

Lenovo Network

# REST API Programming Guide

For Lenovo Cloud Network Operating System 10.9

**Lenovo**<sup>TM</sup>

**Note:** Before using this information and the product it supports, read the general information in the *Safety information and Environmental Notices* and *User Guide* documents on the *Lenovo Documentation CD* and the *Warranty Information* document that comes with the product.

First Edition (October 2018)

© Copyright Lenovo 2018  
Portions © Copyright IBM Corporation 2014.

**LIMITED AND RESTRICTED RIGHTS NOTICE:** If data or software is delivered pursuant a General Services Administration "GSA" contract, use, reproduction, or disclosure is subject to restrictions set forth in Contract No. GS-35F-05925.

Lenovo and the Lenovo logo are trademarks of Lenovo in the United States, other countries, or both.

---

# Contents

<b>Preface</b> . . . . .	<b>19</b>
Who Should Use This Guide . . . . .	.20
What You'll Find in This Guide. . . . .	.21
Additional References . . . . .	.22
Typographic Conventions . . . . .	.23
<b>Chapter 1. Introduction</b> . . . . .	<b>25</b>
REST API Components . . . . .	.26
Using the REST Server. . . . .	.27
Starting and Stopping the REST Server. . . . .	.27
Communicating with the REST Server . . . . .	.28
Server Security . . . . .	.30
HTTPS Support . . . . .	.31
REST Server Limitations . . . . .	.35
<b>Chapter 2. REST Server JSON Calls</b> . . . . .	<b>37</b>
AAA . . . . .	.41
Get AAA Accounting Configuration. . . . .	.42
Update AAA Accounting Configuration . . . . .	.43
Get AAA User EXEC Commands Authorization Setting . . . . .	.44
Update AAA User EXEC Commands Authorization Settings . . . . .	.45
Get AAA Configuration Commands Authorization Settings . . . . .	.46
Update AAA Configuration Commands Authorization Settings . . . . .	.47
Get AAA Console User Login Authentication Configuration . . . . .	.48
Update AAA Console User Login Authentication Configuration . . . . .	.49
Get AAA Remote User Login Authentication Configuration . . . . .	.50
Update AAA Remote User Login Authentication Configuration. . . . .	.51
Get AAA Authentication Login Error Message Status . . . . .	.52
Update AAA Authentication Login Error Message Status. . . . .	.53
Get AAA Local Authentication Configuration. . . . .	.54
Update AAA Local Authentication Configuration . . . . .	.55
Get AAA User Default Role Status. . . . .	.56
Update AAA User Default Role Status . . . . .	.57
Get AAA Groups . . . . .	.58

ARP . . . . .	.59
Get ARP System Properties . . . . .	.60
Update ARP System Properties . . . . .	.61
Get ARP Properties of All Interfaces. . . . .	.62
Get ARP Interface Properties . . . . .	.63
Update ARP Interface Properties . . . . .	.64
Get Static ARP Entries of All Interfaces . . . . .	.65
Get Static ARP Entries of One Interface . . . . .	.66
Create Static ARP Entry . . . . .	.67
Get Static ARP Entry . . . . .	.68
Update Static ARP Entry. . . . .	.69
Delete Static ARP Entry . . . . .	.70
Get ARP Refresh Configuration. . . . .	.71
Update ARP Refresh Configuration . . . . .	.72
BFD . . . . .	.73
Get all BFD Sessions. . . . .	.74
Get all BFD Sessions Details . . . . .	.76
Get BFD Sessions for the Specified Protocol . . . . .	.78
Get all BFD Session Details for the Specified Protocol . . . . .	.80
Get BFD Sessions with the Specified Local Address . . . . .	.83
Get BFD Sessions with the Specified Remote Address . . . . .	.85
Change BFD Global Options . . . . .	.87
Change BFD Interface Options . . . . .	.89
Create a New BFD Session . . . . .	.91
Delete a BFD Session . . . . .	.92
Set or Unset BFD Multihop Session Options . . . . .	.93

BGP. . . . .	.95
Get BGP Global Statistics. . . . .	.97
Clear BGP Global Statistics . . . . .	.99
Get BGP Neighbor Received RIB Information . . . . .	100
Get BGP Neighbor RIB Advertised Information . . . . .	102
Get BGP Global Configuration . . . . .	104
Get BGP Best Path Configuration . . . . .	106
Get BGP Confederation Configuration . . . . .	108
Get BGP Graceful-Restart Configuration . . . . .	109
Get BGP Route Reflector Information . . . . .	110
Get BGP RIB Information . . . . .	111
Get BGP RIB Information for EVPN Routes. . . . .	113
Get BGP Detailed RIB Information . . . . .	117
Get BGP Summary Information . . . . .	122
Get BGP Neighbor Details . . . . .	125
Get BGP Neighbor Statistics . . . . .	129
Get BGP Distance Configuration . . . . .	130
Get BGP Address Family Global Configuration . . . . .	131
Get BGP Multipath ECMP Numbers Configuration . . . . .	132
Get BGP Nexthop Trigger-Delay Configuration . . . . .	133
Get BGP Aggregate Configuration. . . . .	134
Get BGP Dampening Parameters Configuration. . . . .	135
Get BGP Dampened Path Configuration . . . . .	137
Get BGP Network Configuration . . . . .	139
Get BGP Redistribute Configuration . . . . .	140
Set BGP Redistribute Configuration . . . . .	142
Get BGP Neighbor Configuration . . . . .	143
Set BGP Neighbor Configuration . . . . .	147
Update BGP Neighbor Configuration . . . . .	151
Update Global BGP Unnumbered Configuration . . . . .	159
Update BGP Unnumbered Interface Configuration . . . . .	160

CEE . . . . .	161
Get CEE Configuration . . . . .	162
Update CEE Configuration. . . . .	163
Get PFC Configuration . . . . .	164
Update PFC Configuration. . . . .	165
Get PFC Interface Configuration . . . . .	166
Update PFC Interface Configuration. . . . .	167
Get PFC Interface Statistics. . . . .	168
Get ETS Configuration. . . . .	169
Update ETS Configuration . . . . .	172
Get Application Protocol Configuration . . . . .	176
Create Application Protocol Configuration . . . . .	177
Delete Application Protocol Configuration . . . . .	179
Get DCBX Configuration . . . . .	180
Update DCBX Configuration . . . . .	181
Get DCBX Control Interface Information . . . . .	183
Get DCBX Administrative Interface Information . . . . .	184
Get DCBX Operational Interface Information . . . . .	187
Get DCBX Remote Interface Information. . . . .	190
DCI. . . . .	193
Get NWV Configuration . . . . .	194
Update NWV Configuration . . . . .	195
Get NWV VXLAN (DCI) Configuration . . . . .	196
Set NWV VXLAN (DCI) Configuration . . . . .	197
Update NWV VXLAN (DCI) Configuration . . . . .	199
Get Interface Ethernet VXLAN Configuration . . . . .	201
Set Interface Ethernet VXLAN Configuration . . . . .	202
Update Interface Ethernet VXLAN Configuration . . . . .	203
Get Interface LAG VXLAN Configuration . . . . .	204
Set Interface LAG VXLAN Configuration . . . . .	205
Update Interface LAG VXLAN Configuration . . . . .	206
Get NWV VXLAN Information . . . . .	207
Get NWV VXLAN VNI Information. . . . .	208
Get NWV VXLAN VNI Counters Information . . . . .	209
Delete NWV VXLAN VNI Counters. . . . .	210
Get NWV VXLAN Tunnel Information . . . . .	211
Get NWV VXLAN MAC-Address Information . . . . .	212
Get NWV VXLAN Virtual Ports Information . . . . .	213
Get NWV VXLAN Virtual Port Counters Information . . . . .	214
Default IP Address . . . . .	215
Get Default IP Address . . . . .	216
Set Default IP Address. . . . .	217

DHCP. . . . .	219
Get the Global DHCP Client Feature Property . . . . .	221
Update DHCP Client Feature Property. . . . .	222
Get DHCP Client Properties of All Interfaces . . . . .	223
Update DHCP Client Interface Properties . . . . .	224
Delete the Vendor Class Identifier of an Interface . . . . .	226
Get the Global DHCP Relay Service Property . . . . .	227
Update the Global DHCP Relay Service Property . . . . .	228
Get the DHCP Relay Properties of All Interfaces. . . . .	229
Get DHCP Relay Interface Properties . . . . .	230
Update DHCP Relay Interface Properties. . . . .	232
Delete DHCP Relay Interface Properties . . . . .	234
Get DHCP Snooping Binding Table Entry . . . . .	235
Create DHCP Snooping Binding Table Entry . . . . .	236
Delete DHCP Snooping Binding Table Entry . . . . .	237
Get DHCP Snooping Configuration . . . . .	238
Update DHCP Snooping Configuration . . . . .	239
Get DHCP Snooping VLAN Configuration . . . . .	240
Update DHCP Snooping VLAN Configuration . . . . .	241
Delete DHCP Snooping VLAN Configuration. . . . .	242
Get DHCP Snooping Trusted Ports Configuration . . . . .	243
Update DHCP Snooping Trusted Ports Configuration . . . . .	244
Get DHCP Snooping Statistics . . . . .	245
Clear DHCP Snooping Statistics. . . . .	246
DNS . . . . .	247
Get DNS Host Information . . . . .	248
Configure DNS Client Service. . . . .	249
Configure DNS Name Server . . . . .	250
Delete DNS Name Server . . . . .	251
Configure DNS Default Domain Name. . . . .	252
Delete DNS Default Domain Name . . . . .	253
Configure DNS Domain Name . . . . .	254
Delete DNS Domain Name . . . . .	255
Configure DNS Hostname to IP Address Mapping . . . . .	256
Delete DNS Hostname to IP Address Mapping . . . . .	257
ECMP. . . . .	259
Get Weighted ECMP Status. . . . .	260
Update Weighted ECMP Status . . . . .	261
Get IPv4 Next-hop ECMP Weight . . . . .	262
Configure IPv4 Next-hop ECMP Weight . . . . .	263
Get IPv6 Next-hop ECMP Weight . . . . .	264
Configure IPv6 Next-hop ECMP Weight . . . . .	265
Get Interface ECMP Weight . . . . .	266
Configure Interface ECMP Weight. . . . .	267

FDB . . . . .	269
Get List of MAC Addresses . . . . .	270
Get Number of MAC Addresses . . . . .	272
Get Global FDB Runtime Settings . . . . .	274
Get Global FDB Configured Settings. . . . .	275
Update Global FDB Settings . . . . .	276
Get MAC Address Learning Interface Runtime Setting. . . . .	277
Get MAC Address Learning Interface Configured Setting . . . . .	278
Update Interface MAC Address Learning Setting . . . . .	279
Get Static MAC Addresses . . . . .	280
Create Static MAC Address . . . . .	281
Delete MAC Address or Interface for Multicast MAC Address . . . . .	282
HSC . . . . .	283
Configure HSC Mode . . . . .	285
Update HSC Mode . . . . .	286
Configure Device Name . . . . .	287
Update Device Name . . . . .	288
Configure HSC HA Mode . . . . .	289
Update HSC HA Mode . . . . .	290
Configure HSC Controller . . . . .	291
Update HSC Controller . . . . .	293
Configure HSC Tunnel . . . . .	295
Update HSC Tunnel. . . . .	296
Configure HSC VTEP . . . . .	297
Update HSC VTEP . . . . .	298
Configure HSC VTEP IP . . . . .	299
Update HSC VTEP IP . . . . .	300
Configure HSC VTEP Port . . . . .	301
Update HSC VTEP Port . . . . .	302
Get HSC Mode . . . . .	303
Get Device Name . . . . .	304
Get HSC HA Mode . . . . .	305
Get HSC Controller . . . . .	306
Get HSC Tunnel . . . . .	307
Get HSC Controller-Connection Information . . . . .	308
Get HSC RESTC-Connection Information . . . . .	309
Get HSC VTEP Basic Information . . . . .	310
Get HSC VTEP MAC-Address Information. . . . .	311
Get HSC VTEP Tunnel Information . . . . .	314
Get HSC VTEP Virtual-Network Information. . . . .	315
Get HSC VTEP Virtual-Port Information . . . . .	316



