASSIS</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>CHASSIS</id>
      <name>CHASSIS</name>
      <parent>NA</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:ACTIVE</oper-status>
      <removable>false</removable>
      <part-no>FP3ZZ5654000A</part-no>
      <serial-no>591254X1849052</serial-no>
      <software-version>EC_AS5912-54X-OcNOS-5.0.137a-SP_MPLS-S0-
P0</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>EC_AS5912-54X</description>
      <mfg-date xmlns="http://openconfig.net/yang/platform">2020-08-
18T21:58:52Z</mfg-date>
      <mfg-name>Accton</mfg-name>
      <location>0</location>
      <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:CHASSIS</type>
    </state>
  </component>
</components>
```

OcNOS get result

```
<components xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <component>
    <name>CHASSIS</name>
    <state>
      <name>CHASSIS</name>
      <parent>NA</parent>
      <product-name>5912-54X-0-AC-F</product-name>
      <oper-status>active</oper-status>
      <removable>false</removable>
      <part-no>FP3ZZ5654000A</part-no>
      <serial-no>591254X1849052</serial-no>
      <software-version>EC_AS5912-54X-OcNOS-5.0.137a-SP_MPLS-S0-
P0</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>EC_AS5912-54X</description>
      <mfg-date>2020-08-18T21:58:52Z</mfg-date>
      <mfg-name>Accton</mfg-name>
      <location>0</location>
      <type>chassis</type>
    </state>
    <subcomponents>
      <subcomponent>
```

```
<subcomponent-name>HARD-DISK</subcomponent-name>
<state>
  <subcomponent-name>HARD-DISK</subcomponent-name>
</state>
</subcomponent>
<subcomponent>
  <subcomponent-name>RAM</subcomponent-name>
  <state>
    <subcomponent-name>RAM</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>CPU</subcomponent-name>
  <state>
    <subcomponent-name>CPU</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>TEMPERATURE-SENSOR1</subcomponent-name>
  <state>
    <subcomponent-name>TEMPERATURE-SENSOR1</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>TEMPERATURE-SENSOR2</subcomponent-name>
  <state>
    <subcomponent-name>TEMPERATURE-SENSOR2</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>TEMPERATURE-SENSOR3</subcomponent-name>
  <state>
    <subcomponent-name>TEMPERATURE-SENSOR3</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>TEMPERATURE-BCM Chip</subcomponent-name>
  <state>
    <subcomponent-name>TEMPERATURE-BCM Chip</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>POWER-RAIL</subcomponent-name>
  <state>
    <subcomponent-name>POWER-RAIL</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PSU-1</subcomponent-name>
  <state>
    <subcomponent-name>PSU-1</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PSU-2</subcomponent-name>
  <state>
    <subcomponent-name>PSU-2</subcomponent-name>
  </state>
</subcomponent>
```

```
</state>
</subcomponent>
<subcomponent>
  <subcomponent-name>FAN_TRAY-1</subcomponent-name>
  <state>
    <subcomponent-name>FAN_TRAY-1</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>FAN_TRAY-2</subcomponent-name>
  <state>
    <subcomponent-name>FAN_TRAY-2</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>FAN_TRAY-3</subcomponent-name>
  <state>
    <subcomponent-name>FAN_TRAY-3</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>FAN_TRAY-4</subcomponent-name>
  <state>
    <subcomponent-name>FAN_TRAY-4</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>FAN_TRAY-5</subcomponent-name>
  <state>
    <subcomponent-name>FAN_TRAY-5</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>FAN_TRAY-6</subcomponent-name>
  <state>
    <subcomponent-name>FAN_TRAY-6</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-1o</subcomponent-name>
  <state>
    <subcomponent-name>PORT-1o</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-eth0</subcomponent-name>
  <state>
    <subcomponent-name>PORT-eth0</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe1</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe1</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
```

```
<subcomponent-name>PORT-xe2</subcomponent-name>
<state>
  <subcomponent-name>PORT-xe2</subcomponent-name>
</state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe3</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe3</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe4</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe4</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe5</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe5</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe6</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe6</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe7</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe7</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe8</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe8</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe9</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe9</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe10</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe10</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe11</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe11</subcomponent-name>
  </state>
</subcomponent>
```

```
</state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe12</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe12</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe13</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe13</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe14</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe14</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe15</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe15</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe16</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe16</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe17</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe17</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe18</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe18</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe19</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe19</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe20</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe20</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
```




```
<subcomponent-name>PORT-xe21</subcomponent-name>
<state>
  <subcomponent-name>PORT-xe21</subcomponent-name>
</state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe22</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe22</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe23</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe23</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe24</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe24</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe25</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe25</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe26</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe26</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe27</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe27</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe28</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe28</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe29</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe29</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe30</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe30</subcomponent-name>
  </state>
</subcomponent>
```

```
</state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe31</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe31</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe32</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe32</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe33</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe33</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe34</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe34</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe35</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe35</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe36</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe36</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe37</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe37</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe38</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe38</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-xe39</subcomponent-name>
  <state>
    <subcomponent-name>PORT-xe39</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
```

```
<subcomponent-name>PORT-40</subcomponent-name>
<state>
  <subcomponent-name>PORT-40</subcomponent-name>
</state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-41</subcomponent-name>
  <state>
    <subcomponent-name>PORT-41</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-42</subcomponent-name>
  <state>
    <subcomponent-name>PORT-42</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-43</subcomponent-name>
  <state>
    <subcomponent-name>PORT-43</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-44</subcomponent-name>
  <state>
    <subcomponent-name>PORT-44</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-45</subcomponent-name>
  <state>
    <subcomponent-name>PORT-45</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-46</subcomponent-name>
  <state>
    <subcomponent-name>PORT-46</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-47</subcomponent-name>
  <state>
    <subcomponent-name>PORT-47</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-48</subcomponent-name>
  <state>
    <subcomponent-name>PORT-48</subcomponent-name>
  </state>
</subcomponent>
<subcomponent>
  <subcomponent-name>PORT-49</subcomponent-name>
  <state>
    <subcomponent-name>PORT-49</subcomponent-name>
```

```
    </state>
  </subcomponent>
</subcomponent>
  <subcomponent-name>PORT-ce50</subcomponent-name>
  <state>
    <subcomponent-name>PORT-ce50</subcomponent-name>
  </state>
</subcomponent>
</subcomponent>
  <subcomponent-name>PORT-ce51</subcomponent-name>
  <state>
    <subcomponent-name>PORT-ce51</subcomponent-name>
  </state>
</subcomponent>
</subcomponent>
  <subcomponent-name>PORT-ce52</subcomponent-name>
  <state>
    <subcomponent-name>PORT-ce52</subcomponent-name>
  </state>
</subcomponent>
</subcomponent>
  <subcomponent-name>PORT-ce53</subcomponent-name>
  <state>
    <subcomponent-name>PORT-ce53</subcomponent-name>
  </state>
</subcomponent>
</subcomponent>
  <subcomponent-name>PORT-ce54</subcomponent-name>
  <state>
    <subcomponent-name>PORT-ce54</subcomponent-name>
  </state>
</subcomponent>
</subcomponent>
  <subcomponent-name>PORT-lo.management</subcomponent-name>
  <state>
    <subcomponent-name>PORT-lo.management</subcomponent-name>
  </state>
</subcomponent>
</subcomponents>
<chassis>
  <state>
    <supported-switch-chip-revision>BCM88370_B0</supported-switch-chip-
revision>
    <supported-label-revision>R0BB</supported-label-revision>
    <fan-board-id>Reserved</fan-board-id>
    <switch-chip-revision>BCM88370_B0</switch-chip-revision>
    <cyclic-redundancy-32bit-value>0x797A6D84</cyclic-redundancy-32bit-
value>
    <diagnostic-version>0.0.5.9</diagnostic-version>
    <vendor-name>Edgecore</vendor-name>
    <onie-version>2018.05.00.04</onie-version>
    <platform-name>x86_64-accton_as5912_54x-r0</platform-name>
    <chassis-100g-ethernet-count>6</chassis-100g-ethernet-count>
    <chassis-50g-ethernet-count>0</chassis-50g-ethernet-count>
    <chassis-40g-ethernet-count>0</chassis-40g-ethernet-count>
    <chassis-25g-ethernet-count>0</chassis-25g-ethernet-count>
    <chassis-10g-ethernet-count>48</chassis-10g-ethernet-count>
```

```
<chassis-1g-ethernet-count>0</chassis-1g-ethernet-count>
<chassis-fast-ethernet-count>0</chassis-fast-ethernet-count>
<power-supplies-count>2</power-supplies-count>
<fan-tray-count>6</fan-tray-count>
<country-code>TW</country-code>
<label-revision>R02B</label-revision>
<mac-address>B8:6A:97:A7:47:3C</mac-address>
<up-time>517700</up-time>
</state>
</chassis>
</component>
</components>
```

Show command

```
OcNOS#show system-information board-info
```

System Board Information

```
=====
```

```
Product Name           : 5912-54X-O-AC-F
Part Number            : FP3ZZ5654000A
Serial Number          : 591254X1849052
Base MAC Address       : B8:6A:97:A7:47:3C
Manufacture Date       : 08/18/2020 21:58:52
Label Revision         : R02B
Platform Name          : x86_64-accton_as5912_54x-r0
ONIE Version           : 2018.05.00.04
MAC Addresses          : 256
Manufacturer           : Accton
Country Code           : TW
Vendor Name            : Edgecore
Diag Version           : 0.0.5.9
CRC-32                 : 0x797A6D84
Switch Chip Revision   : BCM88370_B0
CPLD 1 Board Info      : ES5654BQ
Fan Board Id           : Reserved
CPLD 1 PCB version ID  : Reserved
CPLD 1 Version         : 9
CPLD 2 Version         : 6
Fan CPLD Version       : 2
```

CPU

Display CPU load information.

Filter

```
<filter type="subtree">
  <components xmlns="http://openconfig.net/yang/platform">
    <component>
      <state>
        <name>CPU</name>
      </state>
    </component>
  </components>
```

</filter>

OpenConfig get result

```
<components xmlns="http://openconfig.net/yang/platform">
  <component xmlns:oc-opt-types="http://openconfig.net/yang/transport-
types">
    <name>CPU</name>
    <state xmlns:oc-platform-types="http://openconfig.net/yang/platform-
types">
      <id>CPU</id>
      <name>CPU</name>
      <parent>CHASSIS</parent>
      <oper-status xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">ipi-oc-platform-types-deviations:NA</oper-status>
      <removable>false</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>0</location>
      <type xmlns:ipi-oc-platform-types-
deviations="http://www.ipinfusion.com/yang/ocnos/ipi-oc-platform-types-
deviations">oc-platform-types:CPU</type>
    </state>
  </component>
</components>
```

OcNOS get result

```
<components xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <component>
    <name>CPU</name>
    <state>
      <name>CPU</name>
      <parent>CHASSIS</parent>
      <product-name>NA</product-name>
      <oper-status>NA</oper-status>
      <removable>false</removable>
      <part-no>NA</part-no>
      <serial-no>NA</serial-no>
      <software-version>NA</software-version>
      <firmware-version>NA</firmware-version>
      <hardware-version>NA</hardware-version>
      <description>NA</description>
      <mfg-name>NA</mfg-name>
      <location>0</location>
      <type>cpu</type>
    </state>
  <cpu>
    <state>
      <cpu-utilization-critical>50</cpu-utilization-critical>
    </state>
  </cpu>
</components>
```

```
<cpu-utilization-alert>90</cpu-utilization-alert>
<cpu-utilization>3.02</cpu-utilization>
<cpu-15min-alert-threshold>50</cpu-15min-alert-threshold>
<cpu-5min-alert-threshold>50</cpu-5min-alert-threshold>
<cpu-1min-critical-threshold>40</cpu-1min-critical-threshold>
<cpu-1min-alert-threshold>50</cpu-1min-alert-threshold>
<cpu-15min-load-percentage>3.89</cpu-15min-load-percentage>
<cpu-5min-load-percentage>5.57</cpu-5min-load-percentage>
<cpu-1min-load-percentage>8.17</cpu-1min-load-percentage>
<processor-count>4</processor-count>
</state>
</cpu>
</component>
</components>
```

Show command

```
OcNOS#show system-information cpu-load
```

```
System CPU-Load Information
```

```
=====
```

```
Uptime                               : 0 Days 1 Hours 29 Minutes 2 Seconds

Load Average(1 min)                   : 5.93% (Crit Thresh : 40%, Alert Thresh : 50%)
Load Average(5 min)                   : 4.06% (Crit Thresh : N/A, Alert Thresh : 50%)
Load Average(15 min)                  : 3.28% (Crit Thresh : N/A, Alert Thresh : 50%)

Avg CPU Usage                          : 3.02%
CPU core 1 Usage                       : 3.74% (Crit Thresh : 50%, Alert Thresh : 90%)
CPU core 2 Usage                       : 0.93% (Crit Thresh : 50%, Alert Thresh : 90%)
CPU core 3 Usage                       : 6.48% (Crit Thresh : 50%, Alert Thresh : 90%)
CPU core 4 Usage                       : 0.00% (Crit Thresh : 50%, Alert Thresh : 90%)
```

System

Host

Release

This configuration was introduced in OcNOS version 5.0.

Configuration

Use this command to set the network name for the device. OcNOS uses this name in system prompts and default configuration filenames.

Setting a hostname using this command also sets the hostname in the kernel.

OpenConfig NETCONF Payload

```
<system xmlns="http://openconfig.net/yang/system">
```



```
<config>
  <hostname>host123</hostname>
</config>
</system>
```

OcNOS CLI command

```
OcNOS#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
OcNOS(config)#hostname host123
OcNOS(config)#commit
```

OcNOS NETCONF Payload

```
<system-info xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-system">
  <config>
    <hostname>host123</hostname>
  </config>
</system-info>
```

Validation

Get OpenConfig Payload

```
<system xmlns="http://openconfig.net/yang/system">
  <config/>
  <state/>
</system>
```

Get OpenConfig Return

```
<system xmlns="http://openconfig.net/yang/system">
  <config>
    <hostname>host123</hostname>
  </config>
  <state>
    <hostname>host123</hostname>
    <current-datetime>2021-11-18T12:36:44Z</current-datetime>
  </state>
</system>
```

Unconfiguration

Use operation='delete' to unconfigure. In this case, the hostname came back to the default name "OcNOS".

OpenConfig NETCONF Payload

```
<system xmlns="http://openconfig.net/yang/system">
  <config>
    <hostname operation="delete" />
  </config>
```


</system>

Restriction

Network name for a system. Per RFC 952 and RFC 1123, a hostname string can contain only the special characters period (".") and hyphen ("-"). These special characters cannot be at the start or end of a hostname. The hostname is limited to between 1 and 63 characters.

TimeZone Clock

Release

This configuration was introduced in OcNOS version 5.0.

Configuration

Use this command to set the system time zone.

OpenConfig NETCONF Payload

```
<system xmlns="http://openconfig.net/yang/system">
  <clock>
    <config>
      <timezone-name>Pacific</timezone-name>
    </config>
  </clock>
</system>
```

OcNOS CLI command

```
OcNOS#conf t
Enter configuration commands, one per line. End with CNTL/Z.
OcNOS(config)#clock timezone Pacific
OcNOS(config)#commit
```

OcNOS NETCONF Payload

```
<system xmlns="http://openconfig.net/yang/system">
  <clock>
    <config>
      <timezone-name>Pacific</timezone-name>
    </config>
  </clock>
</system>
```

Validation

Get OpenConfig Payload

```
<system xmlns="http://openconfig.net/yang/system">
```



```
<clock/>
</system>
```

Get OpenConfig Return

```
<system xmlns="http://openconfig.net/yang/system">
  <clock>
    <config>
      <timezone-name>Pacific</timezone-name>
    </config>
    <state>
      <timezone-name>Pacific</timezone-name>
    </state>
  </clock>
</system>
```

Restrictions

Allowed words in the time zone name can be queried with the cli show timezone <macro region> command.

There is currently no way to query this list through openconfig.

Rsyslog

Release

This configuration was introduced in OcNOS version 5.0.

Configuration

Use this command to change the VRF of Rsyslog.

OpenConfig NETCONF Payload

```
<system xmlns="http://openconfig.net/yang/system">
  <logging>
    <remote-servers>
      <config xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-sys-
deviations">
        <vrf>management</vrf>
      </config>
    </remote-servers>
  </logging>
</system>
```

OcNOS CLI command

```
OcNOS#conf t
Enter configuration commands, one per line. End with CNTL/Z.
OcNOS(config)#feature rsyslog vrf management
```

OcNOS NETCONF Payload

```
<logging xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-logging">
  <rsyslog>
    <vrf>management</vrf>
    <config>
      <vrf>management</vrf>
    </config>
  </rsyslog>
</logging>
```

Validation

Get OpenConfig Payload

```
<system xmlns="http://openconfig.net/yang/system">
  <logging/>
</system>
```

Get OpenConfig Return

```
<system xmlns="http://openconfig.net/yang/system">
  <logging>
    <remote-servers>
      <config xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-sys-
deviations">
        <vrf>management</vrf>
      </config>
      <state xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-sys-
deviations">
        <vrf>management</vrf>
      </state>
    </remote-servers>
  </logging>
</system>
```

Restrictions

The leaf system/logging/remote-servers/config/vrf accepts only default or management.

Logging Remote Server

Release

This configuration was introduced in OcNOS version 5.0.

Configuration



Use this command to set a syslog server.

OcNOS supports logging messages to a syslog server in addition to logging to a file or the console (local or ssh/telnet console). Messages can be logged to a local syslog server (the machine on which OcNOS executes) as well as to one or more remote syslog servers.

OpenConfig NETCONF Payload

```
<system xmlns="http://openconfig.net/yang/system">
  <logging>
    <remote-servers>
      <config xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-sys-
deviations">
        <vrf>management</vrf>
      </config>
    <remote-server>
      <host>2.2.2.3</host>
      <config>
        <host>2.2.2.3</host>
      </config>
      <selectors>
        <selector>
          <severity>DEBUG</severity>
          <config>
            <severity>DEBUG</severity>
          </config>
        </selector>
      </selectors>
    </remote-server>
  </remote-servers>
</logging>
</system>
```

OcNOS CLI command

```
OcNOS#conf t
Enter configuration commands, one per line. End with CNTL/Z.
OcNOS(config)#logging remote server 2.2.2.3 7 vrf management
OcNOS(config)#commit
```

OcNOS NETCONF Payload

```
<logging xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-logging">
  <rsyslog>
    <vrf>management</vrf>
    <remote-servers>
      <remote-server>
        <address>2.2.2.3</address>
        <config>
          <address>2.2.2.3</address>
          <severity>7</severity>
        </config>
      </remote-server>
    </remote-servers>
  </config>
</vrf>management</vrf>
```



```
<vrf>default</vrf>
  <enable-rsyslog>rsyslog</enable-rsyslog>
</config>
</rsyslog>
</logging>
```

Validation

Get Openconfig Payload

```
<system xmlns="http://openconfig.net/yang/system">
  <logging/>
</system>
```

Get OpenConfig Return

```
<system xmlns="http://openconfig.net/yang/system">
  <logging>
    <remote-servers>
      <config xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-sys-
deviations">
        <vrf>management</vrf>
      </config>
      <state xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-sys-
deviations">
        <vrf>management</vrf>
      </state>
      <remote-server>
        <host>2.2.2.3</host>
        <config>
          <host>2.2.2.3</host>
        </config>
        <selectors>
          <selector>
            <severity>DEBUG</severity>
            <config>
              <severity>DEBUG</severity>
            </config>
          <state>
            <severity>DEBUG</severity>
          </state>
          </selector>
        </selectors>
        <state>
          <host>2.2.2.3</host>
        </state>
      </remote-server>
    </remote-servers>
  </logging>
</system>
```

Logging Remote Facility

Release

This configuration was introduced in OcNOS version 5.0.

Configuration

Use this command to set a syslog servers facility.

OcNOS supports logging messages to one or more remote syslog servers, but the same facility is used for all the servers.

Use the no form of this command to use the default facility value, which is local7.

OpenConfig NETCONF Payload

```
<system xmlns="http://openconfig.net/yang/system">
  <logging>
    <remote-servers>
      <config xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-sys-
deviations">
        <vrf>management</vrf>
      </config>
    <remote-server>
      <host>2.2.2.3</host>
      <config>
        <host>2.2.2.3</host>
      </config>
      <selectors>
        <selector>
          <facility>oc-log:LOCAL5</facility>
          <severity>DEBUG</severity>
          <config>
            <facility>oc-log:LOCAL5</facility>
            <severity>DEBUG</severity>
          </config>
        </selector>
      </selectors>
    </remote-server>
  </remote-servers>
</logging>
</system>
```

OcNOS CLI command

```
OcNOS#conf t
```

Enter configuration commands, one per line. End with CNTL/Z.

```
OcNOS(config)#logging remote facility local5
```

```
OcNOS(config)#commit
```

OcNOS NETCONF Payload

```
<logging>
  <remote-servers>
    <config xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-sys-
deviations">
```



```
<vrf>management</vrf>
</config>
<remote-server>
  <host>2.2.2.3</host>
  <config>
    <host>2.2.2.3</host>
  </config>
</remote-server>
</remote-servers>
</logging>
```

Validation

Get OpenConfig Payload

```
<system xmlns="http://openconfig.net/yang/system">
  <logging/>
</system>
```

Get OpenConfig Return

```
<system xmlns="http://openconfig.net/yang/system">
  <logging>
    <remote-servers>
      <config xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-sys-
deviations">
        <vrf>management</vrf>
      </config>
      <state xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-sys-
deviations">
        <vrf>management</vrf>
      </state>
      <remote-server>
        <host>2.2.2.3</host>
        <config>
          <host>2.2.2.3</host>
        </config>
        <selectors>
          <selector>
            <facility>oc-log:LOCAL5</facility>
            <severity>DEBUG</severity>
          </selector>
          <config>
            <facility>oc-log:LOCAL5</facility>
            <severity>DEBUG</severity>
          </config>
        </selectors>
      </remote-server>
    </remote-servers>
  </logging>
</system>
```

```
<state>
  <facility>oc-log:LOCAL5</facility>
  <severity>DEBUG</severity>
</state>
</selector>
</selectors>
<state>
  <host>2.2.2.3</host>
</state>
</remote-server>
</remote-servers>
</logging>
</system>
```

Restrictions

The facility only can be added via OpenConfig to a configured remote server. Via CLI the command adds the same facility to all remote servers configured.

Alarms

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

There is no configuration via OpenConfig. The alarm is a runtime attribute. When some event triggers the alarm, it can be viewed via OpenConfig.

However, to enable it is necessary the following command via CLI:

```
OcNOS#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
OcNOS(config)#fault-management enable
OcNOS(config)#commit
```

To enable the Alarm clearing is necessary to change the all logging level to four or more. For this, use the following command via CLI:

```
OcNOS#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
OcNOS(config)#logging level all 4
OcNOS(config)#commit
```

Get OpenConfig Payload

```
<system xmlns="http://openconfig.net/yang/system">
  <alarms/>
</system>
```


Get OpenConfig Return

```
<system xmlns="http://openconfig.net/yang/system">
  <alarms>
    <alarm>
      <id>IFMGR_IF_DOWN:ce2/1</id>
      <state>
        <id>IFMGR_IF_DOWN:ce2/1</id>
        <type-id>EQPT</type-id>
        <severity xmlns:oc-alarm-
types="http://openconfig.net/yang/alarms/types">oc-alarm-
types:MAJOR</severity>
        <alarm-reported-timestamp
xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-sys-deviations">Thu Dec 16
2021 20:31:28 UTC</alarm-reported-timestamp>
        <time-created>1639686688</time-created>
        <text>OcNOS [IFMGR_IF_DOWN] Interface ce2/1 changed state to
down</text>
        <resource>ce2/1</resource>
      </state>
    </alarm>
  </alarms>
</system>
```

OcNOS CLI show command

```
OcNOS#show alarm active
Active Alarms received:-
Active Alarm Count: 2
Severity      Status      Alarm Description
MAJOR        Active      OcNOS [IFMGR_IF_DOWN] Interface ce2/1 changed state
to down
```

Restrictions

The alarms will be generated just for some events, the list of which can be found in the System Management Guide.

OpenConfig VLAN

Match single tagged VLAN

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this command to set a single tag VLAN match.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe24</name>
    <config>
      <name>xe24</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>20</index>
        <config>
          <index>20</index>
          <vlan xmlns="http://openconfig.net/yang/vlan">
            <match>
              <single-tagged-list>
                <config>
                  <vlan-ids>6</vlan-ids>
                </config>
              </single-tagged-list>
            </match>
          </vlan>
        </subinterface>
      </subinterfaces>
    </interface>
  </interfaces>
```

OcNOS CLI command

```
interface xe24.20
  encapsulation dot1q 6
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe24</name>
    <config>
      <name>xe24</name>
    </config>
  </interface>
  <interface>
    <name>xe24.20</name>
    <config>
      <name>xe24.20</name>
      <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
extended">
        <subinterface-encapsulation>
          <single-tag-vlan-matches>
            <single-tag-vlan-match>
              <encapsulation-type>dot1q</encapsulation-type>
            </single-tag-vlan-match>
          </single-tag-vlan-matches>
        </subinterface-encapsulation>
      </extended>
    </config>
  </interface>
</interfaces>
```

```
<config>
  <encapsulation-type>dot1q</encapsulation-type>
  <outer-vlan-id>6</outer-vlan-id>
</config>
</single-tag-vlan-match>
</single-tag-vlan-matches>
</subinterface-encapsulation>
</extended>
</interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe24</name>
    <config>
      <name>xe24</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
      </config>
      <vlan xmlns="http://openconfig.net/yang/vlan">
        <match>
          <single-tagged-list>
            <config>
              <vlan-ids>6</vlan-ids>
            </config>
            <state>
              <vlan-ids>6</vlan-ids>
            </state>
          </single-tagged-list>
        </match>
      </vlan>
    </subinterface>
  </subinterfaces>
</interface>
</interfaces>
```

Restrictions

None.