IGMP . . . . .	317
Get IGMP Groups . . . . .	318
Get IGMP Mrouter . . . . .	321
Update IGMP Mrouter Interface for a VLAN . . . . .	322
Get IGMP Querier . . . . .	323
Update IGMP Querier on a VLAN . . . . .	324
Get IGMP Snooping System Properties. . . . .	325
Update IGMP Snooping System Properties . . . . .	326
Get IGMP Snooping Properties of All VLANs. . . . .	327
Get IGMP Snooping VLAN Properties . . . . .	328
Update IGMP Snooping VLAN Properties . . . . .	329
Interface . . . . .	331
Get All Interfaces . . . . .	332
Get Interface . . . . .	334
Update Interface . . . . .	336
Get Transceiver Information for All Interfaces . . . . .	339
Get Transceiver Information for One Interfaces . . . . .	341
IP Interface . . . . .	343
Get IP Properties of All Interfaces . . . . .	344
Get IP Interface Properties . . . . .	345
Update IP Interface Properties . . . . .	346
LACP . . . . .	349
Get LACP System Properties . . . . .	350
Update LACP System Properties . . . . .	351
LAG . . . . .	353
Get All LAGs. . . . .	354
Create LAG . . . . .	356
Get LAG Properties . . . . .	358
Update LAG . . . . .	360
Get LAG Load Balance Settings . . . . .	362
Update LAG Load Balance Settings . . . . .	364
Delete LAG. . . . .	366
LDAP . . . . .	367
Get LDAP Configuration . . . . .	368
Update LDAP Configuration . . . . .	369
Get LDAP Profile Configuration . . . . .	371
Add LDAP Profile. . . . .	374
Delete LDAP Profile. . . . .	379
Get LDAP Server Group Information . . . . .	380
Add LDAP Server Group . . . . .	384
Delete LDAP Server Group. . . . .	388

LLDP . . . . .	389
Get LLDP System Properties . . . . .	390
Update LLDP System Properties . . . . .	391
Get LLDP Properties for All Interfaces . . . . .	392
Get LLDP Interface Properties . . . . .	393
Update LLDP Interface Properties. . . . .	394
Get LLDP Interface Statistics . . . . .	395
Get LLDP Interface Neighbor Information . . . . .	396
Get LLDP Neighbor Information for All Interfaces . . . . .	397
MSTP . . . . .	399
Get MSTP System Properties . . . . .	400
Update MSTP System Properties . . . . .	401
Get Properties of All MSTP Instances . . . . .	402
Create MSTP Instance . . . . .	403
Get MSTP Instance . . . . .	404
Update MSTP Instance . . . . .	405
Delete MSTP Instance . . . . .	406
Get Interface Properties of an MSTP Instance . . . . .	407
Update Interface Properties of an MSTP Instance . . . . .	408
NextHopHealth . . . . .	409
NextHop Health Check . . . . .	410
NOS Copy. . . . .	411
Determine Whether the Running Configuration Needs to be Saved . . . . .	412
Reset Switch . . . . .	413
Save Configuration . . . . .	414
Download Image to Switch. . . . .	415
Download Configuration to Switch . . . . .	416
Upload Configuration to Server. . . . .	418
Upload Tech Support to Server . . . . .	420
Get Download Transfer Status . . . . .	421
Get Upload Transfer Status. . . . .	422

NPA . . . . .	425
Get VM Information . . . . .	427
Get VM Information by VM UUID . . . . .	429
Get VM Information by VM Name . . . . .	431
Get VM Interface Information. . . . .	433
Get VM Information for Specific Interface . . . . .	435
Get Virtual Network Information . . . . .	437
Get Virtual Network Information by UUID . . . . .	438
Get VNIC Statistics . . . . .	439
Get VNIC Statistics for Specific VM by VM UUID . . . . .	441
Get VNIC Statistics for Specific VM by VM Name . . . . .	443
Get VNIC Interface Statistics . . . . .	445
Get VNIC Statistics for Specific Interface . . . . .	447
Get All VM Information . . . . .	449
Get Specific VM Information by VM UUID . . . . .	451
Get Specific VM Information by VM Name . . . . .	453
Get VM Interface Information. . . . .	455
Get VM Information for Specific Interface . . . . .	457
Get Virtual Network Information . . . . .	459
Get DVSwitch Information . . . . .	460
Get VNIC Statistics . . . . .	461
Get VNIC Statistics for Specific VM by VM UUID . . . . .	463
Get VNIC Statistics for Specific VM by VM Name . . . . .	465
Get VNIC Interface Statistics . . . . .	467
Get VNIC Statistics for Specific Interface . . . . .	469
NTP . . . . .	471
Get NTP Properties . . . . .	472
Update NTP Servers and Peers . . . . .	473
Delete NTP Servers and Peers. . . . .	474
Get NTP Authentication Keys. . . . .	475
Set NTP Authentication Keys . . . . .	476
Delete NTP Authentication Keys . . . . .	477

OSPF . . . . .	479
Get OSPF Global Statistics . . . . .	481
Get OSPF Traffic Statistics . . . . .	487
Get OSPF Neighbors . . . . .	491
Get OSPF Routes . . . . .	492
Get OSPF Database . . . . .	494
Get OSPF Border Routers . . . . .	496
Get OSPF Summary Address . . . . .	498
Get OSPF Interface . . . . .	499
Set OSPF Interface . . . . .	503
Get OSPF Virtual Links . . . . .	508
Set OSPF Virtual Links . . . . .	510
Get OSPF Process . . . . .	513
Get OSPF Multi-Area Neighbor . . . . .	517
Get OSPF RIB Counters . . . . .	519
Set OSPF Process . . . . .	521
Get OSPF Redistribute . . . . .	525
Set OSPF Redistribute . . . . .	527
Get OSPF NSSA area . . . . .	530
Set OSPF NSSA area . . . . .	532
Set OSPF default cost . . . . .	534
Set Area Authentication . . . . .	535
Set OSPF Summary Address . . . . .	536
Set OSPF Area Range . . . . .	537
Set OSPF Overflow Database . . . . .	538
Set OSPF Auto-cost Reference Bandwidth . . . . .	539
Set OSPF Stub Configuration . . . . .	540
Set OSPF Remove Configuration . . . . .	541
PKA . . . . .	543
Get PKA Summary Informations . . . . .	544
Get PKA Certificate . . . . .	545
Import PKA Certificate via SFTP . . . . .	546
Import PKA Certificate Directly . . . . .	548
Delete PKA Certificate . . . . .	549
PKI . . . . .	551
Get PKI Profile Summary Information . . . . .	552
Delete PKI Profile . . . . .	553
Get CA Certificate . . . . .	554
Import CA Certificate . . . . .	556
Delete CA Certificate . . . . .	557
Get Host Certificate . . . . .	558
Import Host Certificate . . . . .	560
Generate Host Certificate . . . . .	562
Delete Host Certificate . . . . .	564
Generate CSR . . . . .	565
Get CSR . . . . .	567
Export CSR and Import Signed CSR . . . . .	569

Private VLAN . . . . .	571
Create a Private VLAN . . . . .	572
Delete a Private VLAN. . . . .	573
Create a Private VLAN Association . . . . .	574
Delete a Private VLAN Association . . . . .	575
Delete All Private VLAN Associations for a VLAN . . . . .	576
Apply a Private VLAN Mode on Interface . . . . .	577
Remove a Private VLAN Mode from Interface . . . . .	578
Create or Remove a Private VLAN Port Mapping/Association. . . . .	579
Show Private VLAN Information . . . . .	580
Show Interface Private VLAN Information . . . . .	581
Enable Private VLAN Globally . . . . .	582
Disable Private VLAN Globally . . . . .	583
QoS over L3 . . . . .	585
QoS over L3 Tag Configuration . . . . .	586
RADIUS. . . . .	587
Get RADIUS Configuration. . . . .	588
Update RADIUS Configuration . . . . .	590
Get RADIUS Server Configuration . . . . .	592
Add RADIUS Server. . . . .	594
Delete RADIUS Server. . . . .	596
Get RADIUS Server Group Configuration . . . . .	597
Add RADIUS Server Group . . . . .	599
Delete RADIUS Server Group. . . . .	601
REST . . . . .	603
Get REST Server . . . . .	604
Set REST Server. . . . .	605
Route Maps . . . . .	607
Get Route Maps. . . . .	608
Security Mode . . . . .	609
Get Security Mode Configuration . . . . .	610
Update Security Mode Configuration . . . . .	611
sFlow . . . . .	613
Get sFlow Configuration . . . . .	614
Update sFlow Global Configuration . . . . .	616
Update sFlow Interface Configuration . . . . .	617
Get sFlow Statistics . . . . .	618
Clear sFlow Statistics . . . . .	619
SNMP. . . . .	621
Get the SNMPv3 Account for XClarity . . . . .	622
Set the SNMPv3 Account for XClarity . . . . .	623
Delete the SNMPv3 Account for XClarity. . . . .	625
Get the SNMPv3 Trap Host IP Address for XClarity . . . . .	626
Set the SNMPv3 Trap Host IP Address for XClarity . . . . .	627
Delete the SNMPv3 Trap Host IP Address for XClarity. . . . .	629
SSH. . . . .	631
Get SSH Server . . . . .	632
Set SSH Server . . . . .	633

Startup Information. . . . .	635
Get System Startup Information . . . . .	636
Put System ZTP Interface . . . . .	637
Get System ZTP Setting . . . . .	638
Put System Startup Image . . . . .	639
Get System Startup Image . . . . .	640
STP. . . . .	641
Get STP Properties for All Interfaces. . . . .	642
Get STP Interface Properties . . . . .	643
Update STP Interface Properties . . . . .	644
Get STP Properties Per VLAN . . . . .	646
Set STP Properties Per VLAN. . . . .	647
Get STP Interface Properties . . . . .	649
Update STP Interface Properties . . . . .	650
Get STP Interface VLAN Properties . . . . .	651
Update STP Interface VLAN Properties . . . . .	652
System . . . . .	653
Get System Properties . . . . .	654
System Configuration. . . . .	655
Get Hostname . . . . .	656
Set Hostname . . . . .	657
Get Clock Date . . . . .	658
Set Clock Date . . . . .	659
Set Clock Format . . . . .	661
Set Clock Protocol. . . . .	662
Set Clock Timezone . . . . .	663
Set Clock Summer Time . . . . .	664
Get Device Contact . . . . .	667
Update Device Contact . . . . .	668
Get Device Description . . . . .	669
Update Device Description. . . . .	670
Get Rack Properties . . . . .	671
Update Rack Properties . . . . .	672
System Information. . . . .	673
Get All System Information . . . . .	674
Get System Fan Information . . . . .	677
Get System Power Information . . . . .	678
Get System Temperature Information . . . . .	679
Get System Inventory . . . . .	680
Get System Serial Number . . . . .	681
Get Panic Dump Information. . . . .	682
Get Global Health Status. . . . .	683
Get System Resource Statistics . . . . .	684

Telemetry . . . . .	685
Get Switch Properties . . . . .	687
Set System Feature . . . . .	689
Get System Feature . . . . .	690
Set BST Tracking . . . . .	691
Get BST Tracking . . . . .	693
Set BST Feature . . . . .	695
Get BST Feature. . . . .	697
Get BST Limits . . . . .	699
Get BST Report . . . . .	700
Get BST Congestion Drop Counters . . . . .	703
Set BST Threshold. . . . .	709
Get BST Threshold . . . . .	711
Clear BST Threshold. . . . .	714
Clear BST Statistics . . . . .	715
Clear BST Congestion Drops . . . . .	716
Cancel BST Request . . . . .	717
Get Interface Statistics . . . . .	718
Clear Interface Statistics . . . . .	720
Telnet . . . . .	721
Get Telnet Server . . . . .	722
Set Telnet Server . . . . .	723
TACACS+ . . . . .	725
Get TACACS+ Configuration . . . . .	726
Update TACACS+ Configuration . . . . .	727
Get TACACS+ Server Configuration. . . . .	728
Add TACACS+ Server . . . . .	729
Delete TACACS+ Server . . . . .	730
Get TACACS+ Server Group Configuration. . . . .	731
Add TACACS+ Server Group. . . . .	733
Delete TACACS+ Server Group . . . . .	735
vLAG . . . . .	737
Get vLAG Configuration . . . . .	738
Update vLAG Configuration . . . . .	739
Get Global vLAG Information . . . . .	741
Get vLAG ISL Information . . . . .	743
Configure vLAG ISL. . . . .	744
Get vLAG Health Check Information . . . . .	745
Configure vLAG Health Check Parameters . . . . .	746
Create vLAG Instance . . . . .	748
Update vLAG Instance. . . . .	749
Delete vLAG Instance . . . . .	750
Get vLAG Instance Configuration . . . . .	751
Get vLAG Instance Information . . . . .	752