Match single tagged VLAN range

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this command to set a single tag VLAN range in a subinterface.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe26</name>
    <subinterfaces>
      <subinterface>
        <index>10</index>
        <config>
          <index>10</index>
        </config>
        <vlan xmlns="http://openconfig.net/yang/vlan">
          <match>
            <single-tagged-range>
              <config>
                <low-vlan-id>10</low-vlan-id>
                <high-vlan-id>20</high-vlan-id>
              </config>
            </single-tagged-range>
          </match>
          <ingress-mapping>
            <config>
              <vlan-stack-action>PUSH</vlan-stack-action>
              <vlan-id>15</vlan-id>
              <tpid xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X88A8</tpid>
            </config>
          </ingress-mapping>
        </vlan>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

OcNOS CLI command

```
interface xe26.10 switchport
encapsulation dot1q 10-20
rewrite push 0x88a8 15
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe26</name>
    <config>
      <name>xe26</name>
    </config>
  </interface>
  <interface>
    <name>xe26.10</name>
    <config>
      <name>xe26.10</name>
      <enable-switchport />
    </config>
  </interface>
</interfaces>
```

```
</config>
<extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
extended">
  <subinterface-encapsulation>
    <single-tag-vlan-matches>
      <single-tag-vlan-match>
        <encapsulation-type>dot1q</encapsulation-type>
        <config>
          <encapsulation-type>dot1q</encapsulation-type>
          <outer-vlan-id>10-20</outer-vlan-id>
        </config>
      </single-tag-vlan-match>
    </single-tag-vlan-matches>
    <rewrite>
      <config>
        <vlan-action>push</vlan-action>
        <push-outer-vlan-id>15</push-outer-vlan-id>
        <push-tpid>0x88a8</push-tpid>
      </config>
    </rewrite>
  </subinterface-encapsulation>
</extended>
</interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe26</name>
    <config>
      <name>xe26</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>0</index>
        <config>
          <index>0</index>
        </config>
      </subinterface>
      <subinterface>
        <index>10</index>
        <config>
          <index>10</index>
        </config>
      <state>
        <name>xe26.10</name>
        <logical>true</logical>
        <oper-status>DOWN</oper-status>
        <ifindex>328531978</ifindex>
        <counters>
          <last-clear>0</last-clear>
          <out-pkts>0</out-pkts>
          <out-octets>0</out-octets>
```

```
        <in-pkts>0</in-pkts>
        <in-octets>0</in-octets>
    </counters>
</state>
<vlan xmlns="http://openconfig.net/yang/vlan">
    <ingress-mapping>
        <config>
            <vlan-stack-action>PUSH</vlan-stack-action>
            <tpid>TPID_0X88A8</tpid>
            <vlan-id>15</vlan-id>
        </config>
        <state>
            <vlan-stack-action>PUSH</vlan-stack-action>
            <tpid>TPID_0X88A8</tpid>
            <vlan-id>15</vlan-id>
        </state>
    </ingress-mapping>
    <match>
        <single-tagged-range>
            <config>
                <low-vlan-id>10</low-vlan-id>
                <high-vlan-id>20</high-vlan-id>
            </config>
            <state>
                <low-vlan-id>10</low-vlan-id>
                <high-vlan-id>20</high-vlan-id>
            </state>
        </single-tagged-range>
    </match>
</vlan>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
```

Restrictions

If OcNOS “switchport” parameter has not been set previously on subinterface, VLAN range match needs to be configured along with ingress-mapping or added in the cross-connect network-instance

Match double tagged VLAN

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this command to set an outer VLAN match in a subinterface.

OpenConfig NETCONF Payload



```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe37</name>
    <config>
      <name>xe37</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>100</index>
        <config>
          <index>100</index>
        </config>
        <vlan xmlns="http://openconfig.net/yang/vlan">
          <match>
            <double-tagged-outer-list>
              <config>
                <outer-vlan-ids>400</outer-vlan-
ids>
              </config>
            </double-tagged-outer-list>
          </match>
        </vlan>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

OcNOS CLI command

```
interface xe37.100
  encapsulation dot1ad 400
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe37</name>
    <config>
      <name>xe37</name>
    </config>
  </interface>
  <interface>
    <name>xe37.100</name>
    <config>
      <name>xe37.100</name>
    </config>
    <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
extended">
      <subinterface-encapsulation>
        <single-tag-vlan-matches>
          <single-tag-vlan-match>
            <encapsulation-type>dot1ad</encapsulation-type>
          <config>
            <encapsulation-type>dot1ad</encapsulation-type>
          </config>
        </single-tag-vlan-match>
      </single-tag-vlan-matches>
    </subinterface-encapsulation>
  </extended>
</interface>
</interfaces>
```

```
        <outer-vlan-id>400</outer-vlan-id>
      </config>
    </single-tag-vlan-match>
  </single-tag-vlan-matches>
</subinterface-encapsulation>
</extended>
</interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe37</name>
    <config>
      <name>xe37</name>
    </config>
    <subinterfaces>
      <subinterface>
        <index>100</index>
        <config>
          <index>100</index>
        </config>
        <state>
          <name>xe37.100</name>
          <logical>true</logical>
          <oper-status>DOWN</oper-status>
          <ifindex>328892516</ifindex>
          <counters>
            <last-clear>0</last-clear>
            <out-pkts>0</out-pkts>
            <out-octets>0</out-octets>
            <in-pkts>0</in-pkts>
            <in-octets>0</in-octets>
          </counters>
        </state>
        <vlan xmlns="http://openconfig.net/yang/vlan">
          <match>
            <double-tagged-outer-list>
              <config>
                <outer-vlan-ids>400</outer-vlan-ids>
              </config>
              <state>
                <outer-vlan-ids>400</outer-vlan-ids>
              </state>
            </double-tagged-outer-list>
          </match>
        </vlan>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

Restrictions

Double-tagged-outer-list does not support the inner-vlan-id configuration

Match double tagged with outer and inner VLAN

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this command to set outer and inner VLAN match in a subinterface.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe25</name>
    <config>
      <name>xe25</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>20</index>
        <config>
          <index>20</index>
        </config>
        <vlan xmlns="http://openconfig.net/yang/vlan">
          <match>
            <double-tagged>
              <config>
                <outer-vlan-id>40</outer-vlan-id>
                <inner-vlan-id>30</inner-vlan-id>
              </config>
            </double-tagged>
          </match>
        </vlan>
      </subinterface>
    </subinterfaces>
  </interface>
</interfaces>
```

OcNOS CLI command

```
interface xe25.20
  encapsulation dot1ad 40 inner-dot1q 30
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
```

```
<name>xe25</name>
<config>
  <name>xe25</name>
</config>
</interface>
<interface>
  <name>xe25.20</name>
  <config>
    <name>xe25.20</name>
  </config>
  <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
extended">
    <subinterface-encapsulation>
      <double-tag-vlan-matches>
        <double-tag-vlan-match>
          <encapsulation-type>dot1ad</encapsulation-type>
          <outer-vlan-id>40</outer-vlan-id>
          <config>
            <encapsulation-type>dot1ad</encapsulation-type>
            <outer-vlan-id>40</outer-vlan-id>
            <inner-vlan-id>30</inner-vlan-id>
          </config>
        </double-tag-vlan-match>
      </double-tag-vlan-matches>
    </subinterface-encapsulation>
  </extended>
</interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe25</name>
    <config>
      <name>xe25</name>
    </config>
    <subinterfaces>
      <subinterface>
        <index>20</index>
        <config>
          <index>20</index>
        </config>
        <state>
          <name>xe25.20</name>
          <logical>true</logical>
          <oper-status>DOWN</oper-status>
          <ifindex>328499220</ifindex>
          <counters>
            <last-clear>0</last-clear>
            <out-pkts>0</out-pkts>
            <out-octets>0</out-octets>
            <in-pkts>0</in-pkts>
            <in-octets>0</in-octets>
          </counters>
        </state>
```

```
<vlan xmlns="http://openconfig.net/yang/vlan">
  <match>
    <double-tagged>
      <config>
        <outer-vlan-id>40</outer-vlan-id>
        <inner-vlan-id>30</inner-vlan-id>
      </config>
      <state>
        <outer-vlan-id>40</outer-vlan-id>
        <inner-vlan-id>30</inner-vlan-id>
      </state>
    </double-tagged>
  </match>
</vlan>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
```

Restrictions

None.

Ingress-mapping actions

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this command to configure an ingress-mapping with VLAN actions. Allowed actions are PUSH, POP and SWAP.

OpenConfig NETCONF Payload

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe32</name>
    <config>
      <name>xe32</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <subinterfaces>
      <subinterface>
        <index>100</index>
        <config>
          <index>100</index>
        </config>
        <vlan xmlns="http://openconfig.net/yang/vlan">
          <match>
```

```
<single-tagged-list>
  <config>
    <vlan-ids>10</vlan-ids>
  </config>
</single-tagged-list>
</match>
<ingress-mapping>
  <config>
    <vlan-stack-action>SWAP</vlan-stack-action>
    <tpid>TPID_0X8100</tpid>
    <vlan-id>100</vlan-id>
  </config>
</ingress-mapping>
</vlan>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
```

OcNOS CLI command

```
interface xe32.100 switchport
encapsulation dot1q 10
rewrite translate 1-to-1 0x8100 100
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe32</name>
    <config>
      <name>xe32</name>
    </config>
  </interface>
  <interface>
    <name>xe32.100</name>
    <config>
      <name>xe32.100</name>
      <enable-switchport />
    </config>
    <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-extended">
      <subinterface-encapsulation>
        <single-tag-vlan-matches>
          <single-tag-vlan-match>
            <encapsulation-type>dot1q</encapsulation-type>
            <config>
              <encapsulation-type>dot1q</encapsulation-type>
              <outer-vlan-id>10</outer-vlan-id>
            </config>
          </single-tag-vlan-match>
        </single-tag-vlan-matches>
        <rewrite>
          <config>
            <vlan-action>translate</vlan-action>
            <rewrite-translate-action>1-to-1</rewrite-translate-action>
```

```

        <dot1q-dot1ad-tpid>0x8100</dot1q-dot1ad-tpid>
        <outer-vlan-id>100</outer-vlan-id>
    </config>
</rewrite>
</subinterface-encapsulation>
</extended>
</interface>
</interfaces>

```

Validation with NETCONF get

```

<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe32</name>
    <config>
      <name>xe32</name>
    </config>
    <subinterfaces>
      <subinterface>
        <index>100</index>
        <config>
          <index>100</index>
        </config>
        <state>
          <name>xe32.100</name>
          <logical>true</logical>
          <oper-status>DOWN</oper-status>
          <ifindex>328728676</ifindex>
          <counters>
            <last-clear>0</last-clear>
            <out-pkts>0</out-pkts>
            <out-octets>0</out-octets>
            <in-pkts>0</in-pkts>
            <in-octets>0</in-octets>
          </counters>
        </state>
        <vlan xmlns="http://openconfig.net/yang/vlan">
          <ingress-mapping>
            <config>
              <vlan-stack-action>SWAP</vlan-stack-action>
              <tpid
                xmlns:oc-vlan-types="http://openconfig.net/yang/vlan-
                types">oc-vlan-types:TPID_0X8100</tpid>
              <vlan-id>100</vlan-id>
            </config>
            <state>
              <vlan-stack-action>SWAP</vlan-stack-action>
              <tpid
                xmlns:oc-vlan-types="http://openconfig.net/yang/vlan-
                types">oc-vlan-types:TPID_0X8100</tpid>
              <vlan-id>100</vlan-id>
            </state>
          </ingress-mapping>
          <match>
            <single-tagged-list>
              <config>

```

```
        <vlan-ids>10</vlan-ids>
    </config>
    <state>
        <vlan-ids>10</vlan-ids>
    </state>
</single-tagged-list>
</match>
</vlan>
</subinterface>
</subinterfaces>
</interface>
</interfaces>
```

Restrictions

Only for VLAN action PUSH, match is optional. If not used, it will set encapsulation default in OcnOS.

Trunk VLANs in interface

Release

This configuration was introduced in OcnOS version 5.1.

Configuration

Use this command to configure a trunk VLAN range in an interface

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>1</name>
    <config>
      <name>1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2L3</type>
      <enabled>true</enabled>
      <bridge-protocol xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-
ni-augments">ieee-vlan-bridge</bridge-protocol>
    </config>
    <vlans>
      <vlan>
        <vlan-id>350</vlan-id>
        <config>
          <vlan-id>350</vlan-id>
          <status>ACTIVE</status>
        </config>
      </vlan>
      <vlan>
        <vlan-id>351</vlan-id>
        <config>
          <vlan-id>351</vlan-id>
```

```
        <status>ACTIVE</status>
    </config>
</vlan>
<vlan>
    <vlan-id>352</vlan-id>
    <config>
        <vlan-id>352</vlan-id>
        <status>ACTIVE</status>
    </config>
</vlan>
</vlans>
    <interfaces>
        <interface>
            <id>xe7</id>
            <config>
                <interface>xe7</interface>
                <id>xe7</id>
            </config>
        </interface>
    </interfaces>
</network-instance>
</network-instances>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
    <interface>
        <name>xe7</name>
        <config>
            <name>xe7</name>
            <tpid xmlns="http://openconfig.net/yang/vlan">TPID_0X8100</tpid>
            <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
        </config>
        <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
            <switched-vlan xmlns="http://openconfig.net/yang/vlan">
                <config>
                    <interface-mode>TRUNK</interface-mode>
                    <trunk-vlans>350..352</trunk-vlans>
                </config>
            </switched-vlan>
        </ethernet>
    </interface>
</interfaces>
```

OcNOS CLI command

```
bridge 1 protocol ieee vlan-bridge
!
vlan database
    vlan 350-352 bridge 1 state enable
!
interface xe7
    switchport
    dot1ad ethertype 0x8100
    bridge-group 1
    switchport mode trunk
    switchport trunk allowed vlan add 350-352
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
network-instance">
  <network-instance>
    <instance-name>1</instance-name>
    <instance-type>l2ni</instance-type>
    <bridge xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bridge">
      <config>
        <protocol>ieee-vlan-bridge</protocol>
      </config>
    <vlans xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vlan">
      <vlan>
        <vlan-id>350</vlan-id>
        <config>
          <vlan-id>350</vlan-id>
          </config>
        <customer-vlan>
          <config>
            <state>enable</state>
          </config>
        </customer-vlan>
      </vlan>
      <vlan>
        <vlan-id>351</vlan-id>
        <config>
          <vlan-id>351</vlan-id>
          </config>
        <customer-vlan>
          <config>
            <state>enable</state>
          </config>
        </customer-vlan>
      </vlan>
      <vlan>
        <vlan-id>352</vlan-id>
        <config>
          <vlan-id>352</vlan-id>
          </config>
        <customer-vlan>
          <config>
            <state>enable</state>
          </config>
        </customer-vlan>
      </vlan>
    </vlans>
    <bridge-ports>
      <interface>
        <name>xe7</name>
        <config>
          <name>xe7</name>
        </config>
      </interface>
    </bridge-ports>
  </bridge>
</config>
```



```
        <instance-name>1</instance-name>
        <instance-type>l2ni</instance-type>
    </config>
</network-instance>
</network-instances>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
    <interface>
        <name>xe7</name>
        <config>
            <name>xe7</name>
            <dot1ad-ether-type>0x8100</dot1ad-ether-type>
            <enable-switchport />
        </config>
        <port-vlan xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-port-
vlan">
            <switched-vlan>
                <interface-mode>trunk</interface-mode>
                <config>
                    <interface-mode>trunk</interface-mode>
                </config>
                <allowed-vlan>
                    <config>
                        <allowed-vlan-id>350-352</allowed-vlan-id>
                    </config>
                </allowed-vlan>
            </switched-vlan>
        </port-vlan>
    </interface>
</interfaces>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
    <network-instance>
        <name>1</name>
        <config>
            <name>1</name>
            <type
                xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2L3</type>
            <enabled>true</enabled>
            <bridge-protocol xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
oc-ni-augments">ieee-vlan-bridge</bridge-protocol>
        </config>
        <state>
            <name>1</name>
            <type
                xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2L3</type>
            <enabled>true</enabled>
        </state>
        <fdb>
            <config>
                <mac-learning>true</mac-learning>
            </config>
        </fdb>
```

```
<interfaces>
  <interface>
    <id>xe7</id>
    <config>
      <id>xe7</id>
      <interface>xe7</interface>
    </config>
  </state>
  <id>xe7</id>
  <interface>xe7</interface>
</state>
</interface>
</interfaces>
<vlans>
  <vlan>
    <vlan-id>350</vlan-id>
    <config>
      <vlan-id>350</vlan-id>
      <status>ACTIVE</status>
    </config>
    <state>
      <vlan-id>350</vlan-id>
      <status>ACTIVE</status>
    </state>
    <members>
      <member>
        <state>
          <interface>xe7</interface>
        </state>
      </member>
    </members>
  </vlan>
  <vlan>
    <vlan-id>351</vlan-id>
    <config>
      <vlan-id>351</vlan-id>
      <status>ACTIVE</status>
    </config>
    <state>
      <vlan-id>351</vlan-id>
      <status>ACTIVE</status>
    </state>
    <members>
      <member>
        <state>
          <interface>xe7</interface>
        </state>
      </member>
    </members>
  </vlan>
  <vlan>
    <vlan-id>352</vlan-id>
    <config>
      <vlan-id>352</vlan-id>
      <status>ACTIVE</status>
    </config>
    <state>
```

```
<vlan-id>352</vlan-id>
  <status>ACTIVE</status>
</state>
<members>
  <member>
    <state>
      <interface>xe7</interface>
    </state>
  </member>
</members>
</vlan>
</vlans>
</network-instance>
</network-instances>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe7</name>
    <config>
      <name>xe7</name>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <state>
      <name>xe7</name>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <logical>false</logical>
      <last-change>318900</last-change>
      <oper-status>UP</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>5007</ifindex>
      <counters>
        <last-clear>1642442144</last-clear>
        <out-errors>0</out-errors>
        <out-discards>0</out-discards>
        <out-multicast-pkts>145</out-multicast-pkts>
        <out-broadcast-pkts>0</out-broadcast-pkts>
        <out-unicast-pkts>0</out-unicast-pkts>
        <out-pkts>145</out-pkts>
        <out-octets>9412</out-octets>
        <in-fcs-errors>0</in-fcs-errors>
        <in-errors>0</in-errors>
        <in-discards>0</in-discards>
        <in-multicast-pkts>0</in-multicast-pkts>
        <in-broadcast-pkts>0</in-broadcast-pkts>
        <in-unicast-pkts>0</in-unicast-pkts>
        <in-pkts>0</in-pkts>
        <in-octets>0</in-octets>
      </counters>
    </state>
    <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
```

```
</state>
<ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
  <state>
    <negotiated-port-speed
      xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_1GB</negotiated-port-speed>
    <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
    <hw-mac-address>b8:6a:97:c3:64:44</hw-mac-address>
    <counters>
      <in-crc-errors>0</in-crc-errors>
      <in-jabber-frames>0</in-jabber-frames>
      <in-fragment-frames>0</in-fragment-frames>
      <in-oversize-frames>0</in-oversize-frames>
    </counters>
  </state>
  <switched-vlan xmlns="http://openconfig.net/yang/vlan">
    <config>
      <interface-mode>TRUNK</interface-mode>
      <trunk-vlans>350..352</trunk-vlans>
    </config>
    <state>
      <interface-mode>TRUNK</interface-mode>
      <trunk-vlans>350..352</trunk-vlans>
    </state>
  </switched-vlan>
</ethernet>
<subinterfaces>
  <subinterface>
    <index>0</index>
    <config>
      <index>0</index>
    </config>
  </subinterface>
</subinterfaces>
</interface>
</interfaces>
```

Restrictions

VLANs associated to trunk interface must also be created and bridge must be associated to the interface.

Trunk interface with native VLAN

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this command to configure a native VLAN for a trunk VLAN interface.

OpenConfig NETCONF Payload



```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe7</name>
    <config>
      <name>xe7</name>
      <tpid xmlns="http://openconfig.net/yang/vlan">TPID_0X8100</tpid>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <switched-vlan xmlns="http://openconfig.net/yang/vlan">
        <config>
          <interface-mode>TRUNK</interface-mode>
          <trunk-vlans>350..352</trunk-vlans>
          <native-vlan>351</native-vlan>
        </config>
      </switched-vlan>
    </ethernet>
  </interface>
</interfaces>
```

OcNOS CLI command

```
interface xe7
  switchport
  dot1ad ethertype 0x8100
  bridge-group 1
  switchport mode trunk
  switchport trunk allowed vlan add 350-352
  switchport trunk native vlan 351
```

OcNOS NETCONF Payload

```
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe7</name>
    <config>
      <name>xe7</name>
      <dot1ad-ether-type>0x8100</dot1ad-ether-type>
      <enable-switchport />
    </config>
    <port-vlan xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-port-
vlan">
      <switched-vlan>
        <interface-mode>trunk</interface-mode>
        <config>
          <interface-mode>trunk</interface-mode>
        </config>
        <allowed-vlan>
          <config>
            <allowed-vlan-id>350-352</allowed-vlan-id>
          </config>
        </allowed-vlan>
        <vlans>
          <config>
            <native-vlan-id>351</native-vlan-id>
```

```
    </config>
  </vlans>
</switched-vlan>
</port-vlan>
</interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe7</name>
    <config>
      <name>xe7</name>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </config>
    <state>
      <name>xe7</name>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <logical>false</logical>
      <last-change>318900</last-change>
      <oper-status>UP</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>5007</ifindex>
      <counters>
        <last-clear>1642442144</last-clear>
        <out-errors>0</out-errors>
        <out-discards>0</out-discards>
        <out-multicast-pkts>374</out-multicast-pkts>
        <out-broadcast-pkts>0</out-broadcast-pkts>
        <out-unicast-pkts>0</out-unicast-pkts>
        <out-pkts>374</out-pkts>
        <out-octets>24068</out-octets>
        <in-fcs-errors>0</in-fcs-errors>
        <in-errors>0</in-errors>
        <in-discards>0</in-discards>
        <in-multicast-pkts>0</in-multicast-pkts>
        <in-broadcast-pkts>0</in-broadcast-pkts>
        <in-unicast-pkts>0</in-unicast-pkts>
        <in-pkts>0</in-pkts>
        <in-octets>0</in-octets>
      </counters>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
    </state>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <state>
        <negotiated-port-speed
```

```
      xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_1GB</negotiated-port-speed>
  <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
  <hw-mac-address>b8:6a:97:c3:64:44</hw-mac-address>
  <counters>
    <in-crc-errors>0</in-crc-errors>
    <in-jabber-frames>0</in-jabber-frames>
    <in-fragment-frames>0</in-fragment-frames>
    <in-oversize-frames>0</in-oversize-frames>
  </counters>
</state>
<switched-vlan xmlns="http://openconfig.net/yang/vlan">
  <config>
    <interface-mode>TRUNK</interface-mode>
    <native-vlan>351</native-vlan>
    <trunk-vlans>350..352</trunk-vlans>
  </config>
  <state>
    <interface-mode>TRUNK</interface-mode>
    <native-vlan>351</native-vlan>
    <trunk-vlans>350..352</trunk-vlans>
  </state>
</switched-vlan>
</ethernet>
<subinterfaces>
  <subinterface>
    <index>0</index>
    <config>
      <index>0</index>
    </config>
  </subinterface>
</subinterfaces>
</interface>
</interfaces>
```

Restrictions

VLANs associated to trunk interface must also be created and bridge must be associated to the interface.

Access VLAN in interface

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this command to configure an access VLAN in an interface

OpenConfig NETCONF Payload



```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>1</name>
    <config>
      <name>1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2L3</type>
      <enabled>true</enabled>
      <bridge-protocol xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-
ni-augments">ieee-vlan-bridge</bridge-protocol>
    </config>
    <vlans>
      <vlan>
        <vlan-id>300</vlan-id>
        <config>
          <vlan-id>300</vlan-id>
          <status>ACTIVE</status>
        </config>
      </vlan>
    </vlans>
    <interfaces>
      <interface>
        <id>xel6</id>
        <config>
          <interface>xel6</interface>
          <id>xel6</id>
        </config>
      </interface>
    </interfaces>
  </network-instance>
</network-instances>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
<interface>
<name>xel6</name>
<config>
<name>xel6</name>
<type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
</config>
<ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
<switched-vlan xmlns="http://openconfig.net/yang/vlan">
<config>
<interface-mode>ACCESS</interface-mode>
<access-vlan>300</access-vlan>
</config>
</switched-vlan>
</ethernet>
</interface>
</interfaces>
```

OcNOS CLI command

```
interface xel6
  switchport
  bridge-group 1
```




```
switchport mode access
switchport access vlan 300
```

OcNOS NETCONF Payload

```
<network-instance>
  <instance-name>1</instance-name>
  <instance-type>l2ni</instance-type>
  <bridge xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bridge">
    <config>
      <protocol>ieee-vlan-bridge</protocol>
    </config>
    <vlans xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vlan">
      <vlan>
        <vlan-id>300</vlan-id>
        <config>
          <vlan-id>300</vlan-id>
          </config>
          <customer-vlan>
            <config>
              <state>enable</state>
            </config>
          </customer-vlan>
        </vlan>
      </vlans>
      <bridge-ports>
        <interface>
          <name>xel6</name>
          <config>
            <name>xel6</name>
          </config>
        </interface>
      </bridge-ports>
    </bridge>
  </config>
  <instance-name>1</instance-name>
  <instance-type>l2ni</instance-type>
</network-instance>
</network-instances>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xel6</name>
    <config>
      <name>xel6</name>
      <enable-switchport />
    </config>
    <port-vlan xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-port-
vlan">
      <switched-vlan>
        <interface-mode>access</interface-mode>
        <config>
          <interface-mode>access</interface-mode>
        </config>
      </switched-vlan>
    </port-vlan>
  </interface>
</interfaces>
```

```

        <vlan-id>300</vlan-id>
    </config>
</vlans>
</switched-vlan>
</port-vlan>
</interface>
</interfaces>

```

Validation with NETCONF get

```

<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xel16</name>
    <config>
      <name>xel16</name>
      <type
        xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
      </config>
      <state>
        <name>xel16</name>
        <logical>false</logical>
        <last-change>557400</last-change>
        <oper-status>DOWN</oper-status>
        <admin-status>UP</admin-status>
        <ifindex>5016</ifindex>
        <counters>
          <last-clear>1642444529</last-clear>
          <out-errors>0</out-errors>
          <out-discards>0</out-discards>
          <out-multicast-pkts>0</out-multicast-pkts>
          <out-broadcast-pkts>0</out-broadcast-pkts>
          <out-unicast-pkts>0</out-unicast-pkts>
          <out-pkts>0</out-pkts>
          <out-octets>0</out-octets>
          <in-fcs-errors>0</in-fcs-errors>
          <in-errors>0</in-errors>
          <in-discards>0</in-discards>
          <in-multicast-pkts>0</in-multicast-pkts>
          <in-broadcast-pkts>0</in-broadcast-pkts>
          <in-unicast-pkts>0</in-unicast-pkts>
          <in-pkts>0</in-pkts>
          <in-octets>0</in-octets>
        </counters>
        <type
          xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
        </state>
        <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
          <state>
            <negotiated-port-speed
              xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_10GB</negotiated-port-speed>
            <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
            <hw-mac-address>b8:6a:97:c3:64:4d</hw-mac-address>
          </state>
        </ethernet>
      </state>
    </interface>
  </interfaces>

```

```
<counters>
  <in-crc-errors>0</in-crc-errors>
  <in-jabber-frames>0</in-jabber-frames>
  <in-fragment-frames>0</in-fragment-frames>
  <in-oversize-frames>0</in-oversize-frames>
</counters>
</state>
<switched-vlan xmlns="http://openconfig.net/yang/vlan">
  <config>
    <interface-mode>ACCESS</interface-mode>
    <access-vlan>300</access-vlan>
  </config>
  <state>
    <interface-mode>ACCESS</interface-mode>
    <access-vlan>300</access-vlan>
  </state>
</switched-vlan>
</ethernet>
<subinterfaces>
  <subinterface>
    <index>0</index>
    <config>
      <index>0</index>
    </config>
  </subinterface>
</subinterfaces>
</interface>
</interfaces>
```

Restrictions

VLAN associated to access interface must also be created and bridge must be associated to the interface.

Trunk VLANs in link aggregation interface

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this command to configure a trunk VLAN range in a link aggregation interface

OpenConfig NETCONF Payload

```
network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>1</name>
    <config>
      <name>1</name>
```



```
<type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2L3</type>
  <enabled>true</enabled>
  <bridge-protocol xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-
ni-augments">ieee-vlan-bridge</bridge-protocol>
  </config>
  <fdb>
    <config>
      <mac-learning>true</mac-learning>
    </config>
  </fdb>
  <vlans>
    <vlan>
      <vlan-id>300</vlan-id>
      <config>
        <vlan-id>300</vlan-id>
        <status>ACTIVE</status>
      </config>
    </vlan>
  </vlans>
  <interfaces>
    <interface>
      <id>sa3</id>
      <config>
        <interface>sa3</interface>
        <id>sa3</id>
      </config>
    </interface>
  </interfaces>
</network-instance>
</network-instances>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>sa3</name>
    <config>
      <name>sa3</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ieee8023adLag</type>
    </config>
    <aggregation xmlns="http://openconfig.net/yang/interfaces/aggregate">
      <switched-vlan xmlns="http://openconfig.net/yang/vlan">
        <config>
          <interface-mode>TRUNK</interface-mode>
          <trunk-vlans>300</trunk-vlans>
        </config>
      </switched-vlan>
    <config>
      <lag-type>STATIC</lag-type>
    </config>
  </aggregation>
</interface>
</interfaces>
```

OcNOS CLI command

```
interface sa3
```



```
switchport
bridge-group 1
switchport mode trunk
switchport trunk allowed vlan add 300
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
network-instance">
  <network-instance>
    <instance-name>1</instance-name>
    <instance-type>l2ni</instance-type>
    <bridge xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bridge">
      <config>
        <protocol>ieee-vlan-bridge</protocol>
      </config>
      <vlans xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vlan">
        <vlan>
          <vlan-id>300</vlan-id>
          <config>
            <vlan-id>300</vlan-id>
            </config>
            <customer-vlan>
              <config>
                <state>enable</state>
              </config>
            </customer-vlan>
          </vlan>
        </vlans>
        <bridge-ports>
          <interface>
            <name>sa3</name>
            <config>
              <name>sa3</name>
            </config>
          </interface>
        </bridge-ports>
      </bridge>
    <config>
      <instance-name>1</instance-name>
      <instance-type>l2ni</instance-type>
    </config>
  </network-instance>
</network-instances>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>sa3</name>
    <config>
      <name>sa3</name>
      <enable-switchport />
    </config>
    <port-vlan xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-port-
vlan">
      <switched-vlan>
        <interface-mode>trunk</interface-mode>
      </switched-vlan>
    </port-vlan>
  </interface>
</interfaces>
```

```
        <interface-mode>trunk</interface-mode>
    </config>
    <allowed-vlan>
        <config>
            <allowed-vlan-id>300</allowed-vlan-id>
        </config>
    </allowed-vlan>
</switched-vlan>
</port-vlan>
</interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>sa3</name>
    <config>
      <name>sa3</name>
      <type
        xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ieee8023adLag</type>
      </config>
      <state>
        <name>sa3</name>
        <logical>false</logical>
        <last-change>851000</last-change>
        <oper-status>DOWN</oper-status>
        <admin-status>UP</admin-status>
        <ifindex>200003</ifindex>
        <counters>
          <last-clear>1642447466</last-clear>
          <out-errors>0</out-errors>
          <out-discards>0</out-discards>
          <out-multicast-pkts>0</out-multicast-pkts>
          <out-broadcast-pkts>0</out-broadcast-pkts>
          <out-unicast-pkts>0</out-unicast-pkts>
          <out-pkts>0</out-pkts>
          <out-octets>0</out-octets>
          <in-fcs-errors>0</in-fcs-errors>
          <in-errors>0</in-errors>
          <in-discards>0</in-discards>
          <in-multicast-pkts>0</in-multicast-pkts>
          <in-broadcast-pkts>0</in-broadcast-pkts>
          <in-unicast-pkts>0</in-unicast-pkts>
          <in-pkts>0</in-pkts>
          <in-octets>0</in-octets>
        </counters>
      <type
        xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ieee8023adLag</type>
      </state>
    <ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
      <state>
        <negotiated-port-speed
```

```
      xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_UNKNOWN</negotiated-port-speed>
  <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
  <hw-mac-address>0e:00:00:00:00:01</hw-mac-address>
  <counters>
    <in-crc-errors>0</in-crc-errors>
    <in-jabber-frames>0</in-jabber-frames>
    <in-fragment-frames>0</in-fragment-frames>
    <in-oversize-frames>0</in-oversize-frames>
  </counters>
</state>
</ethernet>
<subinterfaces>
  <subinterface>
    <index>0</index>
    <config>
      <index>0</index>
    </config>
  </subinterface>
</subinterfaces>
<aggregation xmlns="http://openconfig.net/yang/interfaces/aggregate">
  <switched-vlan xmlns="http://openconfig.net/yang/vlan">
    <config>
      <interface-mode>TRUNK</interface-mode>
      <trunk-vlans>300</trunk-vlans>
    </config>
    <state>
      <interface-mode>TRUNK</interface-mode>
      <trunk-vlans>300</trunk-vlans>
    </state>
  </switched-vlan>
  <config>
    <lag-type>STATIC</lag-type>
  </config>
  <state>
    <lag-type>STATIC</lag-type>
  </state>
</aggregation>
</interface>
</interfaces>
```

Restrictions

VLANs associated to trunk LAG must also be created and bridge must be associated to the LAG.

Trunk LAG with native VLAN

Release

This configuration was introduced in OcNOS version 5.1.

Configuration



Use this command to configure a native VLAN for a trunk VLAN link aggregation.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>1</name>
    <config>
      <name>1</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2L3</type>
      <enabled>true</enabled>
      <bridge-protocol xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-oc-
ni-augments">ieee-vlan-bridge</bridge-protocol>
    </config>
    <fdb>
      <config>
        <mac-learning>true</mac-learning>
      </config>
    </fdb>
    <vlans>
      <vlan>
        <vlan-id>300</vlan-id>
        <config>
          <vlan-id>300</vlan-id>
          <status>ACTIVE</status>
        </config>
      </vlan>
    </vlans>
    <interfaces>
      <interface>
        <id>po1</id>
        <config>
          <interface>po1</interface>
          <id>po1</id>
        </config>
      </interface>
    </interfaces>
  </network-instance>
</network-instances>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>po1</name>
    <config>
      <name>po1</name>
      <tpid xmlns="http://openconfig.net/yang/vlan">TPID_0X8100</tpid>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ieee8023adLag</type>
    </config>
    <aggregation xmlns="http://openconfig.net/yang/interfaces/aggregate">
      <switched-vlan xmlns="http://openconfig.net/yang/vlan">
        <config>
          <interface-mode>TRUNK</interface-mode>
          <native-vlan>300</native-vlan>
          <trunk-vlans>300</trunk-vlans>
        </config>
      </switched-vlan>
    </aggregation>
  </interface>
</interfaces>
```



```
</switched-vlan>  
<config>  
  <lag-type>LACP</lag-type>  
</config>  
</aggregation>  
</interface>  
</interfaces>
```

OcNOS CLI command

```
interface po1  
  switchport  
  dot1ad ethertype 0x8100  
  bridge-group 1  
  switchport mode trunk  
  switchport trunk allowed vlan add 300  
  switchport trunk native vlan 300
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-  
network-instance">  
  <network-instance>  
    <instance-name>1</instance-name>  
    <instance-type>l2ni</instance-type>  
    <bridge xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bridge">  
      <config>  
        <protocol>ieee-vlan-bridge</protocol>  
      </config>  
      <vlans xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vlan">  
        <vlan>  
          <vlan-id>300</vlan-id>  
          <config>  
            <vlan-id>300</vlan-id>  
          </config>  
          <customer-vlan>  
            <config>  
              <state>enable</state>  
            </config>  
          </customer-vlan>  
        </vlan>  
      </vlans>  
    <bridge-ports>  
      <interface>  
        <name>po1</name>  
        <config>  
          <name>po1</name>  
        </config>  
      </interface>  
    </bridge-ports>  
  </bridge>  
</config>  
  <instance-name>1</instance-name>  
  <instance-type>l2ni</instance-type>  
</config>  
</network-instance>
```

```
</network-instances>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>po1</name>
    <config>
      <name>po1</name>
      <dot1ad-ether-type>0x8100</dot1ad-ether-type>
      <enable-switchport />
    </config>
    <port-vlan xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-port-
vlan">
      <switched-vlan>
        <interface-mode>trunk</interface-mode>
        <config>
          <interface-mode>trunk</interface-mode>
        </config>
        <vlans>
          <config>
            <native-vlan-id>300</native-vlan-id>
          </config>
        </vlans>
        <allowed-vlan>
          <config>
            <allowed-vlan-id>300</allowed-vlan-id>
          </config>
        </allowed-vlan>
      </switched-vlan>
    </port-vlan>
  </interface>
</interfaces>
```

Validation with NETCONF get

```
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>po1</name>
    <config>
      <name>po1</name>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <type
xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ieee8023adLag</type>
    </config>
    <state>
      <name>po1</name>
      <tpid xmlns="http://openconfig.net/yang/vlan" xmlns:oc-vlan-
types="http://openconfig.net/yang/vlan-types">oc-vlan-
types:TPID_0X8100</tpid>
      <logical>false</logical>
      <last-change>897000</last-change>
      <oper-status>DOWN</oper-status>
      <admin-status>UP</admin-status>
      <ifindex>100001</ifindex>
      <counters>
```

```

<last-clear>1642447926</last-clear>
<out-errors>0</out-errors>
<out-discards>0</out-discards>
<out-multicast-pkts>0</out-multicast-pkts>
<out-broadcast-pkts>0</out-broadcast-pkts>
<out-unicast-pkts>0</out-unicast-pkts>
<out-pkts>0</out-pkts>
<out-octets>0</out-octets>
<in-fcs-errors>0</in-fcs-errors>
<in-errors>0</in-errors>
<in-discards>0</in-discards>
<in-multicast-pkts>0</in-multicast-pkts>
<in-broadcast-pkts>0</in-broadcast-pkts>
<in-unicast-pkts>0</in-unicast-pkts>
<in-pkts>0</in-pkts>
<in-octets>0</in-octets>
</counters>
<type
  xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ieee8023adLag</type>
</state>
<ethernet xmlns="http://openconfig.net/yang/interfaces/ethernet">
  <state>
    <negotiated-port-speed
      xmlns:oc-
eth="http://openconfig.net/yang/interfaces/ethernet">oc-
eth:SPEED_UNKNOWN</negotiated-port-speed>
    <negotiated-duplex-mode>FULL</negotiated-duplex-mode>
    <hw-mac-address>0e:00:00:00:00:01</hw-mac-address>
    <counters>
      <in-crc-errors>0</in-crc-errors>
      <in-jabber-frames>0</in-jabber-frames>
      <in-fragment-frames>0</in-fragment-frames>
      <in-oversize-frames>0</in-oversize-frames>
    </counters>
  </state>
</ethernet>
<subinterfaces>
  <subinterface>
    <index>0</index>
    <config>
      <index>0</index>
    </config>
  </subinterface>
</subinterfaces>
<aggregation xmlns="http://openconfig.net/yang/interfaces/aggregate">
  <switched-vlan xmlns="http://openconfig.net/yang/vlan">
    <config>
      <interface-mode>TRUNK</interface-mode>
      <native-vlan>300</native-vlan>
      <trunk-vlans>300</trunk-vlans>
    </config>
    <state>
      <interface-mode>TRUNK</interface-mode>
      <native-vlan>300</native-vlan>
      <trunk-vlans>300</trunk-vlans>
    </state>
  </switched-vlan>
</aggregation>

```

```
</switched-vlan>
<config>
  <lag-type>LACP</lag-type>
</config>
<state>
  <lag-type>LACP</lag-type>
</state>
</aggregation>
</interface>
</interfaces>
```

Restrictions

VLANs associated to trunk interface must also be created and bridge must be associated to the interface.

Creation of a cross connect

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this command to create a cross connect between 2 subinterfaces.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>test3</name>
    <config>
      <name>test3</name>
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">L2P2P</type>
      <enabled>false</enabled>
      <description>Test XConnection</description>
    </config>
    <interfaces>
      <interface>
        <id>xe7.10</id>
        <config>
          <id>xe7.10</id>
          <interface>xe7</interface>
          <subinterface>10</subinterface>
        </config>
      </interface>
      <interface>
        <id>xe8.20</id>
        <config>
          <id>xe8.20</id>
          <interface>xe8</interface>
          <subinterface>20</subinterface>
```

```
    </config>
  </interface>
</interfaces>
</network-instance>
</network-instances>
<interfaces xmlns="http://openconfig.net/yang/interfaces">
  <interface>
    <name>xe7</name>
    <config>
      <name>xe7</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
      </config>
      <subinterfaces>
        <subinterface>
          <index>10</index>
          <config>
            <index>10</index>
          </config>
          <vlan xmlns="http://openconfig.net/yang/vlan">
            <match>
              <single-tagged-list>
                <config>
                  <vlan-ids>10</vlan-ids>
                </config>
              </single-tagged-list>
            </match>
          </vlan>
        </subinterface>
      </subinterfaces>
    </interface>
  <interface>
    <name>xe8</name>
    <config>
      <name>xe8</name>
      <type xmlns:ianaift="urn:ietf:params:xml:ns:yang:iana-if-
type">ianaift:ethernetCsmacd</type>
      </config>
      <subinterfaces>
        <subinterface>
          <index>20</index>
          <config>
            <index>20</index>
          </config>
          <vlan xmlns="http://openconfig.net/yang/vlan">
            <match>
              <single-tagged-list>
                <config>
                  <vlan-ids>10</vlan-ids>
                </config>
              </single-tagged-list>
            </match>
          </vlan>
        </subinterface>
      </subinterfaces>
    </interface>
  </interfaces>
</interfaces>
```

OcNOS CLI command

```
interface xe7.10 switchport
  encapsulation dot1q 10
!
interface xe8.20 switchport
  encapsulation dot1q 10
!
cross-connect test3
  description Test XConnection
  disable
  interface xe7.10
  interface xe8.20
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
network-instance">
  <network-instance>
    <instance-name>test3</instance-name>
    <instance-type>cross-connect</instance-type>
    <cross-connect xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
cross-connect">
      <config>
        <admin-disable />
        <description>Test XConnection</description>
        <endpoint-if>xe7.10</endpoint-if>
        <endpoint-if>xe8.20</endpoint-if>
      </config>
    </cross-connect>
    <config>
      <instance-name>test3</instance-name>
      <instance-type>cross-connect</instance-type>
    </config>
  </network-instance>
</network-instances>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>xe7.10</name>
    <config>
      <enable-switchport />
      <name>xe7.10</name>
    </config>
    <extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
extended">
      <subinterface-encapsulation>
        <single-tag-vlan-matches>
          <single-tag-vlan-match>
            <encapsulation-type>dot1q</encapsulation-type>
            <config>
              <encapsulation-type>dot1q</encapsulation-type>
              <outer-vlan-id>10</outer-vlan-id>
            </config>
          </single-tag-vlan-match>
        </single-tag-vlan-matches>
      </subinterface-encapsulation>
```

```

    </extended>
  </interface>
</interface>
  <name>xe8.20</name>
  <config>
    <enable-switchport />
    <name>xe8.20</name>
  </config>
<extended xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-if-
extended">
  <subinterface-encapsulation>
    <single-tag-vlan-matches>
      <single-tag-vlan-match>
        <encapsulation-type>dot1q</encapsulation-type>
        <config>
          <encapsulation-type>dot1q</encapsulation-type>
          <outer-vlan-id>10</outer-vlan-id>
        </config>
      </single-tag-vlan-match>
    </single-tag-vlan-matches>
  </subinterface-encapsulation>
</extended>
</interface>
</interface>
  <name>xe7</name>
  <config>
    <name>xe7</name>
  </config>
</interface>
</interface>
  <name>xe8</name>
  <config>
    <name>xe8</name>
  </config>
</interface>
</interfaces>

```

Validation with NETCONF get

```

<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>test3</name>
    <config>
      <name>test3</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2P2P</type>
      <description>Test XConnection</description>
      <enabled>>false</enabled>
    </config>
    <state>
      <name>test3</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2P2P</type>
      <description>Test XConnection</description>
    </state>
  </network-instance>
</network-instances>

```

```
<enabled>>false</enabled>
</state>
<interfaces>
  <interface>
    <id>xe7.10</id>
    <config>
      <id>xe7.10</id>
      <interface>xe7</interface>
      <subinterface>10</subinterface>
    </config>
    <state>
      <id>xe7.10</id>
      <interface>xe7</interface>
      <subinterface>10</subinterface>
    </state>
  </interface>
  <interface>
    <id>xe8.20</id>
    <config>
      <id>xe8.20</id>
      <interface>xe8</interface>
      <subinterface>20</subinterface>
    </config>
    <state>
      <id>xe8.20</id>
      <interface>xe8</interface>
      <subinterface>20</subinterface>
    </state>
  </interface>
</interfaces>
</network-instance>
</network-instances>
```

Restrictions

Exactly 2 subinterfaces must be configured along with network-instance creation.

Deletion of a cross connect

Release

This configuration was introduced in OcnOS version 5.1.

Configuration

Use this command to delete a cross connect.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance operation="delete">
    <name>test3</name>
```




```
</network-instance>  
</network-instances>
```

OcNOS CLI command

```
OcNOS#sh running-config cross-connect  
!
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-  
network-instance">  
  <network-instance operation="delete">  
    <instance-name>test3</instance-name>  
    <instance-type>cross-connect</instance-type>  
  </network-instance>  
</network-instances>
```

Validation with NETCONF get

```
<data/>
```

Restrictions

None.

Creation of a VLAN bridge

Release

This configuration was introduced in OcNOS version 5.1.

Configuration

Use this command to create a VLAN bridge and assign VLANs to it.

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">  
  <network-instance>  
    <name>1</name>  
    <config>  
      <name>1</name>  
      <type xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-  
types">oc-ni-types:L2L3</type>  
      <enabled>true</enabled>  
    </config>  
    <vlans>  
      <vlan>  
        <vlan-id>401</vlan-id>
```

```
<config>
  <vlan-id>401</vlan-id>
    <name>VLAN-401</name>
    <status>ACTIVE</status>
  </config>
</vlan>
<vlan>
  <vlan-id>501</vlan-id>
  <config>
    <vlan-id>501</vlan-id>
    <name>VLAN-501</name>
    <status>ACTIVE</status>
  </config>
</vlan>
</vlans>
</network-instance>
</network-instances>
```

OcNOS CLI command

```
bridge 1 protocol ieee vlan-bridge
!
vlan database
  vlan 401 bridge 1 name VLAN-401 state enable
  vlan 501 bridge 1 name VLAN-501 state enable
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
network-instance">
  <network-instance>
    <instance-name>1</instance-name>
    <instance-type>l2ni</instance-type>
    <bridge xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bridge">
      <config>
        <protocol>ieee-vlan-bridge</protocol>
      </config>
    <vlans xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vlan">
      <vlan>
        <vlan-id>401</vlan-id>
        <config>
          <vlan-id>401</vlan-id>
          </config>
          <customer-vlan>
            <config>
              <name>VLAN-401</name>
              <state>enable</state>
            </config>
          </customer-vlan>
        </vlan>
      <vlan>
        <vlan-id>501</vlan-id>
        <config>
          <vlan-id>501</vlan-id>
          </config>
          <customer-vlan>
```

```

        <config>
          <name>VLAN-501</name>
          <state>enable</state>
        </config>
      </customer-vlan>
    </vlan>
  </vlans>
</bridge>
<config>
  <instance-name>1</instance-name>
  <instance-type>l2ni</instance-type>
</config>
</network-instance>
</network-instances>

```

Validation with NETCONF get

```

<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>1</name>
    <config>
      <name>1</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2L3</type>
      <enabled>true</enabled>
      <bridge-protocol xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
oc-ni-augments">ieee-vlan-bridge</bridge-protocol>
    </config>
    <state>
      <name>1</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2L3</type>
      <enabled>true</enabled>
    </state>
    <fdb>
      <config>
        <mac-learning>true</mac-learning>
      </config>
    </fdb>
    <vlans>
      <vlan>
        <vlan-id>401</vlan-id>
        <config>
          <vlan-id>401</vlan-id>
          <name>VLAN-401</name>
          <status>ACTIVE</status>
        </config>
        <state>
          <vlan-id>401</vlan-id>
          <name>VLAN-401</name>
          <status>ACTIVE</status>
        </state>
      </vlan>
    </vlans>
  </network-instance>

```

```
<vlan-id>501</vlan-id>
<config>
  <vlan-id>501</vlan-id>
  <name>VLAN-501</name>
  <status>ACTIVE</status>
</config>
<state>
  <vlan-id>501</vlan-id>
  <name>VLAN-501</name>
  <status>ACTIVE</status>
</state>
</vlan>
</vlans>
</network-instance>
</network-instances>
```

Restrictions

The network-instance used for bridge must have a name being a number between 1 and 32.

OpenConfig LLDP

Enable management attributes

Release

This configuration was introduced in OcNOS version 5.0.

Configuration

Use this command to enable LLDP and all the management TLV attributes.

OpenConfig NETCONF Payload

```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <config>
    <enabled>true</enabled>
  </config>
</lldp>
```

OcNOS CLI command

```
lldp run
lldp tlv-select basic-mgmt port-description
lldp tlv-select basic-mgmt system-name
lldp tlv-select basic-mgmt system-capabilities
lldp tlv-select basic-mgmt system-description
lldp tlv-select basic-mgmt management-address
```

OcNOS NETCONF Payload

```
<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
  <global>
    <global-tlv-control>
      <global-basic-management>
        <config>
          <port-description>true</port-description>
          <management-address>true</management-address>
          <system-capabilities>true</system-capabilities>
          <system-description>true</system-description>
          <system-name>true</system-name>
        </config>
      </global-basic-management>
    </global-tlv-control>
    <config>
      <enable>true</enable>
    </config>
  </global>
</lldp>
```

Validation with NETCONF get

```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <config>
    <enabled>true</enabled>
  </config>
  <state>
    <enabled>true</enabled>
    <counters>
      <entries-aged-out>0</entries-aged-out>
      <frame-discard>0</frame-discard>
      <frame-out>0</frame-out>
      <frame-in>0</frame-in>
    </counters>
    <system-name>OcNOS</system-name>
  </state>
</lldp>
```

Restrictions

None.

Configure chassis-id

Release

This configuration was introduced in OcNOS version 5.0.

Configuration

Use this command to set the locally assigned chassis name for the LLDP interface.

OpenConfig NETCONF Payload



```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <config>
    <chassis-id>host7028_AS5912-54X</chassis-id>
  </config>
</lldp>
```

OcNOS CLI command

```
set lldp chassis locally-assigned host7028_AS5912-54X
```

OcNOS NETCONF Payload

```
<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
  <global>
    <management-if>
      <config>
        <locally-assigned-chassis-id>host7028_AS5912-54X</locally-
assigned-chassis-id>
      </config>
    </management-if>
  </global>
</lldp>
```

Validation with NETCONF get

```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <config>
    <enabled>true</enabled>
    <chassis-id>host7028_AS5912-54X</chassis-id>
    <chassis-id-type>MAC_ADDRESS</chassis-id-type>
  </config>
  <state>
    <enabled>true</enabled>
    <counters>
      <entries-aged-out>0</entries-aged-out>
      <frame-discard>0</frame-discard>
      <frame-out>0</frame-out>
      <frame-in>0</frame-in>
    </counters>
    <system-name>OcNOS</system-name>
    <chassis-id>host7028_AS5912-54X</chassis-id>
    <chassis-id-type>MAC_ADDRESS</chassis-id-type>
  </state>
</lldp>
```

Restrictions

MAC_ADDRESS chassis type is fixed and assumed by default.

Configure suppress advertisement

Release



This configuration was introduced in OcNOS version 5.0.

Configuration

Use this command to configure suppress TLV advertisement for one or more attributes.

OpenConfig NETCONF Payload

```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <config>
    <suppress-tlv-
advertisement>SYSTEM_DESCRIPTION</suppress-tlv-advertisement>
  </config>
</lldp>
```

OcNOS CLI command

```
no lldp tlv-select basic-mgmt system-description
```

OcNOS NETCONF Payload

```
<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
  <global>
    <global-tlv-control>
      <global-basic-management>
        <config>
          <system-description>>false</system-description>
        </config>
      </global-basic-management>
    </global-tlv-control>
  </global>
</lldp>
```

Validation with NETCONF get

```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <config>
    <enabled>>true</enabled>
    <suppress-tlv-advertisement
xmlns:oc-lldp-types="http://openconfig.net/yang/lldp/types">oc-
lldp-types:SYSTEM_DESCRIPTION</suppress-tlv-advertisement>
    <chassis-id>host7028_AS5912-54X</chassis-id>
    <chassis-id-type>MAC_ADDRESS</chassis-id-type>
  </config>
  <state>
    <enabled>true</enabled>
    <counters>
      <entries-aged-out>0</entries-aged-out>
      <frame-discard>0</frame-discard>
      <frame-out>0</frame-out>
      <frame-in>0</frame-in>
    </counters>
    <suppress-tlv-advertisement
```

```
      xmlns:oc-lldp-types="http://openconfig.net/yang/lldp/types">oc-lldp-types:SYSTEM_DESCRIPTION</suppress-tlv-advertisement>
      <system-name>OcnOS</system-name>
      <chassis-id>host7028_AS5912-54X</chassis-id>
      <chassis-id-type>MAC_ADDRESS</chassis-id-type>
    </state>
  </lldp>
```

Restrictions

By default, all basic tlvs are disabled and can be configured using this leaf. Default behaviour is 'suppressed', so this leaf-list will only show up if at least one advertisement is enabled. As OpenConfig and OcnOS have a reverse logic for the TLV (suppress vs enable), when the suppress is present on OpenConfig, the translation forces deletion of the attribute on the Ocnos side. This is equivalent to deleting a config that does not exist. Error may be returned in this case.

Configure system name

Release

This configuration was introduced in OcnOS version 5.0.

Configuration

Use this command to configure the system-name (hostname).

OpenConfig NETCONF Payload

```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <config>
    <system-name>host7028</system-name>
  </config>
</lldp>
```

OcnOS CLI command

```
hostname host7028
```

OcnOS NETCONF Payload

```
<system-info xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-system">
  <config>
    <hostname>host7028</hostname>
  </config>
</system-info>
```

Validation with NETCONF get

Filter:



```
<get xmlns="urn:ietf:params:xml:ns:NETCONF:base:1.0">
  <filter type="subtree">
    <system-info xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-system">
      <config>
        <hostname />
      </config>
    </system-info>
  </filter>
</get>
```

Result:

```
<system xmlns="http://openconfig.net/yang/system">
  <config>
    <hostname>host7028</hostname>
  </config>
</system>
```

Restrictions

This is the same configuration of system hostname, so both were modified when it is applied. The same restrictions for system hostname apply: per RFC 952 and RFC 1123, a hostname string can contain only the special characters period (".") and hyphen ("-"). These special characters cannot be at the start or end of a hostname. The hostname is limited to between 1 and 63 characters.

Enable LLDP on an interface

Release

This configuration was introduced in OcNOS version 5.0.

Configuration

Use this command to enable LLDP on an interface.

OpenConfig NETCONF Payload

```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <interfaces>
    <interface>
      <name>xe10</name>
      <config>
        <enabled>true</enabled>
      </config>
    </interface>
  </interfaces>
</lldp>
```

OcNOS CLI command

```
interface xe10
```



```
lldp-agent
set lldp enable txrx
```

OcNOS NETCONF Payload

```
<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
  <interfaces>
    <interface>
      <name>xe10</name>
      <agent>
        <agent-type>default</agent-type>
        <config>
          <enable-tx-rx>txrx</enable-tx-rx>
          <agent-type>default</agent-type>
        </config>
      </agent>
    </interface>
  </interfaces>
</lldp>
```

Validation with NETCONF get

```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <interfaces>
    <interface>
      <name>xe10</name>
      <config>
        <name>xe10</name>
        <enabled>true</enabled>
      </config>
    </interface>
  </interfaces>
</lldp>
```

Restrictions

Enabled set as true will configure mode tx-rx in OcNOS. When enabled = false, the OcNOS mode will be set as rx-only.

LLDP get attributes

The following attributes are read-only (runtime) attributes for LLDP

Counters

Display LLDP counters.

Filter