VLAN . . . . .	753
Get All VLANs . . . . .	754
Create VLAN. . . . .	755
Get VLAN . . . . .	756
Update VLAN . . . . .	757
Delete VLAN. . . . .	759
Get VLAN Properties of All Interfaces . . . . .	760
Get VLAN Interface Properties . . . . .	761
Update VLAN Interface Properties . . . . .	762
VLAN Interface Properties. . . . .	765
Get VLAN Properties of All Interfaces . . . . .	766
Get VLAN Interface Properties . . . . .	767
Update VLAN Interface Properties . . . . .	768
Update VLAN Interface Allowed VLAN List . . . . .	770
VRF . . . . .	773
Get All VRFs . . . . .	774
Create VRF . . . . .	775
Get VRF . . . . .	776
Update VRF . . . . .	777
Delete VRF. . . . .	778
VRRP. . . . .	779
Get VRRP VRs of All Interfaces . . . . .	780
Get VRRP VRs of One Interface. . . . .	782
Create VRRP VR . . . . .	784
Get VRRP VR . . . . .	787
Update VRRP VR. . . . .	789
Delete VRRP VR . . . . .	792
<b>Appendix A. Getting Help and Technical Assistance . . . . .</b>	<b>793</b>
<b>Appendix B. Notices . . . . .</b>	<b>795</b>
Trademarks . . . . .	797
Important Notes . . . . .	798
Recycling Information. . . . .	799
Particulate Contamination. . . . .	800
Telecommunication Regulatory Statement . . . . .	801
Electronic Emission Notices . . . . .	802
Federal Communications Commission (FCC) Statement . . . . .	802
Industry Canada Class A Emission Compliance Statement . . . . .	802
Avis de Conformité à la Réglementation d'Industrie Canada . . . . .	802
Australia and New Zealand Class A Statement . . . . .	802
European Union - Compliance to the Electromagnetic Compatibility Directive	803
Germany Class A Statement . . . . .	803
Japan VCCI Class A Statement . . . . .	804
Japan Electronics and Information Technology Industries Association	



(JEITA) Statement . . . . .	805
Korea Communications Commission (KCC) Statement. . . . .	805
Russia Electromagnetic Interference (EMI) Class A statement . . . . .	805
People's Republic of China Class A electronic emission statement . . . . .	805
Taiwan Class A compliance statement . . . . .	805



---

# Preface

The *REST API Programming Guide for Lenovo CNOS 10.9* describes how to configure and use the Cloud Network Operating System 10.9 software on the following Lenovo RackSwitches:

- Lenovo RackSwitch G8272. For documentation on installing the switch physically, see the *Lenovo RackSwitch G8272 Installation Guide*.
- Lenovo RackSwitch G8296. For documentation on installing the switch physically, see the *Lenovo RackSwitch G8296 Installation Guide*.
- Lenovo RackSwitch G8332. For documentation on installing the switch physically, see the *Lenovo RackSwitch G8332 Installation Guide*.
- Lenovo ThinkSystem NE1032 RackSwitch. For documentation on installing the switch physically, see the *Lenovo ThinkSystem NE1032 RackSwitch Installation Guide*.
- Lenovo ThinkSystem NE1032T RackSwitch. For documentation on installing the switch physically, see the *Lenovo ThinkSystem NE1032T RackSwitch Installation Guide*.
- Lenovo ThinkSystem NE1072T RackSwitch. For documentation on installing the switch physically, see the *Lenovo ThinkSystem NE1072T RackSwitch Installation Guide*.
- Lenovo ThinkSystem NE10032 RackSwitch. For documentation on installing the switch physically, see the *Lenovo ThinkSystem NE10032 RackSwitch Installation Guide*.
- Lenovo ThinkSystem NE2572 RackSwitch. For documentation on installing the switch physically, see the *Lenovo ThinkSystem NE2572 RackSwitch Installation Guide*.

---

## Who Should Use This Guide

This guide is intended for network installers and system administrators engaged in configuring and maintaining a network. The administrator should be familiar with Ethernet concepts, IP addressing, Spanning Tree Protocol, and SNMP configuration parameters.

---

## What You'll Find in This Guide

This guide will help you plan, implement, and administer Cloud NOS software. Where possible, each section provides feature overviews, usage examples, and configuration instructions. The following material is included:

This book contains the following chapters:

- [Chapter 1, "Introduction,"](#) gives an overview of the Lenovo REST API and how to start the server.
- [Chapter 2, "REST Server JSON Calls,"](#) describes the URIs and functions available in the REST API.
- [Appendix A, "Getting Help and Technical Assistance,"](#) describes where to get help with your product.
- [Appendix B, "Notices,"](#) contains legal notices.

---

## Additional References

Additional information about installing and configuring the switch is available in the following guides:

- *Lenovo Network Application Guide for Lenovo Cloud Network Operating System 10.9*
- *Lenovo Network Command Reference for Lenovo Cloud Network Operating System 10.9*
- *Lenovo Network Release Notes for Lenovo Cloud network Operating System 10.9*
- *Lenovo Python Programming Guide for Lenovo Cloud Network Operating System 10.9*

# Typographic Conventions

The following table describes the typographic styles used in this book.

**Table 1.** *Typographic Conventions*

Typeface or Symbol	Meaning	Example
ABC123	This type is used for names of commands, files, and directories used within the text.  It also depicts on-screen computer output and prompts.	View the <code>readme.txt</code> file.  Switch#
<b>ABC123</b>	This bold type appears in command examples. It shows text that must be typed in exactly as shown.	Switch# <b>ping</b>
<ABC123>	This italicized type appears in command examples as a parameter placeholder. Replace the indicated text with the appropriate real name or value when using the command. Do not type the brackets.  This also shows book titles, special terms, or words to be emphasized.	To establish a Telnet session, enter: Switch# <b>telnet</b> <IP address>  Read your <i>User's Guide</i> thoroughly.
{ }	Command items shown inside brackets are mandatory and cannot be excluded. Do not type the brackets.	Switch# <b>cp {ftp sftp}</b>
[ ]	Command items shown inside brackets are optional and can be used or excluded as the situation demands. Do not type the brackets.	Switch# <b>configure [device]</b>
	The vertical bar ( ) is used in command examples to separate choices where multiple options exist. Select only one of the listed options. Do not type the vertical bar.	Switch# <b>cp {ftp sftp}</b>
<AaBb123>	This block type depicts menus, buttons, and other controls that appear in graphical interfaces.	Click the <b>&lt;Save&gt;</b> button.





---

# Chapter 1. Introduction

The Lenovo REST Application Programming Interface (API) enables you to remotely configure and manage a Lenovo switch using REST, HyperText Transfer Protocol (HTTP), and Hyper Text Transfer Protocol over SSL (HTTPS).

The REST (REpresentational State Transfer) architecture has six constraints:

- Uniform Interface
- Stateless
- Cacheable
- Client-Server
- Layered Systems
- Code on Demand

The REST API is a JavaScript Object Notation-based (JSON) wrapper around Lenovo's Python On-Box Scripting interface. It is a component of Configuration, Management, and Reporting (CMR) on CNOS.

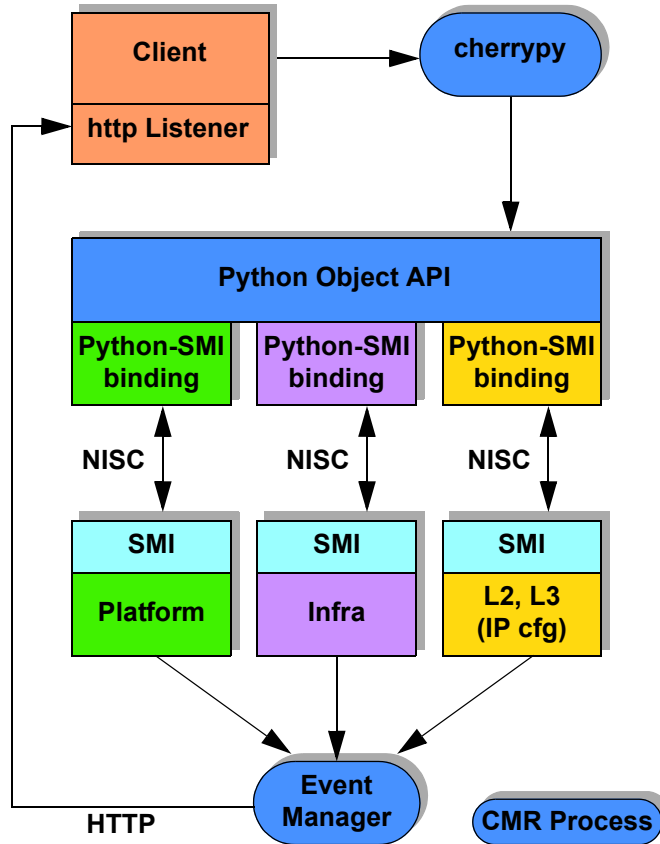
**Note:** The Lenovo REST API calls have been tested with:

- The Advanced Rest Client extension (version 6.19.17.118 or earlier) in Chrome
- The RESTClient extension in Firefox
- The Python3 http.client module

# REST API Components

The following figure shows components of the REST API and JSON:

**Figure 1.** REST/JSON Components



The cherrypy server interprets the REST JSON code. When the cherrypy server receives a REST API request, it executes the appropriate Python code on Cloud NOS and translates it into a series of Simple Management Interface (SMI) calls. For each CLI connection through the console, SSH, or Telnet, a separate Cloud NOS process is spawned to service CLI commands.

---

## Using the REST Server

This section discusses starting, stopping, and communicating with the REST server.

### Starting and Stopping the REST Server

Use the CNOS CLI to start or stop the REST server.

#### *Starting the REST Server*

To start the REST server listening on the HTTPS port (443), in Global Configuration Mode on the switch, enter:

```
Switch(config)# feature restApi
```

To start the REST server listening in HTTP mode on port 8090, in Global Configuration Mode on the switch, enter:

```
Switch(config)# feature restApi http
```

This starts the REST server (cherrypy) listening on the specified port (443 or 8090) and writes the Process ID to the following PID file:

```
/var/run/restfib<VRF ID>.pid
```

where:

- *VRF ID* = 0 for the default Virtual Routing and Forwarding (VRF) ID
- *VRF ID* = 1 for the management Virtual Routing and Forwarding (VRF) ID

A separate REST server instance is created for each VRF ID created (one default, one management).

#### *Stopping the REST Server*

To stop the REST server, in Global Configuration Mode on the switch, enter:

```
Switch(config)# no feature restApi
```

This stops the REST server from listening on all ports for all VRF IDs.

## Communicating with the REST Server

To log onto the REST server, use the URL:

```
http://<management switch IP address>:<port>/nos/api/login
```

The default *port* is 443.

Confirm adding a security exception. Enter your username and password.

**Note:** You must be a “network-admin” user to use the REST API. Requests from users with other roles will be rejected.

The REST API uses the following types of HTTP methods:

- POST
- GET
- PUT
- DELETE

### Request Formats

The format of a URI or URL for a resource depends upon which type of request is being sent.

**Table 2.** REST API URI/URL Conventions

Request Type	URI Format
POST	<code>http://&lt;switch address&gt;:&lt;port&gt;/nos/api/cfg/&lt;resource&gt;</code> <code>[parameters={&lt;parameters&gt;}]</code>
GET	<code>http://&lt;switch address&gt;:&lt;port&gt;/nos/api/cfg/&lt;resource&gt;/&lt;ID&gt;</code> <code>http://&lt;switch address&gt;:&lt;port&gt;/nos/api/info/&lt;resource&gt;/&lt;ID&gt;</code>
PUT	<code>http://&lt;switch address&gt;:&lt;port&gt;/nos/api/cfg/&lt;resource&gt;</code> <code>[parameters={&lt;parameters&gt;}]</code>
DELETE	<code>http://&lt;switch address&gt;:&lt;port&gt;/nos/api/cfg/&lt;resource&gt;/&lt;ID&gt;</code>

where:

Parameter	Description
<i>switch address:port</i>	The switch IP address and port where the REST server is installed.
<i>resource</i>	Any network or switch resource, such as an interface or a VLAN.
<i>parameters</i>	Additional parameters related to the request, presented in JSON format.