```
<filter>
  <lldp xmlns="http://openconfig.net/yang/lldp">
    <state>
```

```
        <counters/>
    </state>
</lldp>
</filter>
```

OpenConfig get result

```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <state>
    <enabled>true</enabled>
    <counters>
      <entries-aged-out>0</entries-aged-out>
      <frame-discard>0</frame-discard>
      <frame-out>0</frame-out>
      <frame-in>1</frame-in>
    </counters>
  </state>
</lldp>
```

OcNOS get result

```
<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
  <global>
    <state>
      <counters>
        <remote-ageouts>0</remote-ageouts>
        <remote-drops>0</remote-drops>
        <remote-deletes>0</remote-deletes>
        <remote-inserts>1</remote-inserts>
      </counters>
    </state>
  </global>
</lldp>
```

Restrictions

Only the counters remote-ageouts, remote-drops, remote-deletes, remote-inserts are supported.

Interface counters

Display LLDP interface counters.

Filter

```
<filter>
  <lldp xmlns="http://openconfig.net/yang/lldp">
    <interfaces>
      <interface>
        <name>ce50</name>
        <state>
          <counters/>
        </state>
      </interface>
```

```
        </interfaces>  
    </lldp>  
</filter>
```

OpenConfig get result

```
<lldp xmlns="http://openconfig.net/yang/lldp">  
  <interfaces>  
    <interface>  
      <name>xel</name>  
      <config>  
        <name>xel</name>  
      </config>  
      <state>  
        <counters>  
          <frame-out>14</frame-out>  
        </counters>  
      </state>  
    </interface>  
  </interfaces>  
</lldp>
```

OcNOS get result

```
<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">  
  <interfaces>  
    <interface>  
      <name>xel</name>  
      <agent>  
        <agent-type>default</agent-type>  
        <transmit>  
          <state>  
            <tx-fast-init>2</tx-fast-init>  
            <tx-credit-max>9</tx-credit-max>  
            <message-fast-tx>222</message-fast-tx>  
            <message-tx-hold-multiplier>88</message-tx-hold-multiplier>  
            <message-tx-interval>999</message-tx-interval>  
            <reinit-delay>6</reinit-delay>  
            <tx-ttl>65535</tx-ttl>  
          <counters>  
            <frames-out>14</frames-out>  
          </counters>  
        </state>  
      </transmit>  
    </agent>  
  </interface>  
</interfaces>  
</lldp>
```

Restrictions

Only the counter frame-out is supported.

Neighbors

Display neighbors.

Filter

```
<filter>
  <lldp xmlns="http://openconfig.net/yang/lldp">
    <interfaces>
      <interface>
        <name>ce50</name>
        <neighbors>
          <neighbor>
          </neighbor>
        </neighbors>
      </interface>
    </interfaces>
  </lldp>
</filter>
```

OpenConfig get result

```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <interfaces>
    <interface>
      <name>xel</name>
      <config>
        <name>xel</name>
      </config>
      <neighbors>
        <neighbor>
          <id>b86a.97be.193e</id>
          <state><id>b86a.97be.193e</id><system-description>Hardware
Model:EC_AS5912-54X</system-description>1<ttl>121</ttl><port-id-
type>MAC_ADDRESS</port-id-type><port-description>xel</port-description><port-
id>b86a.97be.193e</port-id><chassis-id-type>NETWORK_ADDRESS</chassis-id-
type><chassis-id>10.12.89.136</chassis-id><system-name>7031</system-
name><management-address>b86a.97a7.253c</management-address><management-
address-type>MAC Address</management-address-type></state>
          <capabilities xmlns:oc-lldp-
types="http://openconfig.net/yang/lldp/types">
            <capability>
              <name>oc-lldp-types:MAC_BRIDGE</name>
              <state>
                <name>oc-lldp-types:MAC_BRIDGE</name>
                <enabled>>true</enabled>
              </state>
            </capability>
            <capability>
              <name>oc-lldp-types:ROUTER</name>
              <state>
                <name>oc-lldp-types:ROUTER</name>
                <enabled>true</enabled>
              </state>
            </capability>
          </capabilities>
          <custom-tlvs>
            <tlv>
```

```
<type>127</type>
<oui>00-12-0F</oui>
<oui-subtype>4</oui-subtype>
<state>
  <type>127</type>
  <oui>00-12-0F</oui>
  <oui-subtype>4</oui-subtype>
  <value>1518</value>
</state>
</tlv>
<tlv>
  <type>127</type>
  <oui>00-12-0F</oui>
  <oui-subtype>1</oui-subtype>
  <state>
    <type>127</type>
    <oui>00-12-0F</oui>
    <oui-subtype>1</oui-subtype>
    <value>11654</value>
  </state>
</tlv>
<tlv>
  <type>127</type>
  <oui>00-80-C2</oui>
  <oui-subtype>2</oui-subtype>
  <state>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>2</oui-subtype>
    <value>0</value>
  </state>
</tlv>
<tlv>
  <type>127</type>
  <oui>00-80-C2</oui>
  <oui-subtype>1</oui-subtype>
  <state>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>1</oui-subtype>
    <value>0</value>
  </state>
</tlv>
</custom-tlvs>
</neighbor>
</neighbors>
</interface>
</interfaces>
</lldp>
```

OcNOS get result

```
<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
  <interfaces>
    <interface>
      <name>xel</name>
```

```

<neighbors>
  <agent>
    <agent-type>default</agent-type>
    <neighbor>
      <mac-address>b86a.97be.193e</mac-address>
      <state>
        <mac-address>b86a.97be.193e</mac-address>
        <system-capabilities-enabled>Bridge Router</system-
capabilities-enabled>
        <system-capabilities>Bridge Router</system-capabilities>
description>
        <system-description>Hardware Model:EC_AS5912-54X</system-
capability>
        <max-frame-size>1518</max-frame-size>
        <link-aggregate-capability>Capable</link-aggregate-
capability>
        <operational-mau-type>54</operational-mau-type>
        <auto-negotiation-capability>16</auto-negotiation-
capability>
        <auto-negotiation-support>1</auto-negotiation-support>
        <management-vlan>0</management-vlan>
        <vid-usage-digest>0</vid-usage-digest>
        <pp-vlanid>0</pp-vlanid>
        <port-vlan-id>0</port-vlan-id>
        <ttl>121</ttl>
        <port-sub-type>3</port-sub-type>
        <port-description>xel</port-description>
        <port-id>b86a.97be.193e</port-id>
        <chassis-id-type>5</chassis-id-type>
        <chassis-component>10.12.89.136</chassis-component>
        <system-name>7031</system-name>
        <management-list>
          <address>b86a.97a7.253c</address>
          <oid>0</oid>
          <interface-number>10001</interface-number>
          <interface-number-sub-type>ifindex</interface-number-sub-
type>
          <address-sub-type>MAC Address</address-sub-type>
        </management-list>
      </state>
    </neighbor>
  </agent>
</neighbors>
</interface>
</interfaces>
</lldp>

```

Neighbors name and description

Display neighbors' name and description.

Filter

```

<filter>
  <lldp xmlns="http://openconfig.net/yang/lldp">
    <interfaces>

```

```

        <interface>
          <neighbors>
            <neighbor>
              <name>ce50</name>
              <state>
                <system-name/>
                <description/>
                <id/>
                <t1/>
              </state>
            </neighbor>
          </neighbors>
        </interface>
      </interfaces>
    </lldp>
  </filter>

```

OpenConfig get result

```

<lldp xmlns="http://openconfig.net/yang/lldp">
  <interfaces>
    <interface>
      <name>eth0</name>
      <config>
        <name>eth0</name>
      </config>
      <neighbors>
        <neighbor>
          <id>08f1.ea53.dbf2</id>
          <state>
            <id>08f1.ea53.dbf2</id>
            <system-description>HPE OfficeConnect Switch 1920S 24G 2SFP
JL381A PD.01.05 Linux 3.6.5-ac96795c U-Boot 2012.10-00118-g3773021 (Oct 11
2016 - 15:39:54)</system-description>
            <system-name>LAB1-SW13</system-name>
          </state>
        </neighbor>
      </neighbors>
    </interface>
    <interface>
      <name>xe2</name>
      <config>
        <name>xe2</name>
      </config>
      <neighbors>
        <neighbor>
          <id>b86a.97be.193f</id>
          <state>
            <id>b86a.97be.193f</id>
            <system-description>Hardware Model:EC_AS5912-54X</system-
description>
            <system-name>7031</system-name>
          </state>
        </neighbor>
      </neighbors>
    </interface>
  </interfaces>
</lldp>

```



```

<interface>
  <name>xel</name>
  <config>
    <name>xel</name>
  </config>
  <neighbors>
    <neighbor>
      <id>b86a.97be.193e</id>
      <state>
        <id>b86a.97be.193e</id>
        <system-description>Hardware Model:EC_AS5912-54X</system-
description>
        <system-name>7031</system-name>
      </state>
    </neighbor>
  </neighbors>
</interface>
</interfaces>
</lldp>

```

OcNOS get result

```

<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
  <interfaces>
    <interface>
      <name>xel</name>
      <neighbors>
        <agent>
          <agent-type>default</agent-type>
          <neighbor>
            <mac-address>b86a.97be.193e</mac-address>
            <state>
              <mac-address>b86a.97be.193e</mac-address>
              <system-capabilities-enabled>Bridge Router</system-
capabilities-enabled>
              <system-capabilities>Bridge Router</system-capabilities>
              <system-description>Hardware Model:EC_AS5912-54X</system-
description>
              <max-frame-size>1518</max-frame-size>
              <link-aggregate-capability>Capable</link-aggregate-
capability>
              <operational-mau-type>54</operational-mau-type>
              <auto-negotiation-capability>16</auto-negotiation-
capability>
              <auto-negotiation-support>1</auto-negotiation-support>
              <management-vlan>0</management-vlan>
              <vid-usage-digest>0</vid-usage-digest>
              <pp-vlanid>0</pp-vlanid>
              <port-vlan-id>0</port-vlan-id>
              <ttl>121</ttl>
              <port-sub-type>3</port-sub-type>
              <port-description>xel</port-description>
              <port-id>b86a.97be.193e</port-id>
              <chassis-id-type>5</chassis-id-type>
              <chassis-component>10.12.89.136</chassis-component>
              <system-name>7031</system-name>
            </neighbor>
          </agent>
        </neighbors>
      </interface>
    </interfaces>
  </lldp>

```

```

    <management-list>
      <address>b86a.97a7.253c</address>
      <oid>0</oid>
      <interface-number>10001</interface-number>
      <interface-number-sub-type>ifindex</interface-number-sub-
type>
      <address-sub-type>MAC Address</address-sub-type>
    </management-list>
  </state>
</neighbor>
</agent>
</neighbors>
</interface>
</interfaces>
</lldp>

```

Neighbors chassis-id, type and ttl

Display neighbors' chassis-id, type and ttl.

Filter

```

<filter>
  <lldp xmlns="http://openconfig.net/yang/lldp">
    <interfaces>
      <interface>
        <neighbors>
          <neighbor>
            <name>ce50</name>
            <state>
              <chassis-id/>
              <chassis-id-type/>
              <id/>
              <ttl/>
            </state>
          </neighbor>
        </neighbors>
      </interface>
    </interfaces>
  </lldp>
</filter>

```

OpenConfig get result

```

<lldp xmlns="http://openconfig.net/yang/lldp">
  <interfaces>
    <interface>
      <name>eth0</name>
      <config>
        <name>eth0</name>
      </config>
      <neighbors>
        <neighbor>
          <id>08f1.ea53.dbf2</id>
          <state>

```

```
<id>08f1.ea53.dbf2</id>
<chassis-id>08f1.ea53.dbf0</chassis-id>
<chassis-id-type>MAC_ADDRESS</chassis-id-type>
<ttl>120</ttl>
</state>
</neighbor>
</neighbors>
</interface>
<interface>
<name>xe2</name>
<config>
<name>xe2</name>
</config>
<neighbors>
<neighbor>
<id>b86a.97be.193f</id>
<state>
<id>b86a.97be.193f</id>
<chassis-id>b86a.97a7.253c</chassis-id>
<chassis-id-type>MAC_ADDRESS</chassis-id-type>
<ttl>121</ttl>
</state>
</neighbor>
</neighbors>
</interface>
<interface>
<name>xe1</name>
<config>
<name>xe1</name>
</config>
<neighbors>
<neighbor>
<id>b86a.97be.193e</id>
<state>
<id>b86a.97be.193e</id>
<chassis-id>10.12.89.136</chassis-id>
<chassis-id-type>NETWORK_ADDRESS</chassis-id-type>
<ttl>121</ttl>
</state>
</neighbor>
</neighbors>
</interface>
</interfaces>
</lldp>
```

OcNOS get result

```
<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
<interfaces>
<interface>
<name>xe1</name>
<neighbors>
<agent>
<agent-type>default</agent-type>
<neighbor>
<mac-address>b86a.97be.193e</mac-address>
```

```

    <state>
      <mac-address>b86a.97be.193e</mac-address>
      <system-capabilities-enabled>Bridge Router</system-
capabilities-enabled>
      <system-capabilities>Bridge Router</system-capabilities>
      <system-description>Hardware Model:EC_AS5912-54X</system-
description>
      <max-frame-size>1518</max-frame-size>
      <link-aggregate-capability>Capable</link-aggregate-
capability>
      <operational-mau-type>54</operational-mau-type>
      <auto-negotiation-capability>16</auto-negotiation-
capability>
      <auto-negotiation-support>1</auto-negotiation-support>
      <management-vlan>0</management-vlan>
      <vid-usage-digest>0</vid-usage-digest>
      <pp-vlanid>0</pp-vlanid>
      <port-vlan-id>0</port-vlan-id>
      <ttl>121</ttl>
      <port-sub-type>3</port-sub-type>
      <port-description>xel</port-description>
      <port-id>b86a.97be.193e</port-id>
      <chassis-id-type>5</chassis-id-type>
      <chassis-component>10.12.89.136</chassis-component>
      <system-name>7031</system-name>
      <management-list>
        <address>b86a.97a7.253c</address>
        <oid>0</oid>
        <interface-number>10001</interface-number>
        <interface-number-sub-type>ifindex</interface-number-sub-
type>
        <address-sub-type>MAC Address</address-sub-type>
      </management-list>
    </state>
  </neighbor>
</agent>
</neighbors>
</interface>
</interfaces>
</lldp>

```

Neighbors port-id, type and description

Display neighbors' port-id, port-id-type and port-description.

Filter

```

<filter>
  <lldp xmlns="http://openconfig.net/yang/lldp">
    <interfaces>
      <interface>
        <neighbors>
          <neighbor>
            <name>ce50</name>
            <state>

```

```
type/>
                                </state>
                                </neighbor>
                                </neighbors>
                                </interface>
                                </interfaces>
                                </lldp>
</filter>
```

```
<port-id/>
<port-id-type/>
<port-description/>
<management-address/>
<management-address-
```

OpenConfig get result

```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <interfaces>
    <interface>
      <name>eth0</name>
      <config>
        <name>eth0</name>
      </config>
      <neighbors>
        <neighbor>
          <id>08f1.ea53.dbf2</id>
          <state>
            <id>08f1.ea53.dbf2</id>
            <port-id>08f1.ea53.dbf2</port-id>
            <port-id-type>MAC_ADDRESS</port-id-type>
            <port-description>19</port-description>
          </state>
        </neighbor>
      </neighbors>
    </interface>
    <interface>
      <name>xe2</name>
      <config>
        <name>xe2</name>
      </config>
      <neighbors>
        <neighbor>
          <id>b86a.97be.193f</id>
          <state>
            <id>b86a.97be.193f</id>
            <port-id>b86a.97be.193f</port-id>
            <port-id-type>MAC_ADDRESS</port-id-type>
            <port-description>xe2</port-description>
          </state>
        </neighbor>
      </neighbors>
    </interface>
    <interface>
      <name>xe1</name>
      <config>
        <name>xe1</name>
```

```

</config>
<neighbors>
  <neighbor>
    <id>b86a.97be.193e</id>
    <state>
      <id>b86a.97be.193e</id>
      <port-id>b86a.97be.193e</port-id>
      <port-id-type>MAC_ADDRESS</port-id-type>
      <port-description>xel</port-description>
    </state>
  </neighbor>
</neighbors>
</interface>
</interfaces>
</lldp>

```

OcNOS get result

```

<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
  <interfaces>
    <interface>
      <name>xel</name>
      <neighbors>
        <agent>
          <agent-type>default</agent-type>
          <neighbor>
            <mac-address>b86a.97be.193e</mac-address>
            <state>
              <mac-address>b86a.97be.193e</mac-address>
              <system-capabilities-enabled>Bridge Router</system-
capabilities-enabled>
              <system-capabilities>Bridge Router</system-capabilities>
              <system-description>Hardware Model:EC_AS5912-54X</system-
description>
              <max-frame-size>1518</max-frame-size>
              <link-aggregate-capability>Capable</link-aggregate-
capability>
              <operational-mau-type>54</operational-mau-type>
              <auto-negotiation-capability>16</auto-negotiation-
capability>
              <auto-negotiation-support>1</auto-negotiation-support>
              <management-vlan>0</management-vlan>
              <vid-usage-digest>0</vid-usage-digest>
              <pp-vlanid>0</pp-vlanid>
              <port-vlan-id>0</port-vlan-id>
              <ttl>121</ttl>
              <port-sub-type>3</port-sub-type>
              <port-description>xel</port-description>
              <port-id>b86a.97be.193e</port-id>
              <chassis-id-type>5</chassis-id-type>
              <chassis-component>10.12.89.136</chassis-component>
              <system-name>7031</system-name>
              <management-list>
                <address>b86a.97a7.253c</address>
                <oid>0</oid>
                <interface-number>10001</interface-number>

```

```

        <interface-number-sub-type>ifindex</interface-number-sub-
type>
        <address-sub-type>MAC Address</address-sub-type>
        </management-list>
        </state>
        </neighbor>
        </agent>
        </neighbors>
        </interface>
        </interfaces>
    </lldp>

```

Neighbors custom TLVs type/subtype

Display neighbors' custom TLVs type/subtype.

Filter

```

<filter>
  <lldp xmlns="http://openconfig.net/yang/lldp">
    <interfaces>
      <interface>
        <neighbors>
          <neighbor>
            <custom-tlvs>
              <tlv>
                <state>
                  <type>127</type>
                  <oui>00-
80-C2</oui>
                </state>
              </tlv>
            </custom-tlvs>
          </neighbor>
        </neighbors>
      </interface>
    </interfaces>
  </lldp>
</filter>

```

OpenConfig get result

```

<lldp xmlns="http://openconfig.net/yang/lldp">
  <interfaces>
    <interface>
      <name>eth0</name>
      <config>
        <name>eth0</name>
      </config>
      <neighbors>
        <neighbor>
          <id>08f1.ea53.dbf2</id>

```

```
<state><id>08f1.ea53.dbf2</id><system-description>HPE
OfficeConnect Switch 1920S 24G 2SFP JL381A PD.01.05 Linux 3.6.5-ac96795c
U-Boot 2012.10-00118-g3773021 (Oct 11 2016 - 15:39:54)</system-
description>0<ttl>120</ttl><port-id-type>MAC_ADDRESS</port-id-type><port-
description>19</port-description><port-id>08f1.ea53.dbf2</port-id><chassis-
id-type>MAC_ADDRESS</chassis-id-type><chassis-id>08f1.ea53.dbf0</chassis-
id><system-name>LAB1-SW13</system-name><management-
address>10.12.89.123</management-address><management-address-type>IP
Address</management-address-type></state>
```

```
<capabilities xmlns:oc-lldp-
types="http://openconfig.net/yang/lldp/types">
  <capability>
    <name>oc-lldp-types:MAC_BRIDGE</name>
    <state>
      <name>oc-lldp-types:MAC_BRIDGE</name>
      <enabled>true</enabled>
    </state>
  </capability>
  <capability>
    <name>oc-lldp-types:ROUTER</name>
    <state>
      <name>oc-lldp-types:ROUTER</name>
      <enabled>false</enabled>
    </state>
  </capability>
</capabilities>
<custom-tlvs>
  <tlv>
    <type>127</type>
    <oui>00-12-0F</oui>
    <oui-subtype>4</oui-subtype>
    <state>
      <type>127</type>
      <oui>00-12-0F</oui>
      <oui-subtype>4</oui-subtype>
      <value>0</value>
    </state>
  </tlv>
  <tlv>
    <type>127</type>
    <oui>00-12-0F</oui>
    <oui-subtype>1</oui-subtype>
    <state>
      <type>127</type>
      <oui>00-12-0F</oui>
      <oui-subtype>1</oui-subtype>
      <value>000</value>
    </state>
  </tlv>
  <tlv>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>2</oui-subtype>
    <state>
      <type>127</type>
      <oui>00-80-C2</oui>
      <oui-subtype>2</oui-subtype>
```



```

        <value>0</value>
      </state>
    </tlv>
  <tlv>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>1</oui-subtype>
    <state>
      <type>127</type>
      <oui>00-80-C2</oui>
      <oui-subtype>1</oui-subtype>
      <value>0</value>
    </state>
  </tlv>
</custom-tlvs>
</neighbor>
</neighbors>
</interface>
<interface>
  <name>xe2</name>
  <config>
    <name>xe2</name>
  </config>
  <neighbors>
    <neighbor>
      <id>b86a.97be.193f</id>
      <state><id>b86a.97be.193f</id><system-description>Hardware
Model:EC_AS5912-54X</system-description>1<ttl>121</ttl><port-id-
type>MAC_ADDRESS</port-id-type><port-description>xe2</port-description><port-
id>b86a.97be.193f</port-id><chassis-id-type>MAC_ADDRESS</chassis-id-
type><chassis-id>b86a.97a7.253c</chassis-id><system-name>7031</system-
name><management-address>b86a.97a7.253c</management-address><management-
address-type>MAC Address</management-address-type></state>
      <capabilities xmlns:oc-lldp-
types="http://openconfig.net/yang/lldp/types">
        <capability>
          <name>oc-lldp-types:MAC_BRIDGE</name>
          <state>
            <name>oc-lldp-types:MAC_BRIDGE</name>
            <enabled>true</enabled>
          </state>
        </capability>
        <capability>
          <name>oc-lldp-types:ROUTER</name>
          <state>
            <name>oc-lldp-types:ROUTER</name>
            <enabled>true</enabled>
          </state>
        </capability>
      </capabilities>
    </neighbor>
  </neighbors>
</custom-tlvs>
<tlv>
  <type>127</type>
  <oui>00-12-0F</oui>
  <oui-subtype>4</oui-subtype>
  <state>
    <type>127</type>

```

```
        <oui>00-12-0F</oui>
        <oui-subtype>4</oui-subtype>
        <value>1518</value>
    </state>
</tlv>
<tlv>
    <type>127</type>
    <oui>00-12-0F</oui>
    <oui-subtype>1</oui-subtype>
    <state>
        <type>127</type>
        <oui>00-12-0F</oui>
        <oui-subtype>1</oui-subtype>
        <value>11654</value>
    </state>
</tlv>
<tlv>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>2</oui-subtype>
    <state>
        <type>127</type>
        <oui>00-80-C2</oui>
        <oui-subtype>2</oui-subtype>
        <value>0</value>
    </state>
</tlv>
<tlv>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>1</oui-subtype>
    <state>
        <type>127</type>
        <oui>00-80-C2</oui>
        <oui-subtype>1</oui-subtype>
        <value>0</value>
    </state>
</tlv>
</custom-tlvs>
</neighbor>
</neighbors>
</interface>
<interface>
    <name>xel</name>
    <config>
        <name>xel</name>
    </config>
    <neighbors>
        <neighbor>
            <id>b86a.97be.193e</id>
            <state><id>b86a.97be.193e</id><system-description>Hardware
Model:EC_AS5912-54X</system-description>1<ttl>121</ttl><port-id-
type>MAC_ADDRESS</port-id-type><port-description>xel</port-description><port-
id>b86a.97be.193e</port-id><chassis-id-type>NETWORK_ADDRESS</chassis-id-
type><chassis-id>10.12.89.136</chassis-id><system-name>7031</system-
name><management-address>b86a.97a7.253c</management-address><management-
address-type>MAC Address</management-address-type></state>
```

```
<capabilities xmlns:oc-lldp-
types="http://openconfig.net/yang/lldp/types">
  <capability>
    <name>oc-lldp-types:MAC_BRIDGE</name>
    <state>
      <name>oc-lldp-types:MAC_BRIDGE</name>
      <enabled>>true</enabled>
    </state>
  </capability>
  <capability>
    <name>oc-lldp-types:ROUTER</name>
    <state>
      <name>oc-lldp-types:ROUTER</name>
      <enabled>>true</enabled>
    </state>
  </capability>
</capabilities>
<custom-tlvs>
  <tlv>
    <type>127</type>
    <oui>00-12-0F</oui>
    <oui-subtype>4</oui-subtype>
    <state>
      <type>127</type>
      <oui>00-12-0F</oui>
      <oui-subtype>4</oui-subtype>
      <value>1518</value>
    </state>
  </tlv>
  <tlv>
    <type>127</type>
    <oui>00-12-0F</oui>
    <oui-subtype>1</oui-subtype>
    <state>
      <type>127</type>
      <oui>00-12-0F</oui>
      <oui-subtype>1</oui-subtype>
      <value>11654</value>
    </state>
  </tlv>
  <tlv>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>2</oui-subtype>
    <state>
      <type>127</type>
      <oui>00-80-C2</oui>
      <oui-subtype>2</oui-subtype>
      <value>0</value>
    </state>
  </tlv>
  <tlv>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>1</oui-subtype>
    <state>
      <type>127</type>
```

```

        <oui>00-80-C2</oui>
        <oui-subtype>1</oui-subtype>
        <value>0</value>
      </state>
    </tlv>
  </custom-tlvs>
</neighbor>
</neighbors>
</interface>
</interfaces>
</lldp>

```

OcNOS get result

```

<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
  <interfaces>
    <interface>
      <name>xel</name>
      <neighbors>
        <agent>
          <agent-type>default</agent-type>
          <neighbor>
            <mac-address>b86a.97be.193e</mac-address>
            <state>
              <mac-address>b86a.97be.193e</mac-address>
              <pp-vlanid>0</pp-vlanid>
            </state>
          </neighbor>
        </agent>
      </neighbors>
    </interface>
  </interfaces>
</lldp>

```

Neighbors custom TLVs

Display neighbors' custom TLVs.

Filter

```

<filter>
  <lldp xmlns="http://openconfig.net/yang/lldp">
    <interfaces>
      <interface>
        <name>ce50</name>
        <neighbors>
          <neighbor>
            <custom-tlvs>
              <tlv
                <type>127</type>
                <oui>0-80-
C2</oui>
              </tlv>
            </custom-tlvs>
          </neighbor>

```

```

        </neighbors>
    </interface>
</interfaces>
</lldp>
</filter>

```

OpenConfig get result