The following example shows a PUT request for interface ethernet1/1:

```
PUT /nos/api/cfg/interface/Ethernet1%2F1
{
  "duplex": "full",
  "mtu": 1500,
  "admin_state": "up",
}
```

**Note:** When a port or other parameter in the URI has a slash (/) in it, such as ethernet1/1, you need to substitute the hexadecimal code for the slash (%2F, as in ethernet1%2F1) so the slash is not read as a directory delimiter. Slash characters *are* allowed in the JSON Request.

The following example shows the response to the previous PUT request:

```
PUT /nos/api/cfg/interface/Ethernet1%2F1
{
  "duplex": "full",
  "if_name": "Ethernet1/1",
  "mtu": 1500,
  "admin_state": "up",
  "mac_addr": "a897.dcf8.1101",
  "ifindex": "9",
  "oper_state": "up",
  "speed": "10000"
}
```

## Getting the REST Server Status

To get the current status of the REST server, including the listening port number, from the CLI, enter:

```
Switch# show restApi server
```

## Authenticating Users on the REST Server

To log onto the switch via the REST server, use the following URL:

```
https://<IP address>/nos/api/login
```

where *IP address* is the management IP address of the switch you are accessing.

Your user session expires based on the switch timeout value, which defaults to 10 minutes.

To log out of the switch via the REST server, use the following URL:

```
https://<IP address>/nos/api/logout
```

## Server Security

The REST API uses the local user database in CNOS on the switch for authentication. All REST requests must be issued by a “network-admin” user. Requests made by any other type of user will be rejected by the REST API server.

The REST server uses cookies to identify sessions. Specifically, a cookie is assigned for each session, and its passback will be requested by the REST server. A REST API client must first issue a “Set-Cookie” request and then must pass the cookie back on all subsequent REST requests.

## HTTPS Support

When REST API via HTTPS is enabled by default, a self-signed certificate is generated automatically.

**Note:** Lenovo recommends using CSR or CA signed certificates rather than self-signed certificate. For more information on how to generate CSR or CA certificates, see the *CNOS Application Guide*.

To refresh a self-signed certificate, use the following steps:

1. Disable the REST server:

```
Switch(config)# no feature restApi
```

To verify that the REST server is not running, enter:

```
Switch(config)# show restApi server
rest server disabled port: 8090(HTTP)
```

2. Enter the Public Key Infrastructure (PKI) configuration mode.

```
Switch(config)# pki rest_mgmt
Switch(config-pki)#
```

3. Create the certificate:

```
Switch(config-pki)#host-cert generate
Country Name (2 letter code) [US]:
State or Province Name (full name) [California]:
Locality Name (eg, city) [Santa Clara]:
Organization Name (eg, company) [Lenovo Networking Operating System]:
Organizational Unit Name (eg, section) [Network Engineering]:
Common Name (eg, FQDN or YOUR name) []: netuser
Email (eg, email address) []: netuser@lenovo.com
Confirm generate certificate? (y/n) [n] y
.....+++
.....+++
Host certificate generation succeeded
```

**Note:** The default values are in square brackets ([text]); press **Enter** to use the default values.

4. Re-enable the REST server:

```
Switch(config)# feature restApi
```

5. Make sure the REST server is running:

```
Switch(config)# show restApi server
rest server enabled port: 443
restApi pki rest_mgmt vrf management
restApi pki rest_default vrf default
```

6. The REST PKI profiles are automatically generated.

To display host certificate information, use the following commands :

```
Switch(config)#show pki rest_mgmt host-certificate
Certificate:
  Data:
    Version: 3 (0x2)
    Serial Number: 0 (0x0)
    Signature Algorithm: sha512WithRSAEncryption
    Issuer: C=US, ST=California, L=Santa Clara, O=Lenovo Networking
    Operating System, OU=Network Engineering,
    CN=acomsa/emailAddress=netuser@lenovo.com
    Validity
      Not Before: May  3 14:49:49 2017 GMT
      Not After : May  3 14:49:49 2018 GMT
    Subject: C=US, ST=California, L=Santa Clara, O=Lenovo Networking
    Operating System, OU=Network Engineering,
    CN=acomsa/emailAddress=netuser@lenovo.com
    Subject Public Key Info:
      Public Key Algorithm: rsaEncryption
      Public-Key: (2048 bit)
      Modulus:
        00:d2:e6:5d:11:c1:0c:f0:5e:75:09:ac:ab:77:2b:
        a2:c2:ca:fd:33:79:f9:58:6c:c6:d9:89:87:a4:d8:
        94:79:ab:ca:f2:15:f3:ab:43:66:27:2f:8f:40:76:
        7f:ed:4c:5a:e2:23:18:98:68:fe:4b:51:bf:4a:6b:
        64:08:4f:00:90:0e:df:71:d7:c4:db:48:99:4f:3d:
        47:4b:ae:0a:9a:ba:d8:f0:15:93:4e:c0:6d:2c:64:
        a9:1f:c0:a7:6f:7f:4f:87:2d:b5:c7:8a:d5:09:37:
        5c:8b:6f:14:b5:e7:8c:5d:99:da:ae:20:2c:0d:94:
        b3:c3:f8:4c:5f:04:8f:71:4f:19:b2:18:11:64:e4:
        9a:96:41:2b:bf:de:9a:87:32:6b:a5:22:f3:eb:32:
        da:c5:ac:c8:d4:cf:83:14:6a:39:23:b9:49:2e:bc:
        ec:84:e6:5c:f9:d6:df:2d:97:e7:f3:dd:cb:6d:c0:
        94:e1:a1:9a:94:ea:3a:65:04:e7:63:45:fa:70:7d:
        f6:89:2d:af:7d:bf:d4:7d:f2:f1:45:b7:a4:11:16:
        29:c4:4a:56:58:63:6e:b6:4d:6a:aa:c8:2e:c0:7b:
        15:b5:7b:bf:00:00:f6:9c:75:6a:cd:50:2d:6e:68:
        24:74:77:dc:29:dc:7e:35:b0:4a:02:f9:76:b0:7c:
        65:23
```



```
Exponent: 65537 (0x10001)
X509v3 extensions:
  X509v3 Basic Constraints: critical
    CA:TRUE
  X509v3 Key Usage: critical
    Certificate Sign, CRL Sign
  X509v3 Subject Key Identifier:
```

```
51:7A:5E:95:9D:0E:23:17:57:DF:13:63:D1:07:A6:05:07:B3:38:7F
Signature Algorithm: sha512WithRSAEncryption
74:b4:16:bf:06:a9:69:8f:dc:8f:de:cf:5d:18:f8:ba:82:71:
b4:8b:8c:22:b4:1e:66:55:d3:3f:a1:71:cc:7b:1a:bd:fd:5b:
56:d7:c8:4c:4c:32:09:47:1c:7e:8a:f1:f6:f4:67:95:d6:88:
7f:f5:ad:af:09:e8:5c:ca:46:54:93:71:38:b6:00:e8:b3:fa:
cc:71:e7:cb:67:ac:8f:ec:22:01:3e:da:54:04:f8:77:3d:2c:
78:80:a1:01:6e:d6:19:23:1a:f2:d0:8e:af:71:e3:1a:b0:a5:
9b:fa:53:04:eb:92:2b:b0:b5:c2:51:d0:e0:85:b5:04:f7:24:
5b:20:58:76:f8:e3:bc:a6:c4:15:2a:5a:ee:60:bb:eb:f5:96:
ce:2d:9a:78:bd:5b:c5:68:a3:c7:5a:41:a4:48:43:5d:f6:8a:
ee:9f:cf:e8:8c:48:b6:2a:9a:93:aa:ed:00:87:2b:12:92:b6:
2f:1d:9b:70:43:57:98:a2:70:16:8e:0c:7d:ac:b2:9e:d0:99:
2d:76:2f:20:f7:49:c9:ac:08:e2:cc:a6:4e:10:12:bd:c0:15:
a3:e6:1c:6e:5d:96:8f:31:ab:19:92:42:70:e7:c0:3a:f7:cb:
43:a0:c4:db:99:68:37:ca:69:e7:e0:35:52:7d:6c:ec:9e:0a:
56:25:4b:09
```

```
Switch(config)#show pki rest_default host-certificate
```

```
Certificate:
  Data:
    Version: 3 (0x2)
    Serial Number:
      95:22:0b:f1:2b:b8:96:69
    Signature Algorithm: sha256WithRSAEncryption
    Issuer: C=US, ST=California, L=Santa Clara, O=Lenovo Network
Operating System CNOS, OU=Network Engineering, CN=0.0.0.0
    Validity
      Not Before: Mar  7 12:53:02 2017 GMT
      Not After : Mar  7 12:53:02 2018 GMT
    Subject: C=US, ST=California, L=Santa Clara, O=Lenovo Network
Operating System CNOS, OU=Network Engineering, CN=0.0.0.0
    Subject Public Key Info:
      Public Key Algorithm: rsaEncryption
      Public-Key: (2048 bit)
      Modulus:
        00:e3:81:8f:dd:a2:d9:ef:9b:3e:50:4f:f6:79:e2:
        d2:07:06:3e:db:46:fd:05:7b:ea:84:f0:34:a1:b7:
        e7:4c:f0:3d:c3:b0:c0:82:1d:60:85:b5:ec:82:ea:
        e2:65:a3:a3:6b:27:f5:17:b1:fe:52:c1:ea:4c:40:
        55:0a:c0:2f:6f:4c:42:ef:74:72:ef:a4:5b:b2:4d:
        90:74:97:48:51:bd:d8:9b:56:2c:ee:e4:41:5e:4f:
        b9:0a:31:91:c6:08:94:cb:21:6e:d2:69:0d:db:12:
        56:2a:33:2c:1b:de:53:93:2d:f4:00:74:38:65:e3:
        f5:2d:09:f3:14:36:63:23:33:d8:9d:1b:d6:ba:4c:
        8f:0c:de:e7:3e:56:d4:4e:ab:3c:cc:27:a1:0f:15:
        e5:8c:a8:f0:cf:84:7c:3f:3d:23:19:71:25:7d:19:
        26:b6:79:47:a1:f6:6c:ee:91:2f:db:55:3e:17:7a:
        89:ab:43:6e:73:9b:bc:b7:54:b6:83:d7:a5:9a:5c:
        8f:d0:a6:d1:65:f0:d2:6a:70:25:ce:9b:9a:06:49:
        4e:5a:cd:d5:4c:96:1f:84:f1:b9:97:ea:a9:de:c5:
        26:80:ee:48:3b:aa:b8:4c:fd:bc:71:0e:96:40:64:
        38:20:da:0e:a4:42:a9:95:ae:43:de:14:2b:2a:4c:
        3e:a9
```

```
Exponent: 65537 (0x10001)
X509v3 extensions:
  X509v3 Subject Key Identifier:
D5:FC:6B:30:CD:D9:7B:4D:57:30:80:6A:AD:96:E6:02:27:06:EF:DA
  X509v3 Authority Key Identifier:
keyid:D5:FC:6B:30:CD:D9:7B:4D:57:30:80:6A:AD:96:E6:02:27:06:EF:DA
  X509v3 Basic Constraints:
    CA:FALSE
  Signature Algorithm: sha256WithRSAEncryption
    b1:e5:ad:cb:9c:c9:fe:7a:8f:2f:73:2a:eb:76:cc:9d:f2:41:
    16:b7:c6:5b:aa:84:30:37:b2:8c:f3:5a:71:2e:77:28:56:1c:
    42:76:6c:fa:8c:ef:53:4d:db:34:3d:1c:45:c1:80:64:1c:04:
    18:8e:79:8b:d7:92:55:13:89:ad:d4:d0:47:e0:d4:10:db:37:
    72:5d:a2:45:f8:7d:ed:fd:18:f7:04:c8:64:98:2d:c5:76:43:
    ef:1e:33:c8:05:63:10:cf:db:28:e5:8d:c1:6d:4b:2e:2a:54:
    df:c1:96:34:6f:3a:64:18:f3:97:7f:2a:58:6b:f2:8e:ee:10:
    da:48:1d:58:47:9d:5d:26:44:22:d6:10:ce:11:68:21:db:ea:
    e8:3f:1a:5c:d0:33:2b:92:23:f5:44:de:43:32:d6:b7:fc:ef:
    76:97:b7:65:b4:f2:f5:a9:d4:7e:1a:3d:fb:f3:ce:c0:2f:8a:
    fb:33:98:a4:5c:9a:44:9f:10:81:24:78:d5:36:7d:3c:b5:3c:
    da:2d:6c:7a:48:8b:a3:4c:0a:2b:99:1f:23:ef:1a:4e:3d:b7:
    ea:b2:41:dc:20:54:d2:06:6f:b9:10:7a:58:55:f3:ba:ba:72:
    23:f3:11:ec:32:11:71:4d:70:5a:2a:6c:07:c2:0d:75:25:aa:
    77:2d:f2:af
```

---

## REST Server Limitations

The following limitations apply to the REST server:

- Authentication via RADIUS or TACACS+ is not supported.
- REST API calls can *only* be made by a “network-admin” user. Requests made by any other type of user will be rejected by the REST API server.
- The only MIME type supported is “application/json”. Any other values, including no MIME type, will be rejected.
- Each request from a client must contain all information necessary for the REST server to fulfill the request. Requests with partial information will be ignored.