```

<lldp xmlns="http://openconfig.net/yang/lldp">
  <interfaces>
    <interface>
      <name>xel</name>
      <config>
        <name>xel</name>
      </config>
      <neighbors>
        <neighbor>
          <id>b86a.97be.193e</id>
          <state><id>b86a.97be.193e</id><system-description>Hardware
Model:EC_AS5912-54X</system-description>1<ttl>121</ttl><port-id-
type>MAC_ADDRESS</port-id-type><port-description>xel</port-description><port-
id>b86a.97be.193e</port-id><chassis-id-type>NETWORK_ADDRESS</chassis-id-
type><chassis-id>10.12.89.136</chassis-id><system-name>7031</system-
name><management-address>b86a.97a7.253c</management-address><management-
address-type>MAC Address</management-address-type></state>
          <capabilities xmlns:oc-lldp-
types="http://openconfig.net/yang/lldp/types">
            <capability>
              <name>oc-lldp-types:MAC_BRIDGE</name>
              <state>
                <name>oc-lldp-types:MAC_BRIDGE</name>
                <enabled>true</enabled>
              </state>
            </capability>
            <capability>
              <name>oc-lldp-types:ROUTER</name>
              <state>
                <name>oc-lldp-types:ROUTER</name>
                <enabled>true</enabled>
              </state>
            </capability>
          </capabilities>
          <custom-tlvs>
            <tlv>
              <type>127</type>
              <oui>00-12-0F</oui>
              <oui-subtype>4</oui-subtype>
              <state>
                <type>127</type>
                <oui>00-12-0F</oui>
                <oui-subtype>4</oui-subtype>
                <value>1518</value>
              </state>
            </tlv>
            <tlv>
              <type>127</type>

```

```
<oui>00-12-0F</oui>
<oui-subtype>1</oui-subtype>
<state>
  <type>127</type>
  <oui>00-12-0F</oui>
  <oui-subtype>1</oui-subtype>
  <value>11654</value>
</state>
</tlv>
<tlv>
  <type>127</type>
  <oui>00-80-C2</oui>
  <oui-subtype>2</oui-subtype>
  <state>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>2</oui-subtype>
    <value>0</value>
  </state>
</tlv>
<tlv>
  <type>127</type>
  <oui>00-80-C2</oui>
  <oui-subtype>1</oui-subtype>
  <state>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>1</oui-subtype>
    <value>0</value>
  </state>
</tlv>
</custom-tlvs>
</neighbor>
</neighbors>
</interface>
</interfaces>
</lldp>
```

OcNOS get result

```
<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
  <interfaces>
    <interface>
      <name>xel</name>
      <neighbors>
        <agent>
          <agent-type>default</agent-type>
          <neighbor>
            <mac-address>b86a.97be.193e</mac-address>
            <state>
              <mac-address>b86a.97be.193e</mac-address>
              <port-vlan-id>0</port-vlan-id>
            </state>
          </neighbor>
        </agent>
      </neighbors>
    </interface>
  </interfaces>
</lldp>
```

```

    </interface>
  </interfaces>
</lldp>

```

Filter

```

<filter>
  <lldp xmlns="http://openconfig.net/yang/lldp">
    <interfaces>
      <interface>
        <name>ce50</name>
        <neighbors>
          <neighbor>
            <custom-tlvs>
              <tlv>
                <type>127</type>
                <oui>00-12-
0F</oui>
                <oui-
subtype>1</oui-subtype>
              </tlv>
            </custom-tlvs>
          </neighbor>
        </neighbors>
      </interface>
    </interfaces>
  </lldp>
</filter>

```

OpenConfig get result

```

<lldp xmlns="http://openconfig.net/yang/lldp">
  <interfaces>
    <interface>
      <name>xel</name>
      <config>
        <name>xel</name>
      </config>
      <neighbors>
        <neighbor>
          <id>b86a.97be.193e</id>
          <state><id>b86a.97be.193e</id><system-description>Hardware
Model:EC_AS5912-54X</system-description>1<ttl>121</ttl><port-id-
type>MAC_ADDRESS</port-id-type><port-description>xel</port-description><port-
id>b86a.97be.193e</port-id><chassis-id-type>NETWORK_ADDRESS</chassis-id-
type><chassis-id>10.12.89.136</chassis-id><system-name>7031</system-
name><management-address>b86a.97a7.253c</management-address><management-
address-type>MAC Address</management-address-type></state>
          <capabilities xmlns:oc-lldp-
types="http://openconfig.net/yang/lldp/types">
            <capability>
              <name>oc-lldp-types:MAC_BRIDGE</name>
              <state>
                <name>oc-lldp-types:MAC_BRIDGE</name>
                <enabled>>true</enabled>
              </state>
            </capability>
          </capabilities>
        </neighbor>
      </neighbors>
    </interface>
  </interfaces>
</lldp>

```

```
</capability>
<capability>
  <name>oc-lldp-types:ROUTER</name>
  <state>
    <name>oc-lldp-types:ROUTER</name>
    <enabled>true</enabled>
  </state>
</capability>
</capabilities>
<custom-tlvs>
  <tlv>
    <type>127</type>
    <oui>00-12-0F</oui>
    <oui-subtype>4</oui-subtype>
    <state>
      <type>127</type>
      <oui>00-12-0F</oui>
      <oui-subtype>4</oui-subtype>
      <value>1518</value>
    </state>
  </tlv>
  <tlv>
    <type>127</type>
    <oui>00-12-0F</oui>
    <oui-subtype>1</oui-subtype>
    <state>
      <type>127</type>
      <oui>00-12-0F</oui>
      <oui-subtype>1</oui-subtype>
      <value>11654</value>
    </state>
  </tlv>
  <tlv>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>2</oui-subtype>
    <state>
      <type>127</type>
      <oui>00-80-C2</oui>
      <oui-subtype>2</oui-subtype>
      <value>0</value>
    </state>
  </tlv>
  <tlv>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>1</oui-subtype>
    <state>
      <type>127</type>
      <oui>00-80-C2</oui>
      <oui-subtype>1</oui-subtype>
      <value>0</value>
    </state>
  </tlv>
</custom-tlvs>
</neighbor>
</neighbors>
```




```
</interface>  
</interfaces>  
</lldp>
```

OcNOS get result

```
<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">  
  <interfaces>  
    <interface>  
      <name>xel</name>  
      <neighbors>  
        <agent>  
          <agent-type>default</agent-type>  
          <neighbor>  
            <mac-address>b86a.97be.193e</mac-address>  
            <state>  
              <mac-address>b86a.97be.193e</mac-address>  
              <auto-negotiation-support>1</auto-negotiation-support>  
            </state>  
          </neighbor>  
        </agent>  
      </neighbors>  
    </interface>  
  </interfaces>  
</lldp>
```

Neighbors capabilities

Display neighbors' capabilities.

Filter

```
<filter>  
  <lldp xmlns="http://openconfig.net/yang/lldp">  
    <interfaces>  
      <interface>  
        <name>ce50</name>  
        <neighbors>  
          <neighbor>  
            <capabilities>  
              <capability>  
                <name/>  
                <config/>  
                <state/>  
              </capability>  
            </capabilities>  
          </neighbor>  
        </neighbors>  
      </interface>  
    </interfaces>  
  </lldp>  
</filter>
```

OpenConfig get result



```
<lldp xmlns="http://openconfig.net/yang/lldp">
  <interfaces>
    <interface>
      <name>xel</name>
      <config>
        <name>xel</name>
      </config>
      <neighbors>
        <neighbor>
          <id>b86a.97be.193e</id>
          <state><id>b86a.97be.193e</id><system-description>Hardware
Model:EC_AS5912-54X</system-description><ttl>121</ttl><port-id-
type>MAC_ADDRESS</port-id-type><port-description>xel</port-description><port-
id>b86a.97be.193e</port-id><chassis-id-type>NETWORK_ADDRESS</chassis-id-
type><chassis-id>10.12.89.136</chassis-id><system-name>7031</system-
name><management-address>b86a.97be.193e</management-address><management-
address-type>MAC Address</management-address-type></state>
          <capabilities xmlns:oc-lldp-
types="http://openconfig.net/yang/lldp/types">
            <capability>
              <name>oc-lldp-types:MAC_BRIDGE</name>
              <state>
                <name>oc-lldp-types:MAC_BRIDGE</name>
                <enabled>>true</enabled>
              </state>
            </capability>
            <capability>
              <name>oc-lldp-types:ROUTER</name>
              <state>
                <name>oc-lldp-types:ROUTER</name>
                <enabled>true</enabled>
              </state>
            </capability>
          </capabilities>
          <custom-tlvs>
            <tlv>
              <type>127</type>
              <oui>00-12-0F</oui>
              <oui-subtype>4</oui-subtype>
              <state>
                <type>127</type>
                <oui>00-12-0F</oui>
                <oui-subtype>4</oui-subtype>
                <value>1522</value>
              </state>
            </tlv>
            <tlv>
              <type>127</type>
              <oui>00-12-0F</oui>
              <oui-subtype>1</oui-subtype>
              <state>
                <type>127</type>
                <oui>00-12-0F</oui>
                <oui-subtype>1</oui-subtype>
                <value>11654</value>
              </state>
            </tlv>
          </custom-tlvs>
        </neighbor>
      </neighbors>
    </interface>
  </interfaces>
</lldp>
```

```
<tlv>
  <type>127</type>
  <oui>00-80-C2</oui>
  <oui-subtype>4</oui-subtype>
  <state>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>4</oui-subtype>
    <value>Rapid-Spanning-Tree-Protocol</value>
  </state>
</tlv>
<tlv>
  <type>127</type>
  <oui>00-80-C2</oui>
  <oui-subtype>2</oui-subtype>
  <state>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>2</oui-subtype>
    <value>0</value>
  </state>
</tlv>
<tlv>
  <type>127</type>
  <oui>00-80-C2</oui>
  <oui-subtype>1</oui-subtype>
  <state>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>1</oui-subtype>
    <value>1</value>
  </state>
</tlv>
<tlv>
  <type>127</type>
  <oui>00-80-C2</oui>
  <oui-subtype>3</oui-subtype>
  <state>
    <type>127</type>
    <oui>00-80-C2</oui>
    <oui-subtype>3</oui-subtype>
    <value>1default</value>
  </state>
</tlv>
</custom-tlvs>
</neighbor>
</neighbors>
</interface>
</interfaces>
</lldp>
```

OcNOS get result

```
<lldp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-lldpv2">
  <interfaces>
    <interface>
```

```
<name>xe1</name>
<neighbors>
  <agent>
    <agent-type>default</agent-type>
    <neighbor>
      <mac-address>b86a.97be.193e</mac-address>
      <state>
        <mac-address>b86a.97be.193e</mac-address>
        <port-vlan-id>0</port-vlan-id>
      </state>
    </neighbor>
  </agent>
</neighbors>
</interface>
</interfaces>
</lldp>
```

OpenConfig ACL

Enable management attributes

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

Use the commands indicated on this chapter to create an ACL (access control list) entry to operate over L2 data traffic.

OpenConfig NETCONF Payload

```
<acl xmlns="http://openconfig.net/yang/acl">
  <acl-sets>
    <acl-set>
      <name>ACL_OC_L2</name>
      <type
        xmlns:oc-acl="http://openconfig.net/yang/acl">oc-acl:ACL_L2</type>
      <config>
        <name>ACL_OC_L2</name>
        <type
          xmlns:oc-acl="http://openconfig.net/yang/acl">oc-acl:ACL_L2</type>
        <description>ACL L2 CFG Test</description>
      </config>
    </acl-set>
  </acl-sets>
  <acl-entries>
    <acl-entry>
      <sequence-id>1</sequence-id>
      <config>
        <sequence-id>1</sequence-id>
      </config>
    </acl-entry>
  </acl-entries>
</acl>
```

```

    <config>
      <destination-mac>00BB.CCDD.EEFF</destination-mac>
      <destination-mac-mask>AC00.0000.0000</destination-mac-mask>
      <ethertype>ETHERTYPE_IPV4</ethertype>
      <source-mac>0000.CCDD.EEFF</source-mac>
      <source-mac-mask>AABB.0000.0000</source-mac-mask>
    </config>
  </l2>
  <actions>
    <config>
      <forwarding-action
        xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACCEPT</forwarding-action>
      <log-action>LOG_SYSLOG</log-action>
    </config>
  </actions>
</acl-entry>
</acl-entries>
</acl-set>
</acl-sets>
</acl>

```

OcNOS CLI command

```

mac access-list ACL_OC_L2
  remark ACL L2 CFG Test
  1 permit 0000.CCDD.EEFF AABB.0000.0000 00BB.CCDD.EEFF AC00.0000.0000 ipv4
!
```

OcNOS NETCONF Payload

```

<acl xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-acl">
  <acl-sets>
    <acl-set>
      <name>ACL_OC_L2</name>
      <type>mac</type>
      <config>
        <name>ACL_OC_L2</name>
        <type>mac</type>
        <description>ACL L2 CFG Test</description>
      </config>
      <acl-entries>
        <acl-entry>
          <sequence-id>1</sequence-id>
          <config>
            <sequence-id>1</sequence-id>
          </config>
          <mac>
            <config>
              <destination-mac-address>0000.0000.0000</destination-mac-
address>
              <destination-mac-mask>AA32.CCDD.EE10</destination-mac-mask>
              <ethertype>ipv4</ethertype>
              <source-mac-address>0000.0000.00EE</source-mac-address>
              <source-mac-mask>AABB.CCDD.EE11</source-mac-mask>
            </config>
          </mac>
        </acl-entry>
      </acl-entries>
    </acl-set>
  </acl-sets>
</acl>

```

```
        <forwarding-action>permit</forwarding-action>
        <monitor-action>log</monitor-action>
    </config>
</mac>
</acl-entry>
</acl-entries>
</acl-set>
</acl-sets>
</acl>
```

Validation with NETCONF get

```
<acl xmlns="http://openconfig.net/yang/acl">
  <acl-sets>
    <acl-set>
      <name>ACL_OC_L2</name>
      <type
ac1:ACL_L2 xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
ac1:ACL_L2</type>
      <config>
        <name>ACL_OC_L2</name>
        <type
ac1:ACL_L2 xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
ac1:ACL_L2</type>
        <description>ACL L2 CFG Test</description>
      </config>
      <acl-entries>
        <acl-entry>
          <sequence-id>1</sequence-id>
          <config>
            <sequence-id>1</sequence-id>
          </config>
          <mac>
            <config>
              <source-mac>0000.CCDD.EEFF</source-mac>
              <source-mac-mask>AABB.0000.0000</source-mac-mask>
              <ethertype>ETHERTYPE_IPV4</ethertype>
              <destination-mac>00BB.CCDD.EEFF</destination-mac>
              <destination-mac-mask>AC00.0000.0000</destination-mac-mask>
            </config>
          </mac>
          <actions>
            <config>
              <forwarding-action
ac1:ACCEPT xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
ac1:ACCEPT</forwarding-action>
              </config>
            </actions>
          </acl-entry>
        </acl-entries>
      </acl-set>
    </acl-sets>
  </acl>
```

Restrictions

None.

Create IPv4 entries

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

Use the commands indicated on this chapter to create an ACL entry to operate over IPv4 data traffic.

OpenConfig NETCONF Payload

```
<acl xmlns="http://openconfig.net/yang/acl">
  <acl-sets>
    <acl-set>
      <name>ACL_OC_IPV4</name>
      <type
acl:ACL_IPV4</type>
        xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
      <config>
        <name>ACL_OC_IPV4</name>
        <type
acl:ACL_IPV4</type>
          xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
          <description>ACL TFW Test</description>
        </config>
      <acl-entries>
        <acl-entry>
          <sequence-id>10</sequence-id>
          <config>
            <sequence-id>10</sequence-id>
          </config>
          <ipv4>
            <config>
              <source-address>1.1.1.0/24</source-address>
              <destination-address>2.2.2.0/24</destination-address>
              <dscp>18</dscp>
              <protocol>6</protocol>
            </config>
          </ipv4>
          <actions>
            <config>
              <forwarding-action
acl:ACCEPT</forwarding-action>
                xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
                <log-action>LOG_SYSLOG</log-action>
              </config>
            </actions>
          <transport>
            <config>
              <explicit-tcp-flags
```



```
        xmlns:oc-pkt-match-
types="http://openconfig.net/yang/packet-match-types">oc-pkt-match-
types:TCP_SYN</explicit-tcp-flags>
        <source-port>22</source-port>
        <destination-port>80</destination-port>
        </config>
    </transport>
</acl-entry>
</acl-entries>
</acl-set>
</acl-sets>
</acl>
```

OcNOS CLI command

```
ip access-list ACL_OC_IPV4
  remark ACL TFW Test
  10 permit tcp 1.1.1.0/24 2.2.2.0/24 dscp af21 syn
!
```

OcNOS NETCONF Payload

```
<acl xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-acl">
  <acl-sets>
    <acl-set>
      <name>ACL_OC_IPV4</name>
      <type>ip</type>
      <config>
        <name>ACL_OC_IPV4</name>
        <type>ip</type>
        <description>ACL TFW Test</description>
      </config>
      <acl-entries>
        <acl-entry>
          <sequence-id>10</sequence-id>
          <config>
            <sequence-id>10</sequence-id>
          </config>
          <ipv4>
            <config>
              <source-address>1.1.1.0/24</source-address>
              <destination-address>2.2.2.0/24</destination-address>
              <dscp>18</dscp>
              <protocol-tcp />
              <tcp-source-port>22</tcp-source-port>
              <tcp-destination-port>80</tcp-destination-port>
              <tcp-flags>syn</tcp-flags>
              <forwarding-action>permit</forwarding-action>
              <monitor-action>log</monitor-action>
            </config>
          </ipv4>
        </acl-entry>
      </acl-entries>
    </acl-set>
  </acl-sets>
```



```
</acl>
```

Validation with NETCONF get

```
<acl xmlns="http://openconfig.net/yang/acl">
  <acl-sets>
    <acl-set>
      <name>ACL_OC_IPV4</name>
      <type
xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV4</type>
      <config>
        <name>ACL_OC_IPV4</name>
        <type
xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV4</type>
        <description>ACL TFW Test</description>
      </config>
      <acl-entries>
        <acl-entry>
          <sequence-id>10</sequence-id>
          <config>
            <sequence-id>10</sequence-id>
          </config>
          <ipv4>
            <config>
              <source-address>1.1.1.0/24</source-address>
              <destination-address>2.2.2.0/24</destination-address>
              <dscp>18</dscp>
              <protocol>6</protocol>
            </config>
          </ipv4>
          <actions>
            <config>
              <forwarding-action
xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACCEPT</forwarding-action>
              </config>
            </actions>
            <transport>
              <config>
                <explicit-tcp-flags
xmlns:oc-pkt-match-
types="http://openconfig.net/yang/packet-match-types">oc-pkt-match-
types:TCP_SYN</explicit-tcp-flags>
                </config>
              </transport>
            </acl-entry>
          </acl-entries>
        </acl-set>
      </acl-sets>
    </acl>
```

Restrictions

None.

Create IPv6 entries

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

Use the commands indicated on this chapter to create an ACL (access control list) entry to operate over IPv6 data traffic.

OpenConfig NETCONF Payload

```
<acl xmlns="http://openconfig.net/yang/acl">
  <acl-sets>
    <acl-set>
      <name>ACL_OC_IPV6</name>
      <type
xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV6</type>
      <config>
        <name>ACL_OC_IPV6</name>
        <type
xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV6</type>
        <description>ACL TFW Test</description>
      </config>
    <acl-entries>
      <acl-entry>
        <sequence-id>11</sequence-id>
        <config>
          <sequence-id>11</sequence-id>
        </config>
        <ipv6>
          <config>
            <source-address>2000::/8</source-address>
            <destination-address>2001::/16</destination-address>
            <dscp>23</dscp>
            <protocol>6</protocol>
          </config>
        </ipv6>
        <actions>
          <config>
            <forwarding-action
xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:REJECT</forwarding-action>
            <log-action>LOG_SYSLOG</log-action>
          </config>
        </actions>
      </acl-entry>
    </acl-entries>
  </acl-sets>
</acl>
```

```
</acl-set>  
</acl-sets>  
</acl>
```

OcNOS CLI command

```
ipv6 access-list ACL_OC_IPV6  
remark ACL TFW Test  
11 deny tcp 2000::/8 2001::/16 dscp 23  
!
```

OcNOS NETCONF Payload

```
<acl xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-acl">  
  <acl-sets>  
    <acl-set>  
      <name>ACL_OC_IPV6</name>  
      <type>ipv6</type>  
      <config>  
        <name>ACL_OC_IPV6</name>  
        <type>ipv6</type>  
        <description>ACL TFW Test</description>  
      </config>  
      <acl-entries>  
        <acl-entry>  
          <sequence-id>11</sequence-id>  
          <config>  
            <sequence-id>11</sequence-id>  
          </config>  
          <ipv6>  
            <config>  
              <source-address>2000::/8</source-address>  
              <destination-address>2001::/16</destination-address>  
              <dscp>23</dscp>  
              <protocol-tcp />  
              <forwarding-action>deny</forwarding-action>  
              <monitor-action>log</monitor-action>  
            </config>  
          </ipv6>  
        </acl-entry>  
      </acl-entries>  
    </acl-set>  
  </acl-sets>  
</acl>
```

Validation with NETCONF get

```
<acl xmlns="http://openconfig.net/yang/acl">  
  <acl-sets>  
    <acl-set>  
      <name>ACL_OC_IPV6</name>  
      <type  
        xmlns:oc-acl="http://openconfig.net/yang/acl">oc-  
acl:ACL_IPV6</type>
```

```
<config>
  <name>ACL_OC_IPV6</name>
  <type
    xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV6</type>
  <description>ACL TFW Test</description>
</config>
<acl-entries>
  <acl-entry>
    <sequence-id>11</sequence-id>
    <config>
      <sequence-id>11</sequence-id>
    </config>
    <ipv6>
      <config>
        <source-address>2000::/8</source-address>
        <destination-address>2001::/16</destination-address>
        <dscp>23</dscp>
        <protocol>6</protocol>
      </config>
    </ipv6>
    <actions>
      <config>
        <forwarding-action
          xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:REJECT</forwarding-action>
        </config>
      </actions>
    </acl-entry>
  </acl-entries>
</acl-set>
</acl-sets>
</acl>
```

Restrictions

None.

Create interfaces egress for IPv4/IPv6

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

Use the commands indicated on this chapter to associate an ACL (access control list) entry type IPv4/IPv6 to an interface on egress direction. The interface can associate only one ACL (access control list) entry at time.

OpenConfig NETCONF Payload



```
<acl xmlns="http://openconfig.net/yang/acl">
  <interfaces>
    <interface>
      <id>eth1</id>
      <config>
        <id>eth1</id>
      </config>
      <egress-acl-sets>
        <egress-acl-set>
          <type
            xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV4</type>
          <set-name>ACL_OC_IPV4</set-name>
          <config>
            <set-name>ACL_OC_IPV4</set-name>
            <type
              xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV4</type>
          </config>
          </egress-acl-set>
        </egress-acl-sets>
        <interface-ref>
          <config>
            <interface>eth1</interface>
          </config>
        </interface-ref>
      </interface>
    </interfaces>
  </acl>
```

OcNOS CLI command

```
ip access-list ACL_OC_IPV4
  remark ACL TFW Test
  10 permit tcp 1.1.1.0/24 2.2.2.0/24 dscp af21 syn
!
interface eth1
  ip access-group ACL_OC_IPV4 out
```

OcNOS NETCONF Payload

```
<acl xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-acl">
  <interfaces>
    <interface>
      <name>eth1</name>
      <config>
        <name>eth1</name>
      </config>
      <egress-acl-sets>
        <egress-acl-set>
          <acl-type>ip</acl-type>
          <access-groups>
            <access-group>
              <acl-name>ACL_OC_IPV4</acl-name>
            </access-group>
          </access-groups>
        </egress-acl-set>
      </egress-acl-sets>
    </interface>
  </interfaces>
</acl>
```

```
        <acl-name>ACL_OC_IPV4</acl-name>
      </config>
    </access-group>
  </access-groups>
</config>
  <acl-type>ip</acl-type>
</config>
</egress-acl-set>
</egress-acl-sets>
</interface>
</interfaces>
</acl>
```

Validation with NETCONF get

```
<acl xmlns="http://openconfig.net/yang/acl">
  <interfaces>
    <interface>
      <id>eth1</id>
      <config>
        <id>eth1</id>
      </config>
      <egress-acl-sets>
        <egress-acl-set>
          <type
            xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV4</type>
          <set-name>ACL_OC_IPV4</set-name>
          <config>
            <set-name>ACL_OC_IPV4</set-name>
            <type
              xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV4</type>
          </config>
          </egress-acl-set>
        </egress-acl-sets>
        <interface-ref>
          <config>
            <interface>eth1</interface>
          </config>
        </interface-ref>
      </interface>
    </interfaces>
  </acl>
```

Restrictions

Only one ACL entry can be associate on interface on egress direction.

/acl/interfaces/interface/id

This leaf must have the format “interface.subinterface”, e.g., xe10.2, and it is limited to 32 characters.

Create interfaces ingress for IPv4/IPv6

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

Use the commands indicated on this chapter to associate an ACL (access control list) entry type IPv4/IPv6 to an interface on ingress direction. The interface can associate only one ACL (access control list) entry at time.

OpenConfig NETCONF Payload

```
<acl xmlns="http://openconfig.net/yang/acl">
  <interfaces>
    <interface>
      <id>eth1</id>
      <config>
        <id>eth1</id>
      </config>
      <ingress-acl-sets>
        <ingress-acl-set>
          <type
            xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV4</type>
          <set-name>ACL_OC_IPV4</set-name>
          <config>
            <set-name>ACL_OC_IPV4</set-name>
            <type
              xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV4</type>
          </config>
          </ingress-acl-set>
        </ingress-acl-sets>
      <interface-ref>
        <config>
          <interface>eth1</interface>
        </config>
      </interface-ref>
    </interface>
  </interfaces>
</acl>
```

OcNOS CLI command

```
ip access-list ACL_OC_IPV4
  remark ACL TFW Test
  10 permit tcp 1.1.1.0/24 2.2.2.0/24 dscp af21 syn
!
interface eth1
  ip access-group ACL_OC_IPV4 in
```

OcNOS NETCONF Payload

```
<acl xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-acl">
  <interfaces>
    <interface>
      <name>eth1</name>
      <config>
        <name>eth1</name>
      </config>
      <ingress-acl-sets>
        <ingress-acl-set>
          <acl-type>ip</acl-type>
          <access-groups>
            <access-group>
              <acl-name>ACL_OC_IPV4</acl-name>
              <config>
                <acl-name>ACL_OC_IPV4</acl-name>
              </config>
            </access-group>
          </access-groups>
          <config>
            <acl-type>ip</acl-type>
          </config>
        </ingress-acl-set>
      </ingress-acl-sets>
    </interface>
  </interfaces>
</acl>
```

Validation with NETCONF get

```
<acl xmlns="http://openconfig.net/yang/acl">
  <interfaces>
    <interface>
      <id>eth1</id>
      <config>
        <id>eth1</id>
      </config>
      <ingress-acl-sets>
        <ingress-acl-set>
          <type
            xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV4</type>
          <set-name>ACL_OC_IPV4</set-name>
          <config>
            <set-name>ACL_OC_IPV4</set-name>
            <type
              xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_IPV4</type>
          </config>
          </ingress-acl-set>
        </ingress-acl-sets>
      <interface-ref>
        <config>
          <interface>eth1</interface>
        </config>
      </interface-ref>
    </interface>
```




```
</interfaces>  
</acl>
```

Restrictions

Only one ACL (access control list) entry can be associate on interface on ingress direction.