---

## Chapter 2. REST Server JSON Calls

This chapter contains the JavaScript Object Notation (JSON) calls you can make to the REST server on the switch.

- [“AAA” on page 41](#) - lists URIs and functions with regards to Authentication, Authorization and Accounting (AAA)
- [“ARP” on page 59](#) - lists URIs and functions with regards to Address Resolution Protocol (ARP)
- [“BGP” on page 95](#) - lists URIs and functions with regards to Border Gateway Protocol (BGP)
- [“CEE” on page 161](#) - lists URIs and functions with regards to Converged Enhanced Ethernet (CEE)
- [“DCI” on page 193](#) - lists URIs and functions with regards to Data Center Interconnection (DCI)
- [“Default IP Address” on page 215](#) - lists URIs and functions with regards to default IP address
- [“DHCP” on page 219](#) - lists URIs and functions with regards to Dynamic Host Configuration Protocol (DHCP)
- [“DNS” on page 247](#) - lists URIs and functions with regards to Domain Name System (DNS)
- [“ECMP” on page 259](#) - lists URIs and functions with regards to Equal Cost Multiple Paths (ECMP)
- [“FDB” on page 269](#) - lists URIs and functions with regards to Forwarding Database (FDB)
- [“HSC” on page 283](#) - lists URIs and functions with regards to NSX Gateway (NSX-GW)
- [“IGMP” on page 317](#) - lists URIs and functions with regards to Internet Group Management Protocol (IGMP)
- [“Interface” on page 331](#) - lists URIs and functions with regards to switch interfaces, such ethernet ports or loopback interfaces
- [“IP Interface” on page 343](#) - lists URIs and functions with regards to routed switch interfaces
- [“LACP” on page 349](#) - lists URIs and functions with regards to Link Aggregation Control Protocol (LACP)
- [“LAG” on page 353](#) - lists URIs and functions with regards to Link Aggregation Groups (LAGs)
- [“LDAP” on page 367](#) - lists URIs and functions with regards to Lightweight Directory Access Protocol (LDAP)
- [“LLDP” on page 389](#) - lists URIs and functions with regards to Link Layer Discovery Protocol (LLDP)
- [“MSTP” on page 399](#) - lists URIs and functions with regards to Multiple Spanning Tree Protocol (MSTP)

- [“NextHopHealth” on page 409](#) - lists URIs and functions with regards to NextHopHealth information and configuration
- [“NOS Copy” on page 411](#) - lists URIs and functions with regards to copying NOS images and configuration files
- [“NPA” on page 425](#) - lists URIs and functions with regards to Network Policy Agent (NPA)
- [“NTP” on page 471](#) - lists URIs and functions with regards to Network Time Protocol (NTP)
- [“OSPF” on page 479](#) - lists URIs and functions with regards to Open Shortest Path First (OSPF)
- [“PKA” on page 543](#) - lists URIs and functions with regards to Public Key Authentication (PKA)
- [“PKI” on page 551](#) - lists URIs and functions with regards to Private Key Infrastructure (PKI)
- [“Private VLAN” on page 571](#) - lists URIs and functions with regards to private virtual LANs information and configuration
- [“QoS over L3” on page 585](#) - lists URIs and functions with regards to QoS over L3 information and configuration
- [“RADIUS” on page 587](#) - lists URIs and functions with regards to Remote Authentication Dial-In User Service (RADIUS)
- [“REST” on page 603](#) - lists URIs and functions with regards to REST information and configuration
- [“Route Maps” on page 607](#) - lists URIs and functions with regards to route maps information and configuration
- [“Security Mode” on page 609](#) - lists URIs and functions with regards to the switch security mode
- [“sFlow” on page 613](#) - lists URIs and functions with regards to sampled flow (sFlow)
- [“SNMP” on page 621](#) - lists URIs and functions with regards to Simple Network Management Protocol (SNMP)
- [“SSH” on page 631](#) - lists URIs and functions with regards to Secure Shell (SSH) management
- [“Startup Information” on page 635](#) - lists URIs and functions with regards to startup information, such as the current startup image or Zero Touch Provisioning (ZTP) settings
- [“STP” on page 641](#) - lists URIs and functions with regards to Spanning Tree Protocol (STP)
- [“System” on page 653](#) - lists URIs and functions with regards to system properties
- [“System Configuration” on page 655](#) - lists URIs and functions with regards to system configuration, such as hostname or switch clock settings
- [“System Information” on page 673](#) - lists URIs and functions with regards to system information, such as the status of system resources

- [“Telemetry” on page 685](#) - lists URIs and functions with regards to telemetry information and configuration
- [“Telnet” on page 721](#) - lists URIs and functions with regards to telnet information and configuration
- [“TACACS+” on page 725](#) - lists URIs and functions with regards to Terminal Access Controller Access-Control System Plus (TACACS+)
- [“vLAG” on page 737](#) - lists URIs and functions with regards to Virtual Link Aggregation Group (vLAG)
- [“VLAN” on page 753](#) - lists URIs and functions with regards to virtual LANs
- [“VLAN Interface Properties” on page 765](#) - lists URIs and functions with regards to Switch Virtual Interfaces (SVIs)
- [“VRF” on page 773](#) - lists URIs and functions with regards to Virtual Routing and Forwarding (VRF)
- [“VRRP” on page 779](#) - lists URIs and functions with regards to Virtual Router Redundancy Protocol (VRRP)





---

## AAA

The following Authentication, Authorization and Accounting (AAA) URIs are available:

- /nos/api/cfg/aaa/accounting/default GET, PUT
- /nos/api/cfg/aaa/authorization/commands/default GET, PUT
- /nos/api/cfg/aaa/authorization/config-commands/default GET, PUT
- /nos/api/cfg/aaa/authentication/login/console GET, PUT
- /nos/api/cfg/aaa/authentication/login/default GET, PUT
- /nos/api/cfg/aaa/authentication/login/error-enable GET, PUT
- /nos/api/cfg/aaa/local/authentication/ GET, PUT
- /nos/api/cfg/aaa/user/default-role GET, PUT
- /nos/api/info/aaa/groups GET

The following AAA commands are available:

- [Get AAA Accounting Configuration](#)
- [Update AAA Accounting Configuration](#)
- [Get AAA User EXEC Commands Authorization Setting](#)
- [Update AAA User EXEC Commands Authorization Settings](#)
- [Get AAA Configuration Commands Authorization Settings](#)
- [Update AAA Configuration Commands Authorization Settings](#)
- [Get AAA Console User Login Authentication Configuration](#)
- [Update AAA Console User Login Authentication Configuration](#)
- [Get AAA Remote User Login Authentication Configuration](#)
- [Update AAA Remote User Login Authentication Configuration](#)
- [Get AAA Authentication Login Error Message Status](#)
- [Update AAA Authentication Login Error Message Status](#)
- [Get AAA Local Authentication Configuration](#)
- [Update AAA Local Authentication Configuration](#)
- [Get AAA User Default Role Status](#)
- [Update AAA User Default Role Status](#)
- [Get AAA Groups](#)

## Get AAA Accounting Configuration

Gets the AAA accounting configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/aaa/accounting/default
Request Body (JSON)	

### Response

Response Body (JSON)	{ "methods": "[group {group_name}+] [local]" }
----------------------	--

where:

Element	Description
methods	The AAA accounting methods; one of <code>group</code> - followed by a list of maximum 8 AAA groups (optionally followed by <code>local</code> ).

## Update AAA Accounting Configuration

Updates the AAA accounting configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/aaa/accounting/default
Request Body (JSON)	{ "methods":["group {group_name}+ ] [local]" }

where:

Element	Description
methods	The AAA accounting methods; one of <b>group</b> - followed by a list of maximum 8 AAA groups (optionally followed by <b>local</b> ).

### Response

Response Body (JSON)	{ "methods":["group {group_name}+ ] [local]" }
----------------------	--

where:

Element	Description
methods	The AAA accounting methods; one of <b>group</b> - followed by a list of maximum 8 AAA groups (optionally followed by <b>local</b> ).

## Get AAA User EXEC Commands Authorization Setting

Gets the current User EXEC command mode authorization settings.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/aaa/authorization/commands/default
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "methods":"[group {group_name}+] [local]" }
----------------------	---

where:

Element	Description
methods	The AAA accounting methods; one of <code>group</code> - followed by a list of maximum 8 AAA groups (optionally followed by <code>local</code> ).

## Update AAA User EXEC Commands Authorization Settings

Updates the AAA User EXEC command mode authorization settings.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/aaa/authorization/commands/default
Request Body (JSON)	{ "methods":["group {group_name}+ ] [local]" }

where:

Element	Description
methods	The AAA accounting methods; one of <b>group</b> - followed by a list of maximum 8 AAA groups (optionally followed by <b>local</b> ).

### Response

Response Body (JSON)	{ "methods":["group {group_name}+ ] [local]" }
----------------------	--

where:

Element	Description
methods	The AAA accounting methods; one of <b>group</b> - followed by a list of maximum 8 AAA groups (optionally followed by <b>local</b> ).

## Get AAA Configuration Commands Authorization Settings

Gets the current configuration command mode authorization settings.

### Request

Method Type	GET
Request URI	/nos/api/cfg/aaa/authorization/config-commands/default
Request Body (JSON)	

### Response

Response Body (JSON)	{ "methods":"[group {group_name}+] [local]" }
----------------------	---

where:

Element	Description
methods	The AAA accounting methods; one of <code>group</code> - followed by a list of maximum 8 AAA groups (optionally followed by <code>local</code> ).

## Update AAA Configuration Commands Authorization Settings

Updates the AAA User EXEC command mode authorization settings.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/aaa/authorization/config-commands/default
Request Body (JSON)	{ "methods":["group {group_name}+ ] [local]" }

where:

Element	Description
methods	The AAA accounting methods; one of <code>group</code> - followed by a list of maximum 8 AAA groups (optionally followed by <code>local</code> ).

### Response

Response Body (JSON)	{ "methods":["group {group_name}+ ] [local]" }
----------------------	--

where:

Element	Description
methods	The AAA accounting methods; one of <code>group</code> - followed by a list of maximum 8 AAA groups (optionally followed by <code>local</code> ).

## Get AAA Console User Login Authentication Configuration

Gets the current console user login authentication configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/aaa/authentication/login/console
Request Body (JSON)	

### Response

Response Body (JSON)	{ "methods":["group {group_name}+] [local] [none]" }
----------------------	--

where:

Element	Description
methods	The AAA accounting methods; one of <code>group</code> - followed by a list of maximum 8 AAA groups (optionally followed by <code>local</code> ), <code>none</code> .



## Update AAA Console User Login Authentication Configuration

Updates the console user login authentication configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/aaa/authentication/login/console
Request Body (JSON)	{ "methods":["group {group_name}+ ] [local] [none]" }

where:

Element	Description
methods	The AAA accounting methods; one of <b>group</b> - followed by a list of maximum 8 AAA groups (optionally followed by <b>local</b> ), <b>none</b> .

### Response

Response Body (JSON)	{ "methods":["group {group_name}+ ] [local] [none]" }
----------------------	---

where:

Element	Description
methods	The AAA accounting methods; one of <b>group</b> - followed by a list of maximum 8 AAA groups (optionally followed by <b>local</b> ), <b>none</b> .

## Get AAA Remote User Login Authentication Configuration

Gets the current remote user login authentication configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/aaa/authentication/login/default
Request Body (JSON)	

### Response

Response Body (JSON)	{ "methods":"[group {group_name}+] [local] [none]" }
----------------------	--

where:

Element	Description
methods	The AAA accounting methods; one of <code>group</code> - followed by a list of maximum 8 AAA groups (optionally followed by <code>local</code> ), <code>none</code> .

## Update AAA Remote User Login Authentication Configuration

Updates the remote user login authentication configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/aaa/authentication/login/default
Request Body (JSON)	{ "methods":["group {group_name}+] [local] [none]" }

where:

Element	Description
methods	The AAA accounting methods; one of <b>group</b> - followed by a list of maximum 8 AAA groups (optionally followed by <b>local</b> ), <b>none</b> .

### Response

Response Body (JSON)	{ "methods":["group {group_name}+] [local] [none]" }
----------------------	--

where:

Element	Description
methods	The AAA accounting methods; one of <b>group</b> - followed by a list of maximum 8 AAA groups (optionally followed by <b>local</b> ), <b>none</b> .

## Get AAA Authentication Login Error Message Status

Checks if error messages are displayed when users fail to authenticate.

### Request

Method Type	GET
Request URI	/nos/api/cfg/aaa/authentication/login/error-enable
Request Body (JSON)	

### Response

Response Body (JSON)	{ "status": "{enable disable}" }
----------------------	--

where:

Element	Description
status	The status of authentication login error messages; one of <i>enable</i> , <i>disable</i> .

## Update AAA Authentication Login Error Message Status

Updates the status of authentication login error messages.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/aaa/authentication/login/error-enable
Request Body (JSON)	{ "status": "{enable disable}" }

where:

Element	Description
status	The status of authentication login error messages; one of <i>enable</i> , <i>disable</i> .

### Response

Response Body (JSON)	{ "status": "{enable disable}" }
----------------------	--

where:

Element	Description
status	The status of authentication login error messages; one of <i>enable</i> , <i>disable</i> .

## Get AAA Local Authentication Configuration

Gets the AAA local authentication configuration, such as the maximum number of unsuccessful authentication attempts before a user is locked out.

### Request

Method Type	GET
Request URI	/nos/api/cfg/aaa//local/authentication
Request Body (JSON)	

### Response

Response Body (JSON)	{ "maxfail_attempts": { <i>maxfail_attempts</i> } }
----------------------	---

where:

Element	Description
maxfail_attempts	The maximum number of unsuccessful authentication attempts before a user is locked out; an integer from 1-25. Default value: 3.

## Update AAA Local Authentication Configuration

Updates the AAA local authentication configuration, such as the maximum number of unsuccessful authentication attempts before a user is locked out.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/aaa/local/authentication
Request Body (JSON)	

where:

Element	Description
maxfail_attempts	The maximum number of unsuccessful authentication attempts before a user is locked out; an integer from 1-25. Default value: 3.

### Response

Response Body (JSON)	{ "maxfail_attempts": {maxfail_attempts} }
----------------------	--

where:

Element	Description
maxfail_attempts	The maximum number of unsuccessful authentication attempts before a user is locked out; an integer from 1-25. Default value: 3.

## Get AAA User Default Role Status

Checks if users are allowed to login even if the TACACS+ server does not provide a default role. The default role is network-operator.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/aaa/user/default-role
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "status": "{enable disable}" }
----------------------	--

where:

Element	Description
status	The status of allowing users to login even if the TACACS+ server does not provide a role; one of <i>enable</i> , <i>disable</i> .



## Update AAA User Default Role Status

Updates the status of allowing users to login even if the TACACS+ server does not provide a role. The default role is network-operator.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/aaa/user/default-role
Request Body (JSON)	{ "status": "{enable disable}" }

where:

Element	Description
status	The status of allowing users to login even if the TACACS+ server does not provide a role; one of <i>enable</i> , <i>disable</i> .

### Response

Response Body (JSON)	{ "status": "{enable disable}" }
----------------------	--

where:

Element	Description
status	The status of allowing users to login even if the TACACS+ server does not provide a role; one of <i>enable</i> , <i>disable</i> .

## Get AAA Groups

Gets AAA group information.

### Request

Method Type	GET
Request URI	/nos/api/info/aaa/groups
Request Body (JSON)	

### Response

Response Body (JSON)	[ { "group_name": "{group_name}", "type": "{TACACS+}" } ]
----------------------	--

where:

Element	Description
group_name	The name of the AAA group (string).
type	The type of the AAA group; for example <i>TACACS+</i> .

**Note:** Currently, the only supported AAA group type is *TACACS+*.

---

# ARP

The following ARP URIs are available:

- /nos/api/cfg/arp GET, PUT
- /nos/api/cfg/arp\_interface GET
- /nos/api/cfg/arp\_interface/<if\_name> GET, PUT
- /nos/api/cfg/arp\_entry GET
- /nos/api/cfg/arp\_entry/<if\_name> GET, POST
- /nos/api/cfg/arp\_entry/<if\_name>/<ip\_addr> GET, PUT, DELETE
- /nos/api/cfg/arp\_refresh GET, PUT

The following ARP commands are available:

- [Get ARP System Properties](#)
- [Update ARP System Properties](#)
- [Get ARP Properties of All Interfaces](#)
- [Get ARP Interface Properties](#)
- [Update ARP Interface Properties](#)
- [Get Static ARP Entries of All Interfaces](#)
- [Get Static ARP Entries of One Interface](#)
- [Create Static ARP Entry](#)
- [Get Static ARP Entry](#)
- [Update Static ARP Entry](#)
- [Delete Static ARP Entry](#)
- [Get ARP Refresh Configuration](#)
- [Update ARP Refresh Configuration](#)

## Get ARP System Properties

Gets global ARP properties of the system.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/arp
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "ageout_time": "<ageout_time>" }
-------------------------	--

where:

Element	Description
ageout_time	The global ARP entry age-out time, in seconds; an integer from 60-28800. Default value: 1500 seconds.

## Update ARP System Properties

Updates the global ARP properties of the system.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/arp
Request Body (JSON)	{ "ageout_time": "<ageout_time>" }

where:

Element	Description
ageout_time	The global ARP entry age-out time, in seconds; an integer from 60-28800. Default value: 1500 seconds.

### *Response*

Response Body (JSON)	{ "ageout_time": "<ageout_time>" }
-------------------------	--

## Get ARP Properties of All Interfaces

Gets ARP properties of all interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/arp_interface
Request Body (JSON)	

### Response

Response Body (JSON)	[ { "if_name": "<if_name>", "ageout_time": "<ageout_time>" } ]
-------------------------	---

where:

Element	Description
if_name	IP interface name (string). <b>Note:</b> The interface must exist.
ageout_time	The global ARP entry age-out time, in seconds; an integer from 60-28800. Default value: 1500 seconds.

## Get ARP Interface Properties

Gets ARP properties of one interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/arp_interface/<if_name>
Request Body (JSON)	

### Response

Response Body (JSON)	[ { "if_name": "<if_name>", "ageout_time": "<ageout_time>" } ]
-------------------------	---

where:

Element	Description
if_name	IP interface name (string). <b>Note:</b> The interface must exist.
ageout_time	The global ARP entry age-out time, in seconds; an integer from 60-28800. Default value: 1500 seconds.

## Update ARP Interface Properties

Updates the ARP properties of one interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/arp_interface/<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The IP interface name (string). <b>Note:</b> The interface must exist.
<i>ageout_time</i>	The global ARP entry age-out time, in seconds; an integer from 60-28800. Default value: 1500 seconds.

### Response

Response Body (JSON)	[ { "if_name": "<if_name>", "ageout_time": "<ageout_time>" } ]
-------------------------	---

where:

Element	Description
<i>if_name</i>	The IP interface name (string).
<i>ageout_time</i>	The global ARP entry age-out time, in seconds; an integer from 60-28800. Default value: 1500 seconds.



## Get Static ARP Entries of All Interfaces

Gets all static ARP entries of all interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/arp_entry
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "if_name": "&lt;if_name&gt;",     "ip_addr": "&lt;ip_addr&gt;",     "mac_addr": "&lt;mac_addr&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
ip_addr	The IP address.
mac_addr	The MAC address in the following format: xxxx.xxxx.xxxx.

## Get Static ARP Entries of One Interface

Gets all static ARP entries under the specified interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/arp_entry/<if_name>
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "if_name": "&lt;if_name&gt;",     "ip_addr": "&lt;ip_addr&gt;",     "mac_addr": "&lt;mac_addr&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
ip_addr	The IP address.
mac_addr	The MAC address in the following format: xxxx.xxxx.xxxx.

## Create Static ARP Entry

Creates a static ARP entry under the specified interface.

### Request

Method Type	POST
Request URI	/nos/api/cfg/arp_entry/<if_name>
Request Body (JSON)	{ "if_name": "<if_name>", "ip_addr": "<ip_addr>", "mac_addr": "<mac_addr>" }

where:

Element	Description
<i>if_name</i>	Interface name. <b>Note:</b> The interface must exist.
<i>ip_addr</i>	The IP address.
<i>mac_addr</i>	The MAC address in the following format: xxxx.xxxx.xxxx.

### Response

Response Body (JSON)	[ { "if_name": "<if_name>", "ip_addr": "<ip_addr>", "mac_addr": "<mac_addr>" } ]
-------------------------	--

## Get Static ARP Entry

Gets one static ARP entry under the specified interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/arp_entry/<if_name>/<ip_addr>
Request Body (JSON)	

### Response

Response Body (JSON)	{ "if_name": "<if_name>", "ip_addr": "<ip_addr>", "mac_addr": "<mac_addr>" }
-------------------------	--

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
ip_addr	The IP address.
mac_addr	The MAC address in the following format: xxxx.xxxx.xxxx.

## Update Static ARP Entry

Updates properties of one static ARP entry under the specified interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/arp_entry/<if_name>/<ip_addr>
Request Body (JSON)	{ "if_name": "<if_name>", "ip_addr": "<ip_addr>", "mac_addr": "<mac_addr>" }

where:

Element	Description
<i>if_name</i>	Interface name. <b>Note:</b> The interface must exist.
<i>ip_addr</i>	The IP address.
<i>mac_addr</i>	The MAC address in the following format: xxxx.xxxx.xxxx.

### Response

Response Body (JSON)	{ "if_name": "<if_name>", "ip_addr": "<ip_addr>", "mac_addr": "<mac_addr>" }
-------------------------	--

## Delete Static ARP Entry

Deletes a static ARP entry under the specified interface.

**Note:** If the specified *ip\_addr* is **all**, all static ARP entries under specified interface will be deleted.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/arp_entry/<if_name>/<ip_addr>
Request Body (JSON)	

## Get ARP Refresh Configuration

Gets the ARP refresh configuration.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/arp_refresh
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "state": "{enabled disabled}" }
----------------------	---

where:

Element	Description
state	The status of ARP refresh on the switch  one of <i>enabled</i> , <i>disabled</i> .

## Update ARP Refresh Configuration

Updates the ARP refresh configuration.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/arp_refresh
Request Body (JSON)	{ "state": "{enabled disabled}" }

where:

Element	Description
state	The status of ARP refresh on the switchl one of <i>enabled</i> , <i>disabled</i> .

### *Response*

Response Body (JSON)	{ "state": "{enabled disabled}" }
----------------------	---

where:

Element	Description
state	The status of ARP refresh on the switchl one of <i>enabled</i> , <i>disabled</i> .