```
/acl/interfaces/interface/id
```

This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

Create interfaces egress for L2

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

Use the commands indicated on this chapter to associate an ACL (access control list) entry type L2 to an interface on egress direction.

The interface can associate only one ACL (access control list) entry at time.

OpenConfig NETCONF Payload

```
<acl xmlns="http://openconfig.net/yang/acl">  
  <interfaces>  
    <interface>  
      <id>eth3</id>  
      <config>  
        <id>eth3</id>  
      </config>  
      <egress-acl-sets>  
        <egress-acl-set>  
          <type  
            xmlns:oc-acl="http://openconfig.net/yang/acl">oc-  
acl:ACL_L2</type>  
          <set-name>ACL_OC_L2</set-name>  
          <config>  
            <set-name>ACL_OC_L2</set-name>  
            <type  
              xmlns:oc-acl="http://openconfig.net/yang/acl">oc-  
acl:ACL_L2</type>  
          </config>  
          </egress-acl-set>  
        </egress-acl-sets>  
      <interface-ref>  
        <config>  
          <interface>eth3</interface>  
        </config>  
      </interface-ref>  
    </interface>  
  </interfaces>  
</acl>
```



```
</interfaces>  
</acl>
```

OcNOS CLI command

```
mac access-list ACL_OC_L2  
  remark ACL L2 CFG Test  
  1 permit 0000.CCDD.EEFF AABB.0000.0000 00BB.CCDD.EEFF AC00.0000.0000 ipv4  
!  
interface eth3  
  mac access-group ACL_OC_L2 out  
!
```

OcNOS NETCONF Payload

```
<acl xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-acl">  
  <interfaces>  
    <interface>  
      <name>eth3</name>  
      <config>  
        <name>eth3</name>  
      </config>  
      <egress-acl-sets>  
        <egress-acl-set>  
          <acl-type>mac</acl-type>  
          <access-groups>  
            <access-group>  
              <acl-name>ACL_OC_L2</acl-name>  
              <config>  
                <acl-name>ACL_OC_L2</acl-name>  
              </config>  
            </access-group>  
          </access-groups>  
        </egress-acl-set>  
      </egress-acl-sets>  
    </interface>  
  </interfaces>  
</acl>
```

Validation with NETCONF get

```
<acl xmlns="http://openconfig.net/yang/acl">  
  <interfaces>  
    <interface>  
      <id>eth3</id>  
      <config>  
        <id>eth3</id>  
      </config>  
      <egress-acl-sets>  
        <egress-acl-set>  
          <type
```

```
                xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_L2</type>
                <set-name>ACL_OC_L2</set-name>
                <config>
                    <set-name>ACL_OC_L2</set-name>
                    <type
acl:ACL_L2</type>
                        xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
                        </config>
                        </egress-acl-set>
                    </egress-acl-sets>
                <interface-ref>
                    <config>
                        <interface>eth3</interface>
                    </config>
                </interface-ref>
            </interface>
        </interfaces>
    </acl>
```

Restrictions

Only one ACL (access control list) entry can be associate on interface on egress direction.

/acl/interfaces/interface/id

This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

Create interfaces ingress for L2

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

Use the commands indicated on this chapter to associate an ACL (access control list) entry type L2 to an interface on ingress direction.

The interface can associate only one ACL entry at time.

OpenConfig NETCONF Payload

```
<acl xmlns="http://openconfig.net/yang/acl">
  <interfaces>
    <interface>
      <id>eth3</id>
      <config>
        <id>eth3</id>
      </config>
      <ingress-acl-sets>
        <ingress-acl-set>
          <type
```

```
      xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
acl:ACL_L2</type>
      <set-name>ACL_OC_L2</set-name>
      <config>
        <set-name>ACL_OC_L2</set-name>
        <type
acl:ACL_L2</type>
          xmlns:oc-acl="http://openconfig.net/yang/acl">oc-
          </config>
        </ingress-acl-set>
      </ingress-acl-sets>
    <interface-ref>
      <config>
        <interface>eth3</interface>
      </config>
    </interface-ref>
  </interface>
</interfaces>
</acl>
```

OcNOS CLI command

```
mac access-list ACL_OC_L2
  remark ACL L2 CFG Test
  1 permit 0000.CCDD.EEFF ABB.0000.0000 00BB.CCDD.EEFF AC00.0000.0000 ipv4
!
interface eth3
  mac access-group ACL_OC_L2 in
!
```

OcNOS NETCONF Payload

```
<acl xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-acl">
  <interfaces>
    <interface>
      <name>eth3</name>
      <config>
        <name>eth3</name>
      </config>
      <ingress-acl-sets>
        <ingress-acl-set>
          <acl-type>mac</acl-type>
          <access-groups>
            <access-group>
              <acl-name>ACL_OC_L2</acl-name>
              <config>
                <acl-name>ACL_OC_L2</acl-name>
              </config>
            </access-group>
          </access-groups>
        </ingress-acl-set>
      </ingress-acl-sets>
    </interface>
```



```
</interfaces>  
</acl>
```

Validation with NETCONF get

```
<acl xmlns="http://openconfig.net/yang/acl">  
  <interfaces>  
    <interface>  
      <id>eth3</id>  
      <config>  
        <id>eth3</id>  
      </config>  
      <ingress-acl-sets>  
        <ingress-acl-set>  
          <type  
            xmlns:oc-acl="http://openconfig.net/yang/acl">oc-  
acl:ACL_L2</type>  
            <set-name>ACL_OC_L2</set-name>  
            <config>  
              <set-name>ACL_OC_L2</set-name>  
              <type  
                xmlns:oc-acl="http://openconfig.net/yang/acl">oc-  
acl:ACL_L2</type>  
                </config>  
              </ingress-acl-set>  
            </ingress-acl-sets>  
            <interface-ref>  
              <config>  
                <interface>eth3</interface>  
              </config>  
            </interface-ref>  
          </interface>  
        </interfaces>  
      </acl>
```

Restrictions

Only one ACL (access control list) entry can be associate on interface on ingress direction.

/acl/interfaces/interface/id

This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

OpenConfig QoS

Enable QoS on OcNOS

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

On OcNOS model the QoS feature need to be enabled before can start configure QoS features.
On Open Config model there is no equivalent configuration.

OpenConfig NETCONF Payload

There is no equivalent configuration.

OcNOS CLI command

```
hardware-profile filter ingress-ipv4-qos enable  
qos enable
```

OcNOS NETCONF Payload

```
<profiles xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">  
  <hardware-profile>  
    <filters>  
      <config>  
        <ingress-ipv4-qos/>  
      </config>  
    </filters>  
  </hardware-profile>  
</profiles>  
<qos xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-qos">  
  <global>  
    <config>  
      <enable-qos/>  
    </config>  
  </global>  
</qos>
```

Validation with NETCONF get

There is no equivalent configuration.

Restrictions

None.

Enable QoS Profile on OcNOS

Release

This configuration was introduced in OcNOS version 5.1.

Configuration



On OcNOS model the QoS feature need the Hw profile to be enable on SP Hardware types.
On Open Config model there is no equivalent configuration.

OpenConfig NETCONF Payload

There is no equivalent configuration.

OcNOS CLI command

```
hardware-profile filter ingress-ipv4-qos enable
```

OcNOS NETCONF Payload

```
<profiles xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">  
  <hardware-profile xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-  
platform">  
    <filters xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">  
      <config xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">  
        <ingress-ipv4-qos/>  
      </config>  
    </filters>  
  </hardware-profile>  
</profiles>
```

Validation with NETCONF get

There is no equivalent configuration.

Restrictions

None.

Create Classifiers profiles

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

The Open Config QoS Classifiers is a profile responsible to handle data traffic classification.
This configuration do not have a direct equivalent object on OcNOS model, and to configure classifier on OcNOS model it needs to be translated to ACL, class-maps and policy-maps objets to have the expect configuration.

OpenConfig NETCONF Payload

```
<qos xmlns="http://openconfig.net/yang/qos">  
  <queues>
```

```
<queue>
  <name>q0</name>
  <config>
    <name>q0</name>
  </config>
  <red>
    <config>
      <minth>128000</minth>
      <maxth>256000</maxth>
    </config>
  </red>
</queue>
<queue>
  <name>q1</name>
  <config>
    <name>q1</name>
  </config>
  <red>
    <config>
      <minth>256000</minth>
      <maxth>512000</maxth>
    </config>
  </red>
</queue>
</queues>
<forwarding-groups>
  <forwarding-group>
    <name>q0</name>
    <config>
      <name>q0</name>
      <output-queue>q0</output-queue>
      <fabric-priority>128</fabric-priority>
    </config>
  </forwarding-group>
</forwarding-groups>
<classifiers>
  <classifier>
    <name>IN_CUSTOMERIF</name>
    <config>
      <name>IN_CUSTOMERIF</name>
      <type>IPV4</type>
    </config>
    <terms>
      <term>
        <id>10</id>
        <config>
          <id>10</id>
        </config>
        <conditions>
          <ipv4>
            <config>
              <source-address>1.1.1.1/24</source-address>
              <destination-address>2.2.2.2/24</destination-
address>
              <dscp>af21</dscp>
            </config>
          </ipv4>

```



```

        </conditions>
        <actions>
            <config>
                <target-group>q0</target-group>
            </config>
        </actions>
    </term>
    <term>
        <id>20</id>
        <config>
            <id>20</id>
        </config>
        <conditions>
            <ipv4>
                <config>
                    <source-address>3.3.3.3/24</source-address>
                    <destination-address>4.4.4.4/24</destination-
address>
                    <dscp>26</dscp>
                </config>
            </ipv4>
        </conditions>
        <actions>
            <config>
                <target-group>q1</target-group>
            </config>
        </actions>
    </term>
</terms>
</classifier>
</classifiers>
</qos>

```

OcNOS CLI command

```

hardware-profile filter ingress-ipv4-qos enable
qos enable
!
ip access-list IN_CUSTOMERIF$10
 1 permit tcp 1.1.1.0/24 2.2.2.0/24 dscp af21
ip access-list IN_CUSTOMERIF$20
 1 permit tcp 3.3.3.0/24 4.4.4.0/24 dscp af31
!
class-map type qos match-any IN_CUSTOMERIF$10
 match access-group IN_CUSTOMERIF$10
!
class-map type qos match-any IN_CUSTOMERIF$20
 match access-group IN_CUSTOMERIF$20
!
policy-map type qos IN_CUSTOMERIF
 class type qos IN_CUSTOMERIF$10
  set queue 0
  exit
 class type qos IN_CUSTOMERIF$20
  set queue 1
  exit

```

!

OcNOS NETCONF Payload

```
<profiles xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <hardware-profile>
    <filters>
      <config>
        <ingress-ipv4-qos/>
      </config>
    </filters>
  </hardware-profile>
</profiles>
<acl xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-acl">
  <acl-sets>
    <acl-set>
      <name>IN_CUSTOMERIF$10</name>
      <type>ip</type>
      <config>
        <name>IN_CUSTOMERIF$10</name>
        <type>ip</type>
      </config>
      <acl-entries>
        <acl-entry>
          <sequence-id>1</sequence-id>
          <config>
            <sequence-id>1</sequence-id>
          </config>
          <ipv4>
            <config>
              <forwarding-action>permit</forwarding-action>
              <source-address>1.1.1.0/24</source-address>
              <destination-address>2.2.2.0/24</destination-address>
              <dscp>af21</dscp>
              <protocol-tcp/>
            </config>
          </ipv4>
        </acl-entry>
      </acl-entries>
    </acl-set>
    <acl-set>
      <name>IN_CUSTOMERIF$20</name>
      <type>ip</type>
      <config>
        <name>IN_CUSTOMERIF$20</name>
        <type>ip</type>
      </config>
      <acl-entries>
        <acl-entry>
          <sequence-id>1</sequence-id>
          <config>
            <sequence-id>1</sequence-id>
          </config>
          <ipv4>
            <config>
              <forwarding-action>permit</forwarding-action>
```

```
        <source-address>3.3.3.0/24</source-address>
        <destination-address>4.4.4.0/24</destination-address>
        <dscp>af31</dscp>
        <protocol-tcp/>
    </config>
</ipv4>
</acl-entry>
</acl-entries>
</acl-set>
</acl-sets>
</acl>
<qos xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-qos">
  <global>
    <config>
      <enable-qos/>
    </config>
    <class-maps>
      <class-map>
        <name>IN_CUSTOMERIF$10</name>
        <config>
          <name>IN_CUSTOMERIF$10</name>
          <type>qos</type>
          <match-criteria>match-any</match-criteria>
        </config>
        <match-any-conditions>
          <config>
            <access-control-list-name>IN_CUSTOMERIF$10</access-control-
list-name>
          </config>
        </match-any-conditions>
      </class-map>
      <class-map>
        <name>IN_CUSTOMERIF$20</name>
        <config>
          <name>IN_CUSTOMERIF$20</name>
          <type>qos</type>
          <match-criteria>match-any</match-criteria>
        </config>
        <match-any-conditions>
          <config>
            <access-control-list-name>IN_CUSTOMERIF$20</access-control-
list-name>
          </config>
        </match-any-conditions>
      </class-map>
    </class-maps>
    <policy-maps>
      <policy-map>
        <policy-map-name>IN_CUSTOMERIF</policy-map-name>
        <config>
          <policy-map-name>IN_CUSTOMERIF</policy-map-name>
          <type>qos</type>
        </config>
        <classes>
          <class>
            <class-map-name>IN_CUSTOMERIF$10</class-map-name>
            <config>
```

```

        <class-map-name>IN_CUSTOMERIF$10</class-map-name>
        <type>qos</type>
    </config>
    <qos-mode>
        <config>
            <queue-id>0</queue-id>
        </config>
    </qos-mode>
</class>
<class>
    <class-map-name>IN_CUSTOMERIF$20</class-map-name>
    <config>
        <class-map-name>IN_CUSTOMERIF$20</class-map-name>
        <type>qos</type>
    </config>
    <qos-mode>
        <config>
            <queue-id>1</queue-id>
        </config>
    </qos-mode>
</class>
</classes>
</policy-map>
</policy-maps>
</global>
</qos>

```

Validation with NETCONF get

```

<qos xmlns="http://openconfig.net/yang/qos">
  <classifiers>
    <classifier>
      <name>IN_CUSTOMERIF</name>
      <config>
        <name>IN_CUSTOMERIF</name>
        <type>IPV4</type>
      </config>
      <terms>
        <term>
          <id>10</id>
          <config>
            <id>10</id>
          </config>
          <actions>
            <config>
              <target-group>q0</target-group>
            </config>
          </actions>
          <conditions>
            <ipv4>
              <config>
                <source-address>1.1.1.0/24</source-address>
                <destination-address>2.2.2.0/24</destination-address>
                <dscp>18</dscp>
              </config>
            </ipv4>
          </conditions>
        </term>
      </terms>
    </classifier>
  </classifiers>
</qos>

```

```
        </conditions>
    </term>
    <term>
        <id>20</id>
        <config>
            <id>20</id>
        </config>
        <actions>
            <config>
                <target-group>q1</target-group>
            </config>
        </actions>
        <conditions>
            <ipv4>
                <config>
                    <source-address>3.3.3.0/24</source-address>
                    <destination-address>4.4.4.0/24</destination-address>
                    <dscp>26</dscp>
                </config>
            </ipv4>
        </conditions>
    </term>
</terms>
</classifier>
</classifiers>
<queues>
    <queue>
        <name>q0</name>
        <config>
            <name>q0</name>
        </config>
        <red>
            <config>
                <minth>128000</minth>
                <maxth>256000</maxth>
            </config>
        </red>
    </queue>
    <queue>
        <name>q1</name>
        <config>
            <name>q1</name>
        </config>
        <red>
            <config>
                <minth>256000</minth>
                <maxth>512000</maxth>
            </config>
        </red>
    </queue>
</queues>
<forwarding-groups>
    <forwarding-group>
        <name>q0</name>
        <config>
            <name>q0</name>
            <output-queue>q0</output-queue>
        </config>
    </forwarding-group>
</forwarding-groups>
```

```
<fabric-priority>128</fabric-priority>
</config>
</forwarding-group>
</forwarding-groups>
</qos>
```

Restrictions

This translation is only available for SP Hardware type.

All paths below have restrictions:

- /qos/interfaces/interface/output/classifiers
This association is not support on OcNOS model.
- /qos/classifiers/classifier/terms/term/actions/remark
This association is not support on OcNOS model.

Create Forwarding-groups profiles

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

The Open Config profile Forwarding-Group do not have a equivalent model on OcNOS model, so this object is stored inside Translation Auxiliary Database.

OpenConfig NETCONF Payload

```
<qos xmlns="http://openconfig.net/yang/qos">
  <forwarding-groups>
    <forwarding-group>
      <name>q0</name>
      <config>
        <name>q0</name>
        <output-queue>q0</output-queue>
        <fabric-priority>128</fabric-priority>
      </config>
    </forwarding-group>
  </forwarding-groups>
</qos>
```

OcNOS CLI command

There is no equivalent configuration.

OcNOS NETCONF Payload

There is no equivalent configuration.

Validation with NETCONF get

```
<qos xmlns="http://openconfig.net/yang/qos">
  <forwarding-groups>
    <forwarding-group>
      <name>q0</name>
      <config>
        <name>q0</name>
        <output-queue>q0</output-queue>
        <fabric-priority>128</fabric-priority>
      </config>
    </forwarding-group>
  </forwarding-groups>
</qos>
```

Restrictions

This translation is only available for SP Hardware type.

Create Queues entries

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

The Open Config profile Queues do not have a equivalent model on OcNOS model, so this object is stored inside Translation Auxiliary Database.

The Open Config profile Queues is used to configure on OcNOS model **"random-detect"** configuration from policy-map type queuing object.

OpenConfig NETCONF Payload

```
<qos xmlns="http://openconfig.net/yang/qos">
  <queues>
    <queue>
      <name>q0</name>
      <config>
        <name>q0</name>
      </config>
      <red>
        <config>
          <minth>128000</minth>
          <maxth>256000</maxth>
        </config>
      </red>
    </queue>
  </queues>
</qos>
```

OcNOS CLI command



```
hardware-profile filter ingress-ipv4-qos enable
qos enable
!
policy-map type queuing default SCHEDULER_POLICY_1
  class type queuing default q0
    random-detect min-threshold 128000 bytes max-threshold 256000 bytes drop-
probability 80
  exit
!
```

OcNOS NETCONF Payload

```
<profiles xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <hardware-profile>
    <filters>
      <config>
        <ingress-ipv4-qos/>
      </config>
    </filters>
  </hardware-profile>
</profiles>
<qos xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-qos">
  <global>
    <config>
      <enable-qos/>
    </config>
    <policy-maps>
      <policy-map>
        <policy-map-name>SCHEDULER_POLICY_1</policy-map-name>
        <config>
          <policy-map-name>SCHEDULER_POLICY_1</policy-map-name>
          <type>queuing-default</type>
        </config>
        <classes>
          <class>
            <class-map-name>q0</class-map-name>
            <config>
              <class-map-name>q0</class-map-name>
              <type>queuing-default</type>
            </config>
            <queue-mode>
              <red>
                <wreds>
                  <wred>
                    <color>all</color>
                    <config>
                      <color>all</color>
                      <min-threshold>128000</min-threshold>
                      <min-threshold-unit>bytes</min-threshold-unit>
                      <max-threshold>256000</max-threshold>
                      <max-threshold-unit>bytes</max-threshold-unit>
                      <drop-probability>80</drop-probability>
                    </config>
                  </wred>
                </wreds>
              </red>
            </class>
          </classes>
        </policy-map>
      </policy-maps>
    </global>
  </qos>
</global>
</config>
</netconf>
```



```
        </queue-mode>
      </class>
    </classes>
  </policy-map>
</policy-maps>
</global>
</qos>
```

Validation with NETCONF get

```
<qos xmlns="http://openconfig.net/yang/qos">
  <queues>
    <queue>
      <name>q0</name>
      <config>
        <name>q0</name>
      </config>
      <red>
        <config>
          <minth>128000</minth>
          <maxth>256000</maxth>
        </config>
      </red>
    </queue>
  </queues>
</qos>
```

Restrictions

This translation is only available for SP Hardware type.

The path `/qos/interfaces/interface/output/queues` have its association is not support on OcNOS models.

Create Scheduler-policies entries

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

Use this command to set a one-rate-two-color VLAN match.

OpenConfig NETCONF Payload

```
<qos xmlns="http://openconfig.net/yang/qos">
  <scheduler-policies>
    <scheduler-policy>
      <name>SCHEDULER_POLICY_1</name>
      <config>
        <name>SCHEDULER_POLICY_1</name>
      </config>
    </scheduler-policy>
  </scheduler-policies>
</qos>
```

```
</config>
<schedulers>
  <scheduler>
    <sequence>10</sequence>
    <config>
      <sequence>10</sequence>
      <type
xmlns:oc-qos-types="http://openconfig.net/yang/qos-
types">oc-qos-types:ONE_RATE_TWO_COLOR</type>
      <priority>STRICT</priority>
    </config>
    <inputs>
      <input>
        <id>SCHEDULER_POLICY_AF1</id>
        <config>
          <weight>5</weight>
          <id>SCHEDULER_POLICY_AF1</id>
          <queue>q0</queue>
          <input-type>QUEUE</input-type>
        </config>
      </input>
    </inputs>
    <one-rate-two-color>
      <config>
        <queuing-behavior>SHAPE</queuing-behavior>
        <max-queue-depth-bytes>64000</max-queue-depth-bytes>
        <cir>256000000</cir>
      </config>
    </one-rate-two-color>
  </scheduler>
</schedulers>
</scheduler-policy>
</scheduler-policies>
</qos>
```

OcNOS CLI command

```
hardware-profile filter ingress-ipv4-qos enable
qos enable
!
policy-map type queuing default SCHEDULER_POLICY_1
  class type queuing default q0
    shape 256000000 kbps
    wfq-queue weight 5
    queue-limit 64000 bytes
    random-detect min-threshold 128000 bytes max-threshold 256000 bytes drop-
probability 80
  exit
!
```

OcNOS NETCONF Payload

```
<profiles xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <hardware-profile>
    <filters>
```

```
<config>
  <ingress-ipv4-qos/>
</config>
</filters>
</hardware-profile>
</profiles>
<qos xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-qos">
  <global>
    <config>
      <enable-qos/>
    </config>
    <policy-maps>
      <policy-map>
        <policy-map-name>SCHEDULER_POLICY_1</policy-map-name>
        <config>
          <policy-map-name>SCHEDULER_POLICY_1</policy-map-name>
          <type>queuing-default</type>
        </config>
        <classes>
          <class>
            <class-map-name>q0</class-map-name>
            <config>
              <class-map-name>q0</class-map-name>
              <type>queuing-default</type>
            </config>
            <queue-mode>
              <config>
                <weighted-fair-queueing-queue-weight>5</weighted-fair-
queueing-queue-weight>
              </config>
            </red>
            <wreds>
              <wred>
                <color>all</color>
                <config>
                  <color>all</color>
                  <min-threshold>128000</min-threshold>
                  <min-threshold-unit>bytes</min-threshold-unit>
                  <max-threshold>256000</max-threshold>
                  <max-threshold-unit>bytes</max-threshold-unit>
                  <drop-probability>80</drop-probability>
                </config>
              </wred>
            </wreds>
          </red>
          <tail-drops>
            <tail-drop>
              <max-threshold>64000</max-threshold>
              <max-threshold-type>bytes</max-threshold-type>
            <config>
              <max-threshold>64000</max-threshold>
              <max-threshold-type>bytes</max-threshold-type>
            </config>
          </tail-drop>
        </tail-drops>
        <shapes>
          <shape>
```

```

        <rate-value>256000000</rate-value>
        <rate-unit>kbps</rate-unit>
    </config>
    <rate-value>256000000</rate-value>
    <rate-unit>kbps</rate-unit>
</config>
</shape>
</shapes>
</queue-mode>
</class>
</classes>
</policy-map>
</policy-maps>
</global>
</qos>

```

Validation with NETCONF get

```

<qos xmlns="http://openconfig.net/yang/qos">
  <scheduler-policies>
    <scheduler-policy>
      <name>SCHEDULER_POLICY_1</name>
      <config>
        <name>SCHEDULER_POLICY_1</name>
      </config>
      <schedulers>
        <scheduler>
          <sequence>10</sequence>
          <config>
            <sequence>10</sequence>
            <type
              xmlns:oc-qos-types="http://openconfig.net/yang/qos-
types">oc-qos-types:ONE_RATE_TWO_COLOR</type>
            <priority>STRICT</priority>
          </config>
          <inputs>
            <input>
              <id>SCHEDULER_POLICY_AF1</id>
              <config>
                <weight>5</weight>
                <id>SCHEDULER_POLICY_AF1</id>
                <queue>q0</queue>
                <input-type>QUEUE</input-type>
              </config>
            </input>
          </inputs>
          <one-rate-two-color>
            <config>
              <queuing-behavior>SHAPE</queuing-behavior>
              <max-queue-depth-bytes>64000</max-queue-depth-bytes>
              <cir>256000000</cir>
            </config>
          </one-rate-two-color>
        </scheduler>
      </schedulers>
    </scheduler-policy>

```

```
</scheduler-policies>  
</qos>
```

Restrictions

- This translation is only translated for SP Hardware type.
- The only valid value for path `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/config/priority` is **“STRICT”**.

All paths below have restrictions:

- `/qos/interfaces/interface/input/scheduler-policy`
This association is not valid on OcnOS, and is not support.
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/output`
This association is not valid on OcnOS, and is not support.
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/one-rate-two-color/config/bc`
This association is not valid on OcnOS, and is not support.
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/one-rate-two-color/config/cir-pct`
This association is not valid on OcnOS, and is not support.
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler`
This list have a fixed max-element as one entry.
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/config/type`
This configurations has a fixed value as "ONE_RATE_TWO_COLOR".
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/inputs/input/config/input-type`
This configurations has a fixed value as "QUEUE".
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/one-rate-two-color/config/cir-pct-remaining`
This association is not valid on OcnOS, and is not support.
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/one-rate-two-color/config/queuing-behavior`
This configurations has a fixed value as "SHAPE".
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/one-rate-two-color/config/max-queue-depth-packets`
This association is not valid on OcnOS, and is not support.
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/one-rate-two-color/config/max-queue-depth-percent`
This association is not valid on OcnOS, and is not support.
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/one-rate-two-color/conform-action`
This association is not valid on OcnOS, and is not support.
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/one-rate-two-color/exceed-action`
This association is not valid on OcnOS, and is not support.
- `/qos/scheduler-policies/scheduler-policy/schedulers/scheduler/two-rate-three-color`
This association is not valid on OcnOS, and is not support.

Create interfaces classifier association

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

On Open Config model the classifier profile can be associated to an interface on egress and ingress direction, and also it allow a list of classifiers to be associate to an interface.

But on OcNOS model the interface only allow the associate one classifier object, and the association is on ingress direction.

OpenConfig NETCONF Payload

```
<qos xmlns="http://openconfig.net/yang/qos">
  <queues>
    <queue>
      <name>q0</name>
      <config>
        <name>q0</name>
      </config>
      <red>
        <config>
          <minth>128000</minth>
          <maxth>256000</maxth>
        </config>
      </red>
    </queue>
  </queues>
  <forwarding-groups>
    <forwarding-group>
      <name>q0</name>
      <config>
        <name>q0</name>
        <output-queue>q0</output-queue>
        <fabric-priority>128</fabric-priority>
      </config>
    </forwarding-group>
  </forwarding-groups>
  <classifiers>
    <classifier>
      <name>IN_CUSTOMERIF</name>
      <config>
        <name>IN_CUSTOMERIF</name>
        <type>IPv4</type>
      </config>
      <terms>
        <term>
          <id>10</id>
          <config>
            <id>10</id>
          </config>
          <conditions>
            <ipv4>
              <config>
                <source-address>1.1.1.1/24</source-address>
              </config>
            </ipv4>
          </conditions>
        </term>
      </terms>
    </classifier>
  </classifiers>
</qos>
```