---

## BFD

The following Bidirectional Forwarding Detection URIs are available:

- /nos/api/info/bfd GET
- /nos/api/info/bfd/details GET
- /nos/api/info/bfd/application/<protocol\_name> GET
- /nos/api/info/bfd/application\_details/<protocol\_name> GET
- /nos/api/info/bfd/loc\_addr/<loc\_addr> GET
- /nos/api/info/bfd/rem\_addr/<rem\_addr> GET
- /nos/api/cfg/bfd POST
- /nos/api/cfg/bfd/interface/<if\_name> POST
- /nos/api/cfg/bfd/interface/<if\_name>/neighbors POST
- /nos/api/cfg/bfd/interface/<if\_name>/neighbors/<loc\_disc> DELETE
- /nos/api/cfg/bfd/multihop\_peer/<rem\_addr> POST

The following BFD commands are available:

- [Get all BFD Sessions](#)
- [Get all BFD Sessions Details](#)
- [Get BFD Sessions for the Specified Protocol](#)
- [Get all BFD Session Details for the Specified Protocol](#)
- [Get BFD Sessions with the Specified Local Address](#)
- [Get BFD Sessions with the Specified Remote Address](#)
- [Change BFD Global Options](#)
- [Change BFD Interface Options](#)
- [Create a New BFD Session](#)
- [Delete a BFD Session](#)
- [Set or Unset BFD Multihop Session Options](#)

## Get all BFD Sessions

Get information about all BFD sessions.

### Request

Method Type	GET
Request URI	/nos/api/info/bfd
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "loc_addr": "&lt;loc_addr&gt;",     "rem_addr": "&lt;rem_addr&gt;",     "loc_disc": "&lt;loc_disc&gt;",     "rem_disc": "&lt;rem_disc&gt;",     "RH/RS": "&lt;RH/RS&gt;",     "holddown": "&lt;holddown&gt;",     "mult": "&lt;mult&gt;",     "sess_state": "&lt;sess_state&gt;",     "if_name": "&lt;if_name&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
loc_addr	BFD session source IP address (string); a valid IPv4 or IPv6 address.
rem_addr	BFD session destination IP address (string); a valid IPv4 or IPv6 address.
loc_disc	Unique number used by the local system to identify the BFD session; an integer from 1-2147483647.
rem_disc	Unique number used by the remote system to identify the BFD session; an integer from 1-2147483647.
RH/RS	Remote Heard/Remote State (string); one of <i>UP</i> , <i>DOWN</i> , <i>ADMIN_DOWN</i> .
holddown	If no BFD packet is received in the specified number of milliseconds, the session will be declared down; an integer from 150-2997.
mult	The number of times a packet is missed before BFD declares the neighbor down; an integer from 3-50.

Element	Description
sess_state	BFD session state (string); one of <i>UP</i> , <i>DOWN</i> , <i>ADMIN_DOWN</i> .
if_name	Interface on which the BFD session is active. <b>Note:</b> The interface must exist.

## Get all BFD Sessions Details

Get detailed information about all BFD sessions.

### Request

Method Type	GET
Request URI	/nos/api/info/bfd/details
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "loc_addr": "&lt;loc_addr&gt;",     "rem_addr": "&lt;rem_addr&gt;",     "loc_disc": &lt;loc_disc&gt;,     "rem_disc": &lt;rem_disc&gt;,     "RH/RS": "&lt;RH/RS&gt;",     "holddown": &lt;holddown&gt;,     "mult": &lt;mult&gt;,     "sess_state": "&lt;sess_state&gt;",     "if_name": "&lt;if_name&gt;"     "echo_mode": "&lt;echo_mode&gt;",     "gtsm": "&lt;gtsm&gt;",     "gtsm_ttl": &lt;value&gt;,     "minTxInt": &lt;minTxInt&gt;,     "minRxInt": &lt;minRxInt&gt;,     "negotiated minRxInt": &lt;negotiated minRxInt&gt;,     "negotiated multiplier": &lt;negotiated multiplier&gt;,     "rx Count": &lt;rx Count&gt;,     "tx Count": &lt;tx Count&gt;,     "registered protocols": "&lt;registered protocols&gt;",     "uptime": "&lt;uptime&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
loc_addr	BFD session source address (string); a valid IPv4 or IPv6 address.
rem_addr	BFD session destination IP address (string); a valid IPv4 or IPv6 address.
loc_disc	Unique number used by the local system to identify the BFD session; an integer from 1-2147483647.
rem_disc	Unique number used by the remote system to identify the BFD session; an integer from 1-2147483647.

Element	Description
RH/RS	Remote Heard/Remote State (string); one of <i>UP</i> , <i>DOWN</i> , <i>ADMIN_DOWN</i> .
holdown	If no BFD packet is received in the specified number of milliseconds, the session will be declared down; an integer from 150-2997.
mult	The number of times a packet is missed before BFD declares the neighbor down; an integer from 3-50.
sess_state	BFD session state (string); one of <i>UP</i> , <i>DOWN</i> , <i>ADMIN_DOWN</i> .
if_name	Interface on which the BFD session is active. <b>Note:</b> The interface must exist.
echo_mode	Whether the BFD session has echo mode enabled (string); one of <i>enabled</i> , <i>disabled</i> .
gtsm	Whether the BFD session has Generalized TTL Security Mechanism (GTSM) enabled; one of <i>enabled</i> , <i>disabled</i> .
gtsm_ttl	Displays BFD GTSM Time-To Live (TTL) value; an integer from 1-255.
minTxInt	Rate at which BFD control packets will be sent to BFD neighbors; an integer from 50-999.
minRxInt	Specifies the rate at which BFD control packets will be expected to be received from BFD neighbors; an integer from 50-999.
negotiated minRxInt	Specifies the negotiated rate at which BFD control packets will be received from BFD neighbors; an integer from 50-999.
negotiated multiplier	The number of times a packet is missed before BFD declares the session down; an integer from 3-50.
rx Count	The number of received BFD packets; a positive integer.
tx Count	The number of sent BFD packets; a positive integer.
registered protocols	Protocol for which the BFD session is active (string); one of <i>OSPF</i> , <i>BGP</i> , <i>RIB</i> , <i>BFD</i> , <i>NWV</i> .
uptime	How long the BFD session has been up; a string in the following format: <i>HH:MM:SS</i> .

## Get BFD Sessions for the Specified Protocol

Get BFD sessions for the specified protocol.

### Request

Method Type	GET
Request URI	/nos/api/info/bfd/application/<protocol_name>
Request Body (JSON)	

where:

Element	Description
<i>protocol_name</i>	(Mandatory) Protocol for which the BFD session is active (string); one of: <i>OSPF, BGP, RIB, BFD, NWV</i> .

### Response

Response Body (JSON)	[ { "loc_addr": "<loc_addr>", "rem_addr": "<rem_addr>", "loc_disc": "<loc_disc>", "rem_disc": "<rem_disc>", "RH/RS": "<RH/RS>", "holddown": "<holddown>", "mult": "<mult>", "sess_state": "<sess_state>", "if_name": "<if_name>" } ]
-------------------------	--

where:

Element	Description
loc_addr	BFD session source address (string); a valid IPv4 or IPv6 address.
rem_addr	BFD session destination IP address (string); a valid IPv4 or IPv6 address.
loc_disc	Unique number used by the local system to identify the BFD session; an integer from 1-2147483647.
rem_disc	Unique number used by the remote system to identify the BFD session; an integer from 1-2147483647.
RH/RS	Remote Heard/Remote State (string); one of <i>UP, DOWN, ADMIN_DOWN</i> .

Element	Description
holdown	If no BFD packet is received in the specified number of milliseconds, the session will be declared down; an integer from 150-2997.
mult	The number of times a packet is missed before BFD declares the neighbor down; an integer from 3-50.
sess_state	BFD session state (string); one of <i>UP</i> , <i>DOWN</i> , <i>ADMIN_DOWN</i> .
if_name	Interface on which the BFD session is active. <b>Note:</b> The interface must exist.

## Get all BFD Session Details for the Specified Protocol

Get BFD session details for the specified protocol.

### Request

Method Type	GET
Request URI	/nos/api/info/bfd/application_details/<protocol_name>
Request Body (JSON)	

where:

Element	Description
<i>protocol_name</i>	(Mandatory) Protocol for which the BFD session is active (string); one of: <i>OSPF, BGP, RIB, BFD, NWV</i> .

### Response

Response Body (JSON)	<pre>[   {     "loc_addr": &lt;loc_addr&gt;,     "rem_addr": &lt;rem_addr&gt;,     "loc_disc": &lt;loc_disc&gt;,     "rem_disc": &lt;rem_disc&gt;,     "RH/RS": &lt;RH/RS&gt;,     "holddown": &lt;holddown&gt;,     "mult": &lt;mult&gt;,     "sess_state": &lt;sess_state&gt;,     "if_name": &lt;if_name&gt;,     "echo_mode": &lt;echo_mode&gt;,     "gtsm": &lt;gtsm&gt;,     "gtsm_ttl": &lt;gtsm_ttl&gt;,     "minTxInt": &lt;minTxInt&gt;,     "minRxInt": &lt;minRxInt&gt;,     "negotiated minRxInt": &lt;negotiated_minRxInt&gt;,     "negotiated multiplier": &lt;negotiated_multiplier&gt;,     "rx Count": &lt;rx_Count&gt;,     "tx Count": &lt;tx_Count&gt;,     "registered protocols": &lt;registered_protocols&gt;,     "uptime": &lt;uptime&gt;,   } ]</pre>
-------------------------	--



where:

Element	Description
loc_addr	BFD session source address (string); a valid IPv4 or IPv6 address.
rem_addr	BFD session destination IP address (string); a valid IPv4 or IPv6 address.
loc_disc	Unique number used by the local system to identify the BFD session; an integer from 1-2147483647.
rem_disc	Unique number used by the remote system to identify the BFD session; an integer from 1-2147483647.
RH/RS	Remote Heard/Remote State (string); one of <i>UP</i> , <i>DOWN</i> , <i>ADMIN_DOWN</i> .
holdown	If no BFD packet is received in the specified number of milliseconds, the session will be declared down; an integer from 150-2997.
mult	The number of times a packet is missed before BFD declares the neighbor down; an integer from 3-50.
sess_state	BFD session state (string); one of <i>UP</i> , <i>DOWN</i> , <i>ADMIN_DOWN</i> .
if_name	Interface on which the BFD session is active. <b>Note:</b> The interface must exist.
echo_mode	Whether the BFD session has echo mode enabled (string); one of <i>enabled</i> , <i>disabled</i> .
gtsm	Whether the BFD session has Generalized TTL Security Mechanism (GTSM) enabled; one of <i>enabled</i> , <i>disabled</i> .
gtsm_ttl	Displays BFD GTSM Time-To Live (TTL) value; an integer from 1-255.
minTxInt	Rate at which BFD control packets will be sent to BFD neighbors; an integer from 50-999.
minRxInt	Specifies the rate at which BFD control packets will be expected to be received from BFD neighbors; an integer from 50-999.
negotiated minRxInt	Specifies the negotiated rate at which BFD control packets will be received from BFD neighbors; an integer from 50-999.
negotiated multiplier	The number of times a packet is missed before BFD declares the session down; an integer from 3-50.
rx Count	The number of received BFD packets; a positive integer.
tx Count	The number of sent BFD packets; a positive integer.

Element	Description
registered protocols	Protocol for which the BFD session is active (string); one of <i>OSPF, BGP, RIB, BFD</i>
uptime	How long the BFD session has been up; a string in the following format: <i>HH:MM:SS</i> .

## Get BFD Sessions with the Specified Local Address

Get BFD sessions with the specified local address.

### Request

Method Type	GET
Request URI	/nos/api/info/bfd/loc_addr/<loc_addr>
Request Body (JSON)	

where:

Element	Description
<i>loc_addr</i>	(Mandatory) The BFD session source IP address (string); a valid IPv4 or IPv6 address.

### Response

Response Body (JSON)	<pre>[   {     "loc_addr": "&lt;loc_addr&gt;",     "rem_addr": "&lt;rem_addr&gt;",     "loc_disc": "&lt;loc_disc&gt;",     "rem_disc": "&lt;rem_disc&gt;",     "RH/RS": "&lt;RH/RS&gt;",     "holddown": "&lt;holddown&gt;",     "mult": "&lt;mult&gt;",     "sess_state": "&lt;sess_state&gt;",     "if_name": "&lt;if_name&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
<i>loc_addr</i>	BFD session source address (string); a valid IPv4 or IPv6 address.
<i>rem_addr</i>	BFD session destination IP address (string); a valid IPv4 or IPv6 address.
<i>loc_disc</i>	Unique number used by the local system to identify the BFD session; an integer from 1-2147483647.
<i>rem_disc</i>	Unique number used by the remote system to identify the BFD session; an integer from 1-2147483647.
<i>RH/RS</i>	Remote Heard/Remote State (string); one of <i>UP</i> , <i>DOWN</i> , <i>ADMIN_DOWN</i> .