```
address>
    <destination-address>2.2.2.2/24</destination-
address>
    <dscp>af21</dscp>
    </config>
  </ipv4>
</conditions>
<actions>
  <config>
    <target-group>q0</target-group>
  </config>
</actions>
</term>
</terms>
</classifier>
</classifiers>
<interfaces>
  <interface>
    <interface-id>eth2</interface-id>
    <config>
      <interface-id>eth2</interface-id>
    </config>
    <interface-ref>
      <config>
        <interface>eth2</interface>
      </config>
    </interface-ref>
    <input>
      <classifiers>
        <classifier>
          <type>IPV4</type>
          <config>
            <name>IN_CUSTOMERIF</name>
            <type>IPV4</type>
          </config>
        </classifier>
      </classifiers>
    </input>
  </interface>
</interfaces>
</qos>
```

OcNOS CLI command

```
hardware-profile filter ingress-ipv4-qos enable
qos enable
!
ip access-list IN_CUSTOMERIF$10
 1 permit tcp 1.1.1.0/24 2.2.2.0/24 dscp af21
!
class-map type qos match-any IN_CUSTOMERIF$10
 match access-group IN_CUSTOMERIF$10
!
policy-map type qos IN_CUSTOMERIF
 class type qos IN_CUSTOMERIF$10
   set queue 0
 exit
```



```
class type qos IN_CUSTOMERIF$20
  set queue 1
  exit
!
interface eth2
  service-policy type qos input IN_CUSTOMERIF
!
```

OcNOS NETCONF Payload

```
<profiles xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <hardware-profile>
    <filters>
      <config>
        <ingress-ipv4-qos/>
      </config>
    </filters>
  </hardware-profile>
</profiles>
<acl xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-acl">
  <acl-sets>
    <acl-set>
      <acl-set>
        <name>IN_CUSTOMERIF$10</name>
        <type>ip</type>
        <config>
          <name>IN_CUSTOMERIF$10</name>
          <type>ip</type>
        </config>
        <acl-entries>
          <acl-entry>
            <sequence-id>1</sequence-id>
            <config>
              <sequence-id>1</sequence-id>
            </config>
            <ipv4>
              <config>
                <forwarding-action>permit</forwarding-action>
                <source-address>1.1.1.0/24</source-address>
                <destination-address>2.2.2.0/24</destination-address>
                <dscp>af21</dscp>
                <protocol-tcp/>
              </config>
            </ipv4>
          </acl-entry>
        </acl-entries>
      </acl-set>
    </acl-sets>
  </acl>
<qos xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-qos">
  <global>
    <config>
      <enable-qos/>
    </config>
    <class-maps>
      <class-map>
        <name>IN_CUSTOMERIF$10</name>
```



```

<config>
  <name>IN_CUSTOMERIF$10</name>
  <type>qos</type>
  <match-criteria>match-any</match-criteria>
</config>
<match-any-conditions>
  <config>
    <access-control-list-name>IN_CUSTOMERIF$10</access-control-
list-name>
    </config>
  </match-any-conditions>
</class-map>
</class-maps>
<policy-maps>
  <policy-map>
    <policy-map-name>IN_CUSTOMERIF</policy-map-name>
    <config>
      <policy-map-name>IN_CUSTOMERIF</policy-map-name>
      <type>qos</type>
    </config>
    <classes>
      <class>
        <class-map-name>IN_CUSTOMERIF$10</class-map-name>
        <config>
          <class-map-name>IN_CUSTOMERIF$10</class-map-name>
          <type>qos</type>
        </config>
        <qos-mode>
          <config>
            <queue-id>0</queue-id>
          </config>
        </qos-mode>
      </class>
    </classes>
  </policy-map>
</policy-maps>
</global>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-qos-if">
  <interface>
    <name>eth2</name>
    <config>
      <name>eth2</name>
    </config>
    <service-policy>
      <ingress>
        <config>
          <type-qos-policy-map-name>IN_CUSTOMERIF</type-qos-policy-map-
name>
          </config>
        </ingress>
      </service-policy>
    </interface>
  </interfaces>

```

Validation with NETCONF get

```
<qos xmlns="http://openconfig.net/yang/qos">
  <classifiers>
    <classifier>
      <name>IN_CUSTOMERIF</name>
      <config>
        <name>IN_CUSTOMERIF</name>
        <type>IPV4</type>
      </config>
      <terms>
        <term>
          <id>10</id>
          <config>
            <id>10</id>
          </config>
          <actions>
            <config>
              <target-group>q0</target-group>
            </config>
          </actions>
          <conditions>
            <ipv4>
              <config>
                <source-address>1.1.1.0/24</source-address>
                <destination-address>2.2.2.0/24</destination-address>
                <dscp>18</dscp>
              </config>
            </ipv4>
          </conditions>
        </term>
      </terms>
    </classifier>
  </classifiers>
  <interfaces>
    <interface>
      <interface-id>eth2</interface-id>
      <config>
        <interface-id>eth2</interface-id>
      </config>
      <input>
        <classifiers>
          <classifier>
            <config>
              <name>IN_CUSTOMERIF</name>
              <type>IPV4</type>
            </config>
            <type>IPV4</type>
          </classifier>
        </classifiers>
      </input>
      <interface-ref>
        <config>
          <interface>eth2</interface>
        </config>
      </interface-ref>
    </interface>
  </interfaces>
  <queues>
```

```
<queue>
  <name>q0</name>
  <config>
    <name>q0</name>
  </config>
  <red>
    <config>
      <minth>128000</minth>
      <maxth>256000</maxth>
    </config>
  </red>
</queue>
</queues>
<forwarding-groups>
  <forwarding-group>
    <name>q0</name>
    <config>
      <name>q0</name>
      <output-queue>q0</output-queue>
      <fabric-priority>128</fabric-priority>
    </config>
  </forwarding-group>
</forwarding-groups>
</qos>
```

Restrictions

This translation is only available for SP Hardware type.

All paths below have restrictions:

- /qos/interfaces/interface/input/classifiers
Only one entry can be insert on this list.
- /qos/interfaces/interface/output/classifiers
This association is not support on OcNOS model.
- /qos/interfaces/interface/interface-id
This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

Create interfaces scheduler-policies association

Release

This configuration was introduced in OcNOS version 6.1.0.

Configuration

On Open Config model the scheduler-policies profile can be associated to an interface on egress and ingress direction.

But on OcNOS model the interface only allow the associate one scheduler-policies object, and the association is on ingress direction.

OpenConfig NETCONF Payload

```
<qos xmlns="http://openconfig.net/yang/qos">
  <queues>
    <queue>
      <name>q0</name>
      <config>
        <name>q0</name>
      </config>
      <red>
        <config>
          <minth>128000</minth>
          <maxth>256000</maxth>
        </config>
      </red>
    </queue>
  </queues>
  <forwarding-groups>
    <forwarding-group>
      <name>q0</name>
      <config>
        <name>q0</name>
        <output-queue>q0</output-queue>
        <fabric-priority>128</fabric-priority>
      </config>
    </forwarding-group>
  </forwarding-groups>
  <scheduler-policies>
    <scheduler-policy>
      <name>SCHEDULER_POLICY_1</name>
      <config>
        <name>SCHEDULER_POLICY_1</name>
      </config>
      <schedulers>
        <scheduler>
          <sequence>10</sequence>
          <config>
            <sequence>10</sequence>
            <type>ONE_RATE_TWO_COLOR</type>
            <priority>STRICT</priority>
          </config>
          <inputs>
            <input>
              <id>SCHEDULER_POLICY_AF1</id>
              <config>
                <id>SCHEDULER_POLICY_AF1</id>
                <input-type>QUEUE</input-type>
                <queue>q0</queue>
                <weight>5</weight>
              </config>
            </input>
          </inputs>
          <one-rate-two-color>
            <config>
              <cir>256000000</cir>
            </config>
          </one-rate-two-color>
        </scheduler>
      </schedulers>
    </scheduler-policy>
  </scheduler-policies>
</qos>
```

```
bytes>
    <max-queue-depth-bytes>64000</max-queue-depth-
    <queuing-behavior>SHAPE</queuing-behavior>
  </config>
</one-rate-two-color>
</scheduler>
</schedulers>
</scheduler-policy>
</scheduler-policies>
<interfaces>
  <interface>
    <interface-id>eth2</interface-id>
    <config>
      <interface-id>eth2</interface-id>
    </config>
    <interface-ref>
      <config>
        <interface>eth2</interface>
      </config>
    </interface-ref>
    <output>
      <scheduler-policy>
        <config>
          <name>SCHEDULER_POLICY_1</name>
        </config>
      </scheduler-policy>
    </output>
  </interface>
</interfaces>
</qos>
```

OcNOS CLI command

```
hardware-profile filter ingress-ipv4-qos enable
qos enable
!
policy-map type queuing default SCHEDULER_POLICY_1
  class type queuing default q0
    shape 256000000 kbps
    wfq-queue weight 5
    queue-limit 64000 bytes
    random-detect min-threshold 128000 bytes max-threshold 256000 bytes drop-
probability 80
  exit
!
interface eth2
  service-policy type queuing output SCHEDULER_POLICY_1
!
```

OcNOS NETCONF Payload

```
<profiles xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-platform">
  <hardware-profile>
    <filters>
      <config>
```

```

    <ingress-ipv4-qos/>
  </config>
</filters>
</hardware-profile>
</profiles>
<qos xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-qos">
  <global>
    <config>
      <enable-qos/>
    </config>
    <policy-maps>
      <policy-map>
        <policy-map-name>SCHEDULER_POLICY_1</policy-map-name>
        <config>
          <policy-map-name>SCHEDULER_POLICY_1</policy-map-name>
          <type>queuing-default</type>
        </config>
        <classes>
          <class>
            <class-map-name>q0</class-map-name>
            <config>
              <class-map-name>q0</class-map-name>
              <type>queuing-default</type>
            </config>
            <queue-mode>
              <config>
                <weighted-fair-queueing-queue-weight>5</weighted-fair-
queuing-queue-weight>
              </config>
            <red>
              <wreds>
                <wred>
                  <color>all</color>
                  <config>
                    <color>all</color>
                    <min-threshold>128000</min-threshold>
                    <min-threshold-unit>bytes</min-threshold-unit>
                    <max-threshold>256000</max-threshold>
                    <max-threshold-unit>bytes</max-threshold-unit>
                    <drop-probability>80</drop-probability>
                  </config>
                </wred>
              </wreds>
            </red>
            <tail-drops>
              <tail-drop>
                <max-threshold>64000</max-threshold>
                <max-threshold-type>bytes</max-threshold-type>
                <config>
                  <max-threshold>64000</max-threshold>
                  <max-threshold-type>bytes</max-threshold-type>
                </config>
              </tail-drop>
            </tail-drops>
            <shapes>
              <shape>
                <rate-value>256000000</rate-value>

```

```

        <rate-unit>kbps</rate-unit>
        <config>
            <rate-value>256000000</rate-value>
            <rate-unit>kbps</rate-unit>
        </config>
    </shape>
</shapes>
</queue-mode>
</class>
</classes>
</policy-map>
</policy-maps>
</global>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-qos-if">
    <interface>
        <name>eth2</name>
        <config>
            <name>eth2</name>
        </config>
        <service-policy>
            <egress>
                <config>
                    <type-queuing-policy-map-name>SCHEDULER_POLICY_1</type-
queuing-policy-map-name>
                </config>
            </egress>
        </service-policy>
    </interface>
</interfaces>
</qos>

```

Validation with NETCONF get

```

<qos xmlns="http://openconfig.net/yang/qos">
    <scheduler-policies>
        <scheduler-policy>
            <name>SCHEDULER_POLICY_1</name>
            <config>
                <name>SCHEDULER_POLICY_1</name>
            </config>
            <schedulers>
                <scheduler>
                    <sequence>10</sequence>
                    <config>
                        <sequence>10</sequence>
                        <type
types">oc-qos-types="http://openconfig.net/yang/qos-
types">oc-qos-types:ONE_RATE_TWO_COLOR</type>
                        <priority>STRICT</priority>
                    </config>
                    <inputs>
                        <input>
                            <id>SCHEDULER_POLICY_AF1</id>
                            <config>
                                <weight>5</weight>
                                <id>SCHEDULER_POLICY_AF1</id>

```

```
        <queue>q0</queue>
        <input-type>QUEUE</input-type>
    </config>
</input>
</inputs>
<one-rate-two-color>
    <config>
        <queuing-behavior>SHAPE</queuing-behavior>
        <max-queue-depth-bytes>64000</max-queue-depth-bytes>
        <cir>256000000</cir>
    </config>
</one-rate-two-color>
</scheduler>
</schedulers>
</scheduler-policy>
</scheduler-policies>
<interfaces>
    <interface>
        <interface-id>eth2</interface-id>
        <config>
            <interface-id>eth2</interface-id>
        </config>
        <input>
            <classifiers>
                <classifier>
                    <config>
                        <name>IN_CUSTOMERIF</name>
                        <type>IPV4</type>
                    </config>
                    <type>IPV4</type>
                </classifier>
            </classifiers>
        </input>
        <interface-ref>
            <config>
                <interface>eth2</interface>
            </config>
        </interface-ref>
    </interface>
</interfaces>
<queues>
    <queue>
        <name>q0</name>
        <config>
            <name>q0</name>
        </config>
        <red>
            <config>
                <minth>128000</minth>
                <maxth>256000</maxth>
            </config>
        </red>
    </queue>
</queues>
<forwarding-groups>
    <forwarding-group>
        <name>q0</name>
```



```
<config>
  <name>q0</name>
  <output-queue>q0</output-queue>
  <fabric-priority>128</fabric-priority>
</config>
</forwarding-group>
</forwarding-groups>
</qos>
```

Restrictions

This translation is only available for SP Hardware type.

All paths below have restrictions:

- /qos/interfaces/interface/interface-id
This leaf must have the format “<interface>.<subinterface>”, e.g., xe10.2, and it is limited to 32 characters.

EVPN-MPLS

Configure EVPN-VPLS type

Release

This configuration was introduced in OcNOS version 6.1.0.

Initial Configuration:

It is necessary an initial configuration before apply EVPN-MPLS configuration, below you have those configuration:

```
router ldp
!
interface lo
 ip address 10.143.73.1/32 secondary
!
interface eth4
 ip address 10.255.128.8/31
 label-switching
 enable-ldp ipv4
!
interface eth2.1001 switchport
 encapsulation dot1q 1001
!
ospf area-interface-config-mode
router ospf 100
 ospf router-id 10.143.73.1
 area 0.0.0.0 interface eth4
 area 0.0.0.0 interface lo
```



Configuration:

OcNOS CLI command

```
evpn mpls enable
!
mac vrf vpls1001
  router-id 10.143.73.1
  rd 10.143.73.1:1001
  route-target both 1001:1001
!
evpn mpls vtep-ip-global 10.143.73.1
!
evpn mpls id 1001
  host-reachability-protocol evpn-bgp vpls1001
!
interface eth2.1001 switchport
  encapsulation dot1q 1001
  access-if-evpn
  map vpn-id 1001
!
router bgp 65010
  neighbor 10.143.73.3 remote-as 65010
  neighbor 10.143.73.3 update-source lo
!
  address-family l2vpn evpn
  neighbor 10.143.73.3 activate
  exit-address-family
```

OcNOS NETCONF Payload

```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-
network-instance">
  <network-instance>
    <instance-name>default</instance-name>
    <instance-type>vrf</instance-type>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>default</vrf-name>
      </config>
    </vrf>
  </network-instance>
  <network-instance>
    <instance-name>vpls1001</instance-name>
    <instance-type>mac-vrf</instance-type>
    <config>
      <instance-name>vpls1001</instance-name>
      <instance-type>mac-vrf</instance-type>
    </config>
  </network-instance>
  <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
    <config>
```

```
<vrf-name>vpls1001</vrf-name>
</config>
<bgp-vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp-vrf">
  <config>
    <rd-string>10.143.73.1:1001</rd-string>
  </config>
  <route-target>
    <rt-rd-string>1001:1001</rt-rd-string>
    <config>
      <rt-rd-string>1001:1001</rt-rd-string>
      <direction>import export</direction>
    </config>
  </route-target>
</bgp-vrf>
</vrf>
</network-instance>
</network-instances>
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>65010</bgp-as>
    <config>
      <bgp-as>65010</bgp-as>
    </config>
    <peer>
      <peer-address>10.143.73.3</peer-address>
      <config>
        <peer-address>10.143.73.3</peer-address>
        <peer-as>65010</peer-as>
        <source-identifier>lo</source-identifier>
      </config>
      <address-family>
        <afi>l2vpn</afi>
        <safi>evpn</safi>
        <config>
          <afi>l2vpn</afi>
          <safi>evpn</safi>
          <activate />
        </config>
      </address-family>
    </peer>
    <address-family>
      <afi>l2vpn</afi>
      <safi>evpn</safi>
      <config>
        <afi>l2vpn</afi>
        <safi>evpn</safi>
      </config>
    </address-family>
  </bgp-instance>
</bgp>
<evpn-mpls xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-evpn-mpls">
  <mpls-tenant>
    <tenant-identifier>1001</tenant-identifier>
    <config>
      <vrf-name>vpls1001</vrf-name>
      <tenant-identifier>1001</tenant-identifier>
    </config>
  </mpls-tenant>
</evpn-mpls>
```



```
</mpls-tenant>
<global>
  <config>
    <enable-evpn-mpls />
    <vtep-ipv4>10.143.73.1</vtep-ipv4>
  </config>
</global>
</evpn-mpls>
<evpn xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-ethernet-vpn">
  <interfaces>
    <interface>
      <name>eth2.1001</name>
      <config>
        <name>eth2.1001</name>
      </config>
      <access-interfaces>
        <access-interface>
          <access-if>access-if-evpn</access-if>
          <config>
            <access-if>access-if-evpn</access-if>
            <evpn-identifier>1001</evpn-identifier>
          </config>
        </access-interface>
      </access-interfaces>
    </interface>
  </interfaces>
</evpn>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>eth2.1001</name>
    <config>
      <enable-switchport />
    </config>
  </interface>
</interfaces>
```

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier
```

```
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <enabled>true</enabled>
    </config>
</protocol>
<protocol>
    <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</identifier>
        <name>100</name>
        <ospfv2>
            <global>
                <config>
                    <router-id>10.143.73.1</router-id>
                    <log-adjacency-changes>>false</log-adjacency-changes>
                </config>
            </global>
            <areas>
                <area>
                    <identifier>0.0.0.0</identifier>
                    <config>
                        <identifier>0.0.0.0</identifier>
                    </config>
                    <interfaces>
                        <interface>
                            <id>eth4</id>
                            <config>
                                <id>eth4</id>
                            </config>
                            <interface-ref>
                                <config>
                                    <interface>eth4</interface>
                                </config>
                            </interface-ref>
                        </interface>
                        <interface>
                            <id>lo</id>
                            <config>
                                <id>lo</id>
                            </config>
                            <interface-ref>
                                <config>
                                    <interface>lo</interface>
                                </config>
                            </interface-ref>
                        </interface>
                    </interfaces>
                </area>
            </areas>
        </ospfv2>
    </config>
    <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</identifier>
        <name>100</name>
        <enabled>true</enabled>
```

```

    </config>
  </protocol>
</protocol>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
    <name>65010</name>
    <bgp>
      <global>
        <config>
          <as>65010</as>
        </config>
        <afi-safis>
          <afi-safi>
            <afi-safi-name
              xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
              <config>
                <afi-safi-name
                  xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
                  <enabled>>true</enabled>
                </config>
              </afi-safi>
            </afi-safis>
          </global>
          <neighbors>
            <neighbor>
              <neighbor-address>10.143.73.3</neighbor-address>
              <afi-safis>
                <afi-safi>
                  <afi-safi-name
                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
                    <config>
                      <afi-safi-name
                        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
                        <enabled>>true</enabled>
                      </config>
                    </afi-safi>
                  </afi-safis>
                <config>
                  <enabled>true</enabled>
                  <neighbor-address>10.143.73.3</neighbor-address>
                  <peer-as>65010</peer-as>
                </config>
              </neighbor>
            </neighbors>
          </bgp>
        </config>
      </identifier

```

```
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</identifier>
        <name>65010</name>
        <enabled>true</enabled>
    </config>
</protocol>
</protocols>
<tables>
    <table>
        <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
                <config>
                    <protocol
                        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</protocol>
                        <address-family
                            xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
                            </config>
                        </table>
                    <table>
                        <protocol
                            xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</protocol>
                            <address-family
                                xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV6</address-family>
                                <config>
                                    <protocol
                                        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:DIRECTLY_CONNECTED</protocol>
                                        <address-family
                                            xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV6</address-family>
                                            </config>
                                        </table>
                                    <table>
                                        <protocol
                                            xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:STATIC</protocol>
                                            <address-family
                                                xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
                                                <config>
                                                    <protocol
                                                        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:STATIC</protocol>
                                                        <address-family
                                                            xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
                                                            </config>
                                                        </table>
                                                    </table>
                                                </table>
                                            </table>
                                        </table>
                                    </table>
                                </table>
                            </table>
                        </table>
                    </table>
                </table>
            </table>
        </table>
    </table>
</table>
```

```
<protocol
  xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:STATIC</protocol>
  <address-family
    xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV6</address-family>
    <config>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:STATIC</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV6</address-family>
          </config>
        </table>
      </table>
    </config>
  </table>
</table>
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:OSPF</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
            </config>
          </table>
        </table>
      </config>
    </table>
  </table>
</table>
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV4</address-family>
            </config>
          </table>
        </table>
      </config>
    </table>
  </table>
</table>
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV6</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV6</address-family>
            </config>
          </table>
        </table>
      </config>
    </table>
  </table>
</table>
```



```

        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
        <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:IPV6</address-family>
        </config>
    </table>
    <table>
        <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
        <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:MPLS</address-family>
        <config>
            <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-
types">oc-pol-types:BGP</protocol>
            <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-
types">oc-types:MPLS</address-family>
            </config>
        </table>
    </tables>
</network-instance>
<network-instance>
    <name>vpls1001</name>
    <config>
        <name>vpls1001</name>
        <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
        <enabled>true</enabled>
        <router-id>10.143.73.1</router-id>
        <route-distinguisher>10.143.73.1:1001</route-distinguisher>
    </config>
    <inter-instance-policies>
        <import-export-policy>
            <config>
                <export-route-target>1001:1001</export-route-target>
                <import-route-target>1001:1001</import-route-target>
            </config>
        </import-export-policy>
    </inter-instance-policies>
    <connection-points>
        <connection-point>
            <connection-point-id>1001</connection-point-id>
            <config>
                <connection-point-id>1001</connection-point-id>
            </config>
        <endpoints>
            <endpoint>
                <endpoint-id>1001</endpoint-id>
                <config>
                    <endpoint-id>1001</endpoint-id>
                </config>
            </local>

```

```
<config>
  <interface>eth2</interface>
  <subinterface>1001</subinterface>
</config>
</local>
<remote/>
</endpoint>
</endpoints>
</connection-point>
</connection-points>
<evpn>
  <evpn-instances>
    <evpn-instance>
      <evi>1001</evi>
      <config>
        <evi>1001</evi>
        <encapsulation-type
  xmlns:oc-ni-types="http://openconfig.net/yang/network-
instance-types">oc-ni-types:MPLS</encapsulation-type>
      </config>
    </evpn-instance>
  </evpn-instances>
</evpn>
</network-instance>
</network-instances>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
  xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <state>
      <name>default</name>
      <type
  xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </state>
    <protocols>
      <protocol>
        <identifier
  xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier
  xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
```

```
<enabled>true</enabled>
</config>
<state>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
    <name>DIRECTLY_CONNECTED</name>
    <enabled>true</enabled>
  </state>
</protocol>
<protocol>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:OSPF</identifier>
    <name>100</name>
    <ospfv2>
      <global>
        <config>
          <router-id>10.143.73.1</router-id>
          <log-adjacency-changes>>false</log-adjacency-changes>
        </config>
        <state>
          <log-adjacency-changes>>false</log-adjacency-changes>
          <router-id>10.143.73.1</router-id>
        </state>
      </global>
      <areas>
        <area>
          <identifier>0.0.0.0</identifier>
          <config>
            <identifier>0.0.0.0</identifier>
          </config>
          <state>
            <identifier>0.0.0.0</identifier>
          </state>
          <interfaces>
            <interface>
              <id>eth4</id>
              <config>
                <id>eth4</id>
              </config>
              <interface-ref>
                <config>
                  <interface>eth4</interface>
                </config>
              </interface-ref>
              <state>
                <id>eth4</id>
              </state>
            </interface>
            <interface>
              <id>lo</id>
              <config>
                <id>lo</id>
              </config>
              <interface-ref>
                <config>
```

```
        <interface>lo</interface>
      </config>
    </interface-ref>
    <state>
      <id>lo</id>
    </state>
  </interface>
</interfaces>
</area>
</areas>
</ospfv2>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:OSPF</identifier>
    <name>100</name>
    <enabled>>true</enabled>
  </config>
</protocol>
<protocol>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
    <name>65010</name>
    <bgp>
      <global>
        <config>
          <as>65010</as>
        </config>
        <state>
          <as>65010</as>
          <total-prefixes>0</total-prefixes>
        </state>
        <afi-safis>
          <afi-safi>
            <afi-safi-name
              xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
              <config>
                <afi-safi-name
                  xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
                  <enabled>>true</enabled>
                </config>
                <add-paths>
                  <state>
                    <receive>>false</receive>
                    <send>>false</send>
                  </state>
                </add-paths>
                <state>
                  <afi-safi-name
                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
                    <enabled>>true</enabled>
                  </state>
                </afi-safi>
            </afi-safi>
          </afi-safis>
        </global>
      </bgp>
    </protocol>
  </config>
</config>
```

```

        </afi-safis>
    </global>
    <neighbors>
        <neighbor>
            <neighbor-address>10.143.73.3</neighbor-address>
            <afi-safis>
                <afi-safi>
                    <afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
                    <config>
                        <afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
                        <enabled>>true</enabled>
                    </config>
                    <state>
                        <afi-safi-name
xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
                        <enabled>>true</enabled>
                    </state>
                </afi-safi>
            </afi-safis>
        </neighbor>
    </neighbors>
    <config>
        <enabled>true</enabled>
        <neighbor-address>10.143.73.3</neighbor-address>
        <peer-as>65010</peer-as>
    </config>
    <transport>
        <config>
            <local-address>lo</local-address>
        </config>
        <state>
            <local-address>lo</local-address>
        </state>
    </transport>
    <state>
        <enabled>true</enabled>
        <neighbor-address>10.143.73.3</neighbor-address>
        <peer-as>65010</peer-as>
    </state>
</neighbor>
</neighbors>
</bgp>
<config>
    <identifier
xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
    <name>65010</name>
    <enabled>true</enabled>
</config>
<state>
    <enabled>true</enabled>
    <identifier
xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>

```

```
<name>65010</name>
  </state>
</protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
        <config>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
              </config>
            <state>
              <protocol
                xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
                <address-family
                  xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
                  </state>
                </table>
              <table>
                <protocol
                  xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
                  <address-family
                    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
                    <config>
                      <protocol
                        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
                        <address-family
                          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
                          </config>
                        <state>
                          <protocol
                            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
                            <address-family
                              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
                              </state>
                            </table>
                          <table>
                            <protocol
                              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
```

```
<address-family
  xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
  <config>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
      </config>
    </table>
  </table>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
          </config>
        </table>
      </table>
    <table>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:OSPF</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
        <config>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:OSPF</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
            </config>
          </table>
        </table>
      <table>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          <config>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
              <address-family
```

```
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
    </config>
  </table>
</table>
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
  <address-family
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
  <config>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
    </config>
  </table>
</table>
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
  <address-family
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:MPLS</address-family>
  <config>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:MPLS</address-family>
    </config>
  <state>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:MPLS</address-family>
    </state>
  </table>
</tables>
<interfaces>
  <interface>
    <id>eth0</id>
    <config>
      <id>eth0</id>
      <interface>eth0</interface>
    </config>
    <state>
      <id>eth0</id>
      <interface>eth0</interface>
    </state>
  </interface>
</interfaces>
```



```
<interface>
  <id>eth1</id>
  <config>
    <id>eth1</id>
    <interface>eth1</interface>
  </config>
  <state>
    <id>eth1</id>
    <interface>eth1</interface>
  </state>
</interface>
<interface>
  <id>eth2</id>
  <config>
    <id>eth2</id>
    <interface>eth2</interface>
  </config>
  <state>
    <id>eth2</id>
    <interface>eth2</interface>
  </state>
</interface>
<interface>
  <id>eth2.1001</id>
  <config>
    <id>eth2.1001</id>
    <interface>eth2</interface>
    <subinterface>1001</subinterface>
  </config>
  <state>
    <id>eth2.1001</id>
    <interface>eth2</interface>
    <subinterface>1001</subinterface>
  </state>
</interface>
<interface>
  <id>eth3</id>
  <config>
    <id>eth3</id>
    <interface>eth3</interface>
  </config>
  <state>
    <id>eth3</id>
    <interface>eth3</interface>
  </state>
</interface>
<interface>
  <id>eth4</id>
  <config>
    <id>eth4</id>
    <interface>eth4</interface>
  </config>
  <state>
    <id>eth4</id>
    <interface>eth4</interface>
  </state>
</interface>
```

```
<interface>
  <id>eth5</id>
  <config>
    <id>eth5</id>
    <interface>eth5</interface>
  </config>
  <state>
    <id>eth5</id>
    <interface>eth5</interface>
  </state>
</interface>
<interface>
  <id>eth6</id>
  <config>
    <id>eth6</id>
    <interface>eth6</interface>
  </config>
  <state>
    <id>eth6</id>
    <interface>eth6</interface>
  </state>
</interface>
<interface>
  <id>eth7</id>
  <config>
    <id>eth7</id>
    <interface>eth7</interface>
  </config>
  <state>
    <id>eth7</id>
    <interface>eth7</interface>
  </state>
</interface>
<interface>
  <id>eth8</id>
  <config>
    <id>eth8</id>
    <interface>eth8</interface>
  </config>
  <state>
    <id>eth8</id>
    <interface>eth8</interface>
  </state>
</interface>
<interface>
  <id>lo</id>
  <config>
    <id>lo</id>
    <interface>lo</interface>
  </config>
  <state>
    <id>lo</id>
    <interface>lo</interface>
  </state>
</interface>
</interfaces>
<mpls>
```



```
<signaling-protocols>
  <ldp>
    <interface-attributes>
      <interfaces>
        <interface>
          <interface-id>eth4</interface-id>
          <config>
            <interface-id>eth4</interface-id>
          </config>
          <address-families>
            <address-family>
              <afi-name>IPV4</afi-name>
              <config>
                <afi-name>IPV4</afi-name>
                <enabled>>true</enabled>
              </config>
            </address-family>
            <address-family>
              <afi-name>IPV6</afi-name>
              <config>
                <afi-name>IPV6</afi-name>
                <enabled>>false</enabled>
              </config>
            </address-family>
          </address-families>
        </interface>
      </interfaces>
    </interface-attributes>
  </ldp>
</signaling-protocols>
<global>
  <interface-attributes>
    <interface>
      <interface-id>eth4</interface-id>
      <config>
        <interface-id>eth4</interface-id>
        <mpls-enabled>>true</mpls-enabled>
      </config>
      <interface-ref>
        <config>
          <interface>eth4</interface>
        </config>
      </interface-ref>
      <state>
        <mpls-enabled>>true</mpls-enabled>
      </state>
    </interface>
  </interface-attributes>
</global>
</mpls>
</network-instance>
<network-instance>
  <name>vpls1001</name>
  <config>
    <name>vpls1001</name>
    <type
```

```
    xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
    <enabled>true</enabled>
    <router-id>10.143.73.1</router-id>
    <route-distinguisher>10.143.73.1:1001</route-distinguisher>
</config>
</state>
<name>vpls1001</name>
<type
    xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
    <enabled>true</enabled>
    <router-id>10.143.73.1</router-id>
    <route-distinguisher>10.143.73.1:1001</route-distinguisher>
</state>
<inter-instance-policies>
    <import-export-policy>
        <config>
            <export-route-target>1001:1001</export-route-target>
            <import-route-target>1001:1001</import-route-target>
        </config>
        <state>
            <export-route-target>1001:1001</export-route-target>
            <import-route-target>1001:1001</import-route-target>
        </state>
    </import-export-policy>
</inter-instance-policies>
<connection-points>
    <connection-point>
        <connection-point-id>1001</connection-point-id>
        <config>
            <connection-point-id>1001</connection-point-id>
        </config>
        <endpoints>
            <endpoint>
                <endpoint-id>1001</endpoint-id>
                <config>
                    <endpoint-id>1001</endpoint-id>
                </config>
                <state>
                    <endpoint-id>1001</endpoint-id>
                </state>
                <local>
                    <config>
                        <interface>eth2</interface>
                        <subinterface>1001</subinterface>
                    </config>
                    <state>
                        <interface>eth2</interface>
                        <subinterface>1001</subinterface>
                    </state>
                </local>
                <remote/>
            </endpoint>
        </endpoints>
    </connection-point>
</state>
    <connection-point-id>1001</connection-point-id>
```

```
</state>
</connection-point>
</connection-points>
<evpn>
  <evpn-instances>
    <evpn-instance>
      <evi>1001</evi>
      <config>
        <evi>1001</evi>
        <encapsulation-type
          xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:MPLS</encapsulation-type>
        </config>
        <state>
          <evi>1001</evi>
          <encapsulation-type
            xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:MPLS</encapsulation-type>
          </state>
        </evpn-instance>
      </evpn-instances>
    </evpn>
  </network-instance>
</network-instances>
```

Restrictions

- The paths below do not have a translation from Open Config model to OcnOS model, If user try to apply a configuration using with only paths below, it will not be applied on OcnOS side:

```
/network-instances/network-instance/connection-points
```

```
/network-instances/network-instance/connection-points/connection-
point/endpoints
```

Those containers are used only to handle “**virtual-circuit-identifier**” attribute and “**local**” container, and only when those attributes are configured the translation will translate the configuration.

- /network-instances/network-instance/connection-points

The **deletion** of this attribute will only delete the configurations of “**virtual-circuit-identifier**” and “**local**” container. In order to delete all configuration from “**evpn-mpls**” container, the delete operation must be placed on the path /network-instances/network-instance/evpn/evpn-instances/evpn-instance[evi].

Configure EVPN-VPWS type

Release

This configuration was introduced in OcnOS version 6.1.0.



Initial Configuration:

It is necessary an initial configuration before apply EVPN-MPLS configuration, below you have those configuration:

```
router ldp
!
interface lo
 ip address 10.143.73.1/32 secondary
!
interface eth4
 ip address 10.255.128.8/31
 label-switching
 enable-ldp ipv4
!
interface eth2.2 switchport
 encapsulation dot1q 2
!
ospf area-interface-config-mode
 router ospf 100
  ospf router-id 10.143.73.1
  area 0.0.0.0 interface eth4
  area 0.0.0.0 interface lo
```

Configuration:

OcNOS CLI command

```
evpn mpls enable
!
mac vrf vrf2
  router-id 10.143.73.1
  rd 10.143.73.1:2
  route-target both 2:2
!
evpn mpls vtep-ip-global 10.143.73.1
!
evpn mpls id 2 xconnect target-mpls-id 252
  host-reachability-protocol evpn-bgp vrf2
!
interface eth2.2 switchport
  encapsulation dot1q 2
  access-if-evpn
  map vpn-id 2
!
router bgp 65010
  neighbor 10.143.73.3 remote-as 65010
  neighbor 10.143.73.3 update-source lo
!
  address-family l2vpn evpn
  neighbor 10.143.73.3 activate
  exit-address-family
```

OcNOS NETCONF Payload



```
<network-instances xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-network-
instance">
  <network-instance>
    <instance-name>default</instance-name>
    <instance-type>vrf</instance-type>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>default</vrf-name>
      </config>
    </vrf>
    <config>
      <instance-name>default</instance-name>
      <instance-type>vrf</instance-type>
    </config>
  </network-instance>
  <network-instance>
    <instance-name>vrf2</instance-name>
    <instance-type>mac-vrf</instance-type>
    <config>
      <instance-name>vrf2</instance-name>
      <instance-type>mac-vrf</instance-type>
    </config>
    <vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-vrf">
      <config>
        <vrf-name>vrf2</vrf-name>
      </config>
      <bgp-vrf xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp-vrf">
        <config>
          <rd-string>10.143.73.1:2</rd-string>
        </config>
        <route-target>
          <rt-rd-string>2:2</rt-rd-string>
          <config>
            <rt-rd-string>2:2</rt-rd-string>
            <direction>import export</direction>
          </config>
        </route-target>
      </bgp-vrf>
    </vrf>
  </network-instance>
</network-instances>
<bgp xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-bgp">
  <bgp-instance>
    <bgp-as>65010</bgp-as>
    <config>
      <bgp-as>65010</bgp-as>
    </config>
    <peer>
      <peer-address>10.143.73.3</peer-address>
      <config>
        <peer-address>10.143.73.3</peer-address>
        <peer-as>65010</peer-as>
        <source-identifier>lo</source-identifier>
      </config>
      <address-family>
        <afi>l2vpn</afi>
        <safi>evpn</safi>
      </address-family>
    </peer>
  </bgp-instance>
</bgp>
```

```
<config>
  <afi>l2vpn</afi>
  <safi>evpn</safi>
  <activate />
</config>
</address-family>
</peer>
<address-family>
  <afi>l2vpn</afi>
  <safi>evpn</safi>
  <config>
    <afi>l2vpn</afi>
    <safi>evpn</safi>
  </config>
</address-family>
</bgp-instance>
</bgp>
<evpn-mpls xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-evpn-mpls">
  <mpls-tenant>
    <tenant-identifier>2</tenant-identifier>
    <config>
      <vrf-name>vrf2</vrf-name>
      <tenant-identifier>2</tenant-identifier>
      <vpws-identifier>252</vpws-identifier>
    </config>
  </mpls-tenant>
</global>
<config>
  <enable-evpn-mpls />
  <vtep-ipv4>10.143.73.1</vtep-ipv4>
</config>
</global>
</evpn-mpls>
<evpn xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-ethernet-vpn">
  <interfaces>
    <interface>
      <name>eth2.2</name>
      <config>
        <name>eth2.2</name>
      </config>
      <access-interfaces>
        <access-interface>
          <access-if>access-if-evpn</access-if>
          <config>
            <access-if>access-if-evpn</access-if>
            <evpn-identifier>2</evpn-identifier>
          </config>
        </access-interface>
      </access-interfaces>
    </interface>
  </interfaces>
</evpn>
<interfaces xmlns="http://www.ipinfusion.com/yang/ocnos/ipi-interface">
  <interface>
    <name>eth2.2</name>
    <config>
      <enable-switchport />
    </config>
  </interface>
</interfaces>
```




```
</config>  
</interface>  
</interfaces>
```

OpenConfig NETCONF Payload

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">  
  <network-instance>  
    <name>default</name>  
    <config>  
      <name>default</name>  
      <type  
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-  
types">oc-ni-types:DEFAULT_INSTANCE</type>  
      <enabled>true</enabled>  
    </config>  
    <protocols>  
      <protocol>  
        <identifier  
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-  
pol-types:DIRECTLY_CONNECTED</identifier>  
        <name>DIRECTLY_CONNECTED</name>  
        <config>  
          <identifier  
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-  
pol-types:DIRECTLY_CONNECTED</identifier>  
          <name>DIRECTLY_CONNECTED</name>  
          <enabled>true</enabled>  
        </config>  
      </protocol>  
      <protocol>  
        <identifier  
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-  
pol-types:OSPF</identifier>  
        <name>100</name>  
        <ospfv2>  
          <global>  
            <config>  
              <router-id>10.143.73.1</router-id>  
              <log-adjacency-changes>>false</log-adjacency-changes>  
            </config>  
          </global>  
          <areas>  
            <area>  
              <identifier>0.0.0.0</identifier>  
              <config>  
                <identifier>0.0.0.0</identifier>  
              </config>  
              <interfaces>  
                <interface>  
                  <id>eth4</id>  
                  <config>  
                    <id>eth4</id>  
                  </config>  
                  <interface-ref>  
                    <config>
```

```

        <interface>eth4</interface>
    </config>
</interface-ref>
</interface>
<interface>
    <id>lo</id>
    <config>
        <id>lo</id>
    </config>
    <interface-ref>
        <config>
            <interface>lo</interface>
        </config>
    </interface-ref>
</interface>
</interfaces>
</area>
</areas>
</ospfv2>
<config>
    <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:OSPF</identifier>
        <name>100</name>
        <enabled>>true</enabled>
    </config>
</protocol>
<protocol>
    <identifier
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
        <name>65010</name>
        <bgp>
            <global>
                <config>
                    <as>65010</as>
                </config>
                <afi-safis>
                    <afi-safi>
                        <afi-safi-name
                            xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
                            <config>
                                <afi-safi-name
                                    xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
                                    <enabled>>true</enabled>
                                </config>
                            </afi-safi>
                        </afi-safis>
                    </global>
                    <neighbors>
                        <neighbor>
                            <neighbor-address>10.143.73.3</neighbor-address>
                            <afi-safis>
                                <afi-safi>
                                    <afi-safi-name

```

```
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
      <config>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
          <enabled>true</enabled>
        </config>
      </afi-safi>
    </afi-safis>
    <config>
      <enabled>true</enabled>
      <neighbor-address>10.143.73.3</neighbor-address>
      <peer-as>65010</peer-as>
    </config>
    <transport>
      <config>
        <local-address>lo</local-address>
      </config>
    </transport>
  </neighbor>
</neighbors>
</bgp>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGPP</identifier>
    <name>65010</name>
    <enabled>true</enabled>
  </config>
</protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          </config>
        </table>
      </table>
    <table>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
        <config>
```

```
<protocol
  xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
  <address-family
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
  </config>
</table>
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
  <address-family
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
  <config>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
    </config>
  </table>
</table>
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
  <address-family
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
  <config>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
    </config>
  </table>
</table>
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:OSPF</protocol>
  <address-family
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
  <config>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:OSPF</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
    </config>
  </table>
</table>
```

```
<protocol
  xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
  <address-family
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
    <config>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
          </config>
        </table>
      </table>
    </config>
  </table>
</table>
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
            </config>
          </table>
        </table>
      </config>
    </table>
  </table>
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:MPLS</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:MPLS</address-family>
            </config>
          </table>
        </table>
      </config>
    </table>
  </table>
</network-instance>
<network-instance>
  <name>vrf2</name>
  <config>
    <name>vrf2</name>
    <type
      xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
    <enabled>true</enabled>
```

```
<router-id>10.143.73.1</router-id>
<route-distinguisher>10.143.73.1:2</route-distinguisher>
</config>
<inter-instance-policies>
  <import-export-policy>
    <config>
      <export-route-target>2:2</export-route-target>
      <import-route-target>2:2</import-route-target>
    </config>
  </import-export-policy>
</inter-instance-policies>
<connection-points>
  <connection-point>
    <connection-point-id>2</connection-point-id>
    <config>
      <connection-point-id>2</connection-point-id>
    </config>
    <endpoints>
      <endpoint>
        <endpoint-id>2</endpoint-id>
        <config>
          <endpoint-id>2</endpoint-id>
        </config>
        <local>
          <config>
            <interface>eth2</interface>
            <subinterface>2</subinterface>
          </config>
        </local>
        <remote>
          <config>
            <virtual-circuit-identifier>252</virtual-circuit-identifier>
          </config>
        </remote>
      </endpoint>
    </endpoints>
  </connection-point>
</connection-points>
<evpn>
  <evpn-instances>
    <evpn-instance>
      <evi>2</evi>
      <config>
        <evi>2</evi>
        <encapsulation-type
          xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:MPLS</encapsulation-type>
        </config>
      </evpn-instance>
    </evpn-instances>
  </evpn>
</network-instance>
</network-instances>
```

Validation with NETCONF get

```
<network-instances xmlns="http://openconfig.net/yang/network-instance">
  <network-instance>
    <name>default</name>
    <config>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </config>
    <state>
      <name>default</name>
      <type
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:DEFAULT_INSTANCE</type>
      <enabled>true</enabled>
    </state>
    <protocols>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
        <name>DIRECTLY_CONNECTED</name>
        <config>
          <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <enabled>true</enabled>
        </config>
        <state>
          <identifier
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</identifier>
          <name>DIRECTLY_CONNECTED</name>
          <enabled>true</enabled>
        </state>
      </protocol>
      <protocol>
        <identifier
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:OSPF</identifier>
        <name>100</name>
        <ospfv2>
          <global>
            <config>
              <router-id>10.143.73.1</router-id>
              <log-adjacency-changes>>false</log-adjacency-changes>
            </config>
            <state>
              <log-adjacency-changes>>false</log-adjacency-changes>
              <router-id>10.143.73.1</router-id>
            </state>
          </global>
          <areas>
            <area>
              <identifier>0.0.0.0</identifier>
```

```
<config>
  <identifier>0.0.0.0</identifier>
</config>
<state>
  <identifier>0.0.0.0</identifier>
</state>
<interfaces>
  <interface>
    <id>eth4</id>
    <config>
      <id>eth4</id>
    </config>
    <interface-ref>
      <config>
        <interface>eth4</interface>
      </config>
    </interface-ref>
    <state>
      <id>eth4</id>
    </state>
  </interface>
  <interface>
    <id>lo</id>
    <config>
      <id>lo</id>
    </config>
    <interface-ref>
      <config>
        <interface>lo</interface>
      </config>
    </interface-ref>
    <state>
      <id>lo</id>
    </state>
  </interface>
</interfaces>
</area>
</areas>
</ospfv2>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:OSPF</identifier>
    <name>100</name>
    <enabled>true</enabled>
  </config>
</protocol>
<protocol>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
    <name>65010</name>
    <bgp>
      <global>
        <config>
          <as>65010</as>
        </config>
      </global>
    </bgp>
  </protocol>
</config>
```



```
<state>
  <as>65010</as>
  <total-prefixes>0</total-prefixes>
</state>
<afi-safis>
  <afi-safi>
    <afi-safi-name
      xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
    <config>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
      <enabled>true</enabled>
    </config>
    <add-paths>
      <state>
        <receive>false</receive>
        <send>false</send>
      </state>
    </add-paths>
    <state>
      <afi-safi-name
        xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
      <enabled>true</enabled>
    </state>
  </afi-safi>
</afi-safis>
</global>
<neighbors>
  <neighbor>
    <neighbor-address>10.143.73.3</neighbor-address>
    <afi-safis>
      <afi-safi>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
        <config>
          <afi-safi-name
            xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
          <enabled>true</enabled>
        </config>
      <state>
        <afi-safi-name
          xmlns:oc-bgp-types="http://openconfig.net/yang/bgp-
types">oc-bgp-types:L2VPN_EVPN</afi-safi-name>
        <enabled>true</enabled>
      </state>
    </afi-safi>
  </afi-safis>
</neighbor>
</neighbors>
<config>
  <enabled>true</enabled>
  <neighbor-address>10.143.73.3</neighbor-address>
  <peer-as>65010</peer-as>
</config>
```

```
<transport>
  <config>
    <local-address>lo</local-address>
  </config>
  <state>
    <local-address>lo</local-address>
  </state>
</transport>
<state>
  <enabled>true</enabled>
  <neighbor-address>10.143.73.3</neighbor-address>
  <peer-as>65010</peer-as>
</state>
</neighbor>
</neighbors>
</bgp>
<config>
  <identifier
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
    <name>65010</name>
    <enabled>true</enabled>
  </config>
  <state>
    <enabled>true</enabled>
    <identifier
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</identifier>
      <name>65010</name>
    </state>
  </protocol>
</protocols>
<tables>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
      <config>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
          </config>
        <state>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
            </state>
          </table>
```

```
<table>
  <protocol
    xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
    <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
    <config>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
        </config>
      <state>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:DIRECTLY_CONNECTED</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
          </state>
        </table>
      </table>
    <table>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
        <config>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV4</address-family>
            </config>
          </table>
        </table>
      <table>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
          <config>
            <protocol
              xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:STATIC</protocol>
              <address-family
                xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPV6</address-family>
              </config>
            </table>
          </table>
        </table>
      </table>
    </table>
  </table>
```

```
<protocol
  xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:OSPF</protocol>
  <address-family
    xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
    <config>
      <protocol
        xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:OSPF</protocol>
        <address-family
          xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
          </config>
        </table>
      </table>
    </table>
  <table>
    <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
      <address-family
        xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
        <config>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv4</address-family>
              </config>
            </table>
          </table>
        </table>
      <table>
        <protocol
          xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
          <address-family
            xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
            <config>
              <protocol
                xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
                <address-family
                  xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:IPv6</address-family>
                  </config>
                </table>
              </table>
            </table>
          </table>
        <table>
          <protocol
            xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
            <address-family
              xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:MPLS</address-family>
              <config>
                <protocol
```

```
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
      <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:MPLS</address-family>
      </config>
      <state>
      <protocol
      xmlns:oc-pol-types="http://openconfig.net/yang/policy-types">oc-
pol-types:BGP</protocol>
      <address-family
      xmlns:oc-types="http://openconfig.net/yang/openconfig-types">oc-
types:MPLS</address-family>
      </state>
      </table>
</tables>
<interfaces>
  <interface>
    <id>eth0</id>
    <config>
      <id>eth0</id>
      <interface>eth0</interface>
    </config>
  </interface>
  <interface>
    <id>eth1</id>
    <config>
      <id>eth1</id>
      <interface>eth1</interface>
    </config>
  </interface>
  <interface>
    <id>eth2</id>
    <config>
      <id>eth2</id>
      <interface>eth2</interface>
    </config>
  </interface>
  <interface>
    <id>eth2.2</id>
    <config>
      <id>eth2.2</id>
      <interface>eth2</interface>
      <subinterface>2</subinterface>
    </config>
  </interface>
  <interface>
    <id>eth3</id>
    <config>
      <id>eth3</id>
      <interface>eth3</interface>
    </config>
  </interface>
  <interface>
    <id>eth4</id>
    <config>
      <id>eth4</id>
```

```
<interface>eth4</interface>
</config>
</interface>
<interface>
  <id>eth5</id>
  <config>
    <id>eth5</id>
    <interface>eth5</interface>
  </config>
</interface>
<interface>
  <id>eth6</id>
  <config>
    <id>eth6</id>
    <interface>eth6</interface>
  </config>
</interface>
<interface>
  <id>eth7</id>
  <config>
    <id>eth7</id>
    <interface>eth7</interface>
  </config>
</interface>
<interface>
  <id>eth8</id>
  <config>
    <id>eth8</id>
    <interface>eth8</interface>
  </config>
</interface>
<interface>
  <id>lo</id>
  <config>
    <id>lo</id>
    <interface>lo</interface>
  </config>
</interface>
</interfaces>
<mpls>
  <signaling-protocols>
    <ldp>
      <interface-attributes>
        <interfaces>
          <interface>
            <interface-id>eth4</interface-id>
            <config>
              <interface-id>eth4</interface-id>
            </config>
            <address-families>
              <address-family>
                <afi-name>IPV4</afi-name>
                <config>
                  <afi-name>IPV4</afi-name>
                  <enabled>>true</enabled>
                </config>
              </address-family>
            </address-families>
          </interface>
        </interfaces>
      </interface-attributes>
    </ldp>
  </signaling-protocols>
</mpls>
```

```

        <address-family>
          <afi-name>IPV6</afi-name>
          <config>
            <afi-name>IPV6</afi-name>
            <enabled>>false</enabled>
          </config>
        </address-family>
      </address-families>
    </interface>
  </interfaces>
</interface-attributes>
</ldp>
</signaling-protocols>
<global>
  <interface-attributes>
    <interface>
      <interface-id>eth4</interface-id>
      <config>
        <interface-id>eth4</interface-id>
        <mpls-enabled>>true</mpls-enabled>
      </config>
      <interface-ref>
        <config>
          <interface>eth4</interface>
        </config>
      </interface-ref>
      <state>
        <mpls-enabled>>true</mpls-enabled>
      </state>
    </interface>
  </interface-attributes>
</global>
</mpls>
</network-instance>
<network-instance>
  <name>vrf2</name>
  <config>
    <name>vrf2</name>
    <type
      xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
    <enabled>>true</enabled>
    <router-id>10.143.73.1</router-id>
    <route-distinguisher>10.143.73.1:2</route-distinguisher>
  </config>
  <state>
    <name>vrf2</name>
    <type
      xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:L2VSI</type>
    <enabled>>true</enabled>
    <router-id>10.143.73.1</router-id>
    <route-distinguisher>10.143.73.1:2</route-distinguisher>
  </state>
  <inter-instance-policies>
    <import-export-policy>
      <config>

```

```
<export-route-target>2:2</export-route-target>
<import-route-target>2:2</import-route-target>
</config>
<state>
  <export-route-target>2:2</export-route-target>
  <import-route-target>2:2</import-route-target>
</state>
</import-export-policy>
</inter-instance-policies>
<connection-points>
  <connection-point>
    <connection-point-id>2</connection-point-id>
    <config>
      <connection-point-id>2</connection-point-id>
    </config>
    <endpoints>
      <endpoint>
        <endpoint-id>2</endpoint-id>
        <config>
          <endpoint-id>2</endpoint-id>
        </config>
        <state>
          <endpoint-id>2</endpoint-id>
        </state>
        <local>
          <config>
            <interface>eth2</interface>
            <subinterface>2</subinterface>
          </config>
          <state>
            <interface>eth2</interface>
            <subinterface>2</subinterface>
          </state>
        </local>
        <remote>
          <config>
            <virtual-circuit-identifier>252</virtual-circuit-identifier>
          </config>
          <state>
            <virtual-circuit-identifier>252</virtual-circuit-identifier>
          </state>
        </remote>
      </endpoint>
    </endpoints>
  </connection-point>
</connection-points>
<evpn>
  <evpn-instances>
    <evpn-instance>
      <evi>2</evi>
      <config>
        <evi>2</evi>
        <encapsulation-type
```



```
        xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:MPLS</encapsulation-type>
        </config>
        <state>
            <evi>2</evi>
            <encapsulation-type
                xmlns:oc-ni-types="http://openconfig.net/yang/network-instance-
types">oc-ni-types:MPLS</encapsulation-type>
            </state>
        </evpn-instance>
    </evpn-instances>
</evpn>
</network-instance>
</network-instances>
```

Restrictions

- The paths below do not have a translation from Open Config model to OcnOS model, If user try to apply a configuration using with only paths below, it will not be applied on OcnOS side:

```
/network-instances/network-instance/connection-points
```

```
/network-instances/network-instance/connection-points/connection-
point/endpoints
```

Those containers are used only to handle “**virtual-circuit-identifier**” attribute and “**local**” container, and only when those attributes are configured the translation will translate the configuration.

- /network-instances/network-instance/connection-points

The **deletion** of this attribute will only delete the configurations of “**virtual-circuit-identifier**” and “**local**” container. In order to delete all configuration from “**evpn-mpls**” container, the delete operation must be placed on the path /network-instances/network-instance/evpn/evpn-instances/evpn-instance[evi].