Element	Description
holdown	If no BFD packet is received in the specified number of milliseconds, the session will be declared down; an integer from 150-2997.
mult	The number of times a packet is missed before BFD declares the neighbor down; an integer from 3-50.
sess_state	BFD session state (string); one of <i>UP</i> , <i>DOWN</i> , <i>ADMIN_DOWN</i> .
if_name	Interface on which the BFD session is active. <b>Note:</b> The interface must exist.

## Get BFD Sessions with the Specified Remote Address

Get BFD sessions with the specified remote address.

### Request

Method Type	GET
Request URI	/nos/api/info/bfd/rem_addr/<rem_addr>
Request Body (JSON)	

where:

Element	Description
<i>rem_addr</i>	(Mandatory) The BFD session destination IP address (string); a valid IPv4 or IPv6 address.

### Response

Response Body (JSON)	<pre>[   {     "loc_addr": "&lt;loc_addr&gt;",     "rem_addr": "&lt;rem_addr&gt;",     "loc_disc": "&lt;loc_disc&gt;",     "rem_disc": "&lt;rem_disc&gt;",     "RH/RS": "&lt;RH/RS&gt;",     "holddown": "&lt;holddown&gt;",     "mult": "&lt;mult&gt;",     "sess_state": "&lt;sess_state&gt;",     "if_name": "&lt;if_name&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
<i>loc_addr</i>	BFD session source address (string); a valid IPv4 or IPv6 address.
<i>rem_addr</i>	BFD session destination IP address (string); a valid IPv4 or IPv6 address.
<i>loc_disc</i>	Unique number used by the local system to identify the BFD session; an integer from 1-2147483647.
<i>rem_disc</i>	Unique number used by the remote system to identify the BFD session; an integer from 1-2147483647.
<i>RH/RS</i>	Remote Heard/Remote State (string); one of <i>UP</i> , <i>DOWN</i> , <i>ADMIN_DOWN</i> .

Element	Description
holdown	If no BFD packet is received in the specified number of milliseconds, the session will be declared down; an integer from 150-2997.
mult	The number of times a packet is missed before BFD declares the neighbor down; an integer from 3-50.
sess_state	BFD session state (string); one of <i>UP</i> , <i>DOWN</i> , <i>ADMIN_DOWN</i> .
if_name	Interface on which the BFD session is active. <b>Note:</b> The interface must exist.

## Change BFD Global Options

Set or unset BFD global options.

### Request

Method Type	POST
Request URI	/nos/api/cfg/bfd
Request Body (JSON)	[ <pre>           {             "min_tx": "&lt;min_tx&gt;",             "min_rx" : "&lt;min_rx&gt;",             "multiplier": "&lt;multiplier&gt;",             "ai_family" : "&lt;ai_family&gt;",             "slow_timer" : "&lt;slow_timer&gt;",             "gtsm_enable" : "&lt;gtsm_enable&gt;",             "gtsm_ttl" : "&lt;gtsm_ttl&gt;"           }         </pre> ]

where:

Element	Description
min_tx	Desired rate at which BFD will be able to send packets to the BFD neighbors; the string default for the default value, or an integer from 50-999.
min_rx	Desired rate at which BFD will be able to receive packets from the BFD neighbors; the string default for the default value, or an integer from 50-999.
multiplier	Desired number of times a packet can be missed before BFD will declare the neighbor down; the string default for the default value, or an integer from 3-50.
ai_family	The address family (string); one of <i>ipv4</i> , <i>ipv6</i> .
slow_timer	(Optional) Desired rate at which BFD will send control packets when the BFD session is down or when the BFD echo feature is enabled, in milliseconds; an integer from 1000-30000.
gtsm_enable	(Optional) Enable or disable GTSM protection; one of <i>true</i> , <i>false</i> .
gtsm_ttl	(Optional) Sets the desired BFD GTSM TTL; the string default for the default value, or an integer from 1-255.

**Note:** You must submit values for the parameters `min_tx`, `min_rx`, and `multiplier` in the JSON body for the configuration to be applied. If you do not want to change the BFD options, omit these values from the JSON body.

*Response*

Response Body (JSON)	
----------------------------	--



## Change BFD Interface Options

Set or unset BFD options for a specified interface.

### Request

Method Type	POST
Request URI	/nos/api/cfg/bfd/interface/<if_name>
Request Body (JSON)	<pre>[   {     "min_tx": "&lt;min_tx&gt;",     "min_rx" : "&lt;min_rx&gt;",     "multiplier": "&lt;multiplier&gt;",     "ai_family" : "&lt;ai_family&gt;",     "bfd_ipv4" : "&lt;bfd_ipv4&gt;",     "bfd_ipv6" : "&lt;bfd_ipv6&gt;",     "echo_enable" : "&lt;echo_enable&gt;",     "auth_type" : "&lt;auth_type&gt;",     "auth_key_id" : "&lt;auth_key_id&gt;",     "auth_key" : "&lt;auth_key&gt;",     "auth_key_chain" : "&lt;auth_key_chain&gt;"   } ]</pre>

where:

Element	Description
<i>if_name</i>	(Mandatory) Interface name; a string. <b>Note:</b> The interface must exist.
<i>min_tx</i>	(Optional) Desired rate at which BFD will be able to send packets to the BFD neighbors; either <code>default</code> for the default value, or an integer from 50-999.
<i>min_rx</i>	(Optional) Desired rate at which BFD will be able to receive packets from the BFD neighbors; either <code>default</code> for the default value, or an integer from 50-999.
<i>multiplier</i>	(Optional) Desired number of times a packet can be missed before BFD will declare the neighbor down; the string default for the default value, or an integer from 3-50.
<i>ai_family</i>	(Optional) The address family (string); one of <i>ipv4</i> , <i>ipv6</i> .
<i>bfd_ipv4</i>	(Optional) Enable or disable BFD for all IPv4 BFD sessions that use the named interface; one of <code>true</code> , <code>false</code> .
<i>bfd_ipv6</i>	(Optional) Enable or disable BFD for all IPv6 BFD sessions that use the named interface; one of <code>true</code> , <code>false</code> .
<i>echo_enable</i>	(Optional) Enable or disable BFD echo feature for all BFD sessions that use the named interface; one of <code>true</code> , <code>false</code> .

Element	Description
auth_type	(Optional) The authentication for the BFD session (string); one of <i>simple</i> , <i>keyed-md5</i> , <i>keyed-sha1</i> , <i>keyed-sha256</i> , <i>meticulous-keyed-md5</i> , <i>meticulous-keyed-sha1</i> , <i>meticulous-keyed-sha256</i> , <i>none</i> .
auth_key_chain	(Optional) Sets the authentication with key chain; a string (key chain name). <b>Note:</b> This value applies to all single-hop BFD sessions that use the named interface. If present in the JSON body, both auth_key_id and auth_key must be absent.
auth_key_id	(Optional) Sets the authentication key ID; an integer from 0-255. <b>Note:</b> This value applies to all single-hop BFD sessions that use the named interface. If present in the JSON body, auth_key_id must also be present and auth_key_chain must be absent.
auth_key	(Optional) Sets the authentication key (string). <b>Note:</b> This value applies to all single-hop BFD sessions that use the named interface. If present in the JSON body, both auth_key_id and auth_key must be absent.

**Note:** You must submit values for the parameters `min_tx`, `min_rx`, and `multiplier` in the JSON body for the configuration to be applied. If you do not want to change the BFD options, omit these values from the JSON body.

## Response

Response Body (JSON)	
----------------------	--

## Create a New BFD Session

Create a new BFD session.

### Request

Method Type	POST
Request URI	/nos/api/cfg/bfd/interface/<if_name>/neighbors
Request Body (JSON)	{ "loc_addr" : "<loc_addr>", "rem_addr" : "<rem_addr>", "multihop" : "<multihop>" "admin_down" : "<admin_down>" "non_persistent" : "<non_persistent>" }

where:

Element	Description
<i>if_name</i>	(Mandatory) Interface on which the BFD session is active (string); a valid IPv4 or IPv6 address. <b>Note:</b> The interface must exist.
local_addr	(Mandatory) BFD session source IP address; a valid IPv4 or IPv6 address.
rem_addr	(Mandatory) BFD session destination IP address; a valid IPv4 or IPv6 address.
multihop	(Mandatory) Sets BFD session type: singlehop or multihop (string); one of <i>true</i> , <i>false</i> .
admin_down	(Optional) Set the BFD session state; <i>true</i> for down; <i>false</i> for up. Default value: <i>false</i> .
non_persistent	(Optional) Create the BFD session as non-persistent; <i>true</i> for non-persistent; <i>false</i> for persistent. Default value: <i>false</i> .

### Response

Response Body (JSON)	
-------------------------	--

## Delete a BFD Session

Delete an existing BFD session

### Request

Method Type	DELETE
Request URI	/nos/api/cfg/bfd/interface/<if_name>/neighbors/<loc_disc>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	(Mandatory) Interface on which the BFD session is active. <b>Note:</b> The interface must exist.
<i>loc_disc</i>	(Mandatory) Unique number used by the local system to identify the BFD session; an integer.

### Response

True if the operation succeeded; otherwise False.

## Set or Unset BFD Multihop Session Options

Set or unset BFD multihop session options

### Request

Method Type	POST
Request URI	/nos/api/cfg/bfd/multihop_peer/<rem_addr>
Request Body (JSON)	<pre>{   "min_tx": "&lt;min_tx&gt;",   "min_rx": "&lt;min_rx&gt;",   "multiplier": "&lt;multiplier&gt;",   "auth_type": "&lt;auth_type&gt;",   "auth_key_id": "&lt;auth_key_id&gt;",   "auth_key": "&lt;auth_key&gt;",   "auth_key_chain": "&lt;auth_key_chain&gt;" }</pre>

where:

Element	Description
<i>rem_addr</i>	(Mandatory) The IP address of the BFD neighbor; a valid IPv4 or IPv6 address.
<i>min_tx</i>	(Optional) Desired rate at which BFD will be able to send packets to the BFD neighbors; either <code>default</code> for the default value, or an integer from 50-999.
<i>min_rx</i>	(Optional) Desired rate at which BFD will be able to receive packets from the BFD neighbors; either <code>default</code> for the default value, or an integer from 50-999.
<i>multiplier</i>	(Optional) Desired number of times a packet can be missed before BFD will declare the neighbor down; either <code>default</code> for the default value, or an integer from 3-50.
<i>auth_type</i>	(Optional) The authentication for the BFD session (string); one of <i>simple</i> , <i>keyed-md5</i> , <i>keyed-sha1</i> , <i>keyed-sha256</i> , <i>meticulous-keyed-md5</i> , <i>meticulous-keyed-sha1</i> , <i>meticulous-keyed-sha256</i> , <i>none</i> .
<i>auth_key_id</i>	(Optional) Sets the authentication key ID; an integer from 0-255. <b>Note:</b> This value applies to all single-hop BFD sessions that use the named interface. If this value is present in the JSON body, <i>auth_key</i> must be present and <i>auth_key_chain</i> must be absent.
<i>auth_key</i>	(Optional) Sets the authentication key string; a string. <b>Note:</b> This value applies to all single-hop BFD sessions that use the named interface. If present in the JSON body, <i>auth_key_id</i> must also be present and <i>auth_key_chain</i> must be absent.

Element	Description
auth_key_chain	(Optional) Sets the authentication with key chain; a string (key chain name).  <b>Note:</b> This value applies to all single-hop BFD sessions that use the named interface. If present in the JSON body, both auth_key_id and auth_key must be absent.

## *Response*

Response Body (JSON)	
-------------------------	--

---

## BGP

The following BGP URIs are available:

• /nos/api/info/bgp/global/stats/<vrf_name>	GET, DELETE
• /nos/api/info/bgp/neighbor/adj_rib_in	GET
• /nos/api/info/bgp/neighbor/adj_rib_out	GET
• /nos/api/cfg/bgp/global	GET
• /nos/api/cfg/bgp/bestpath	GET
• /nos/api/cfg/bgp/confed	GET
• /nos/api/cfg/bgp/graceful-restart	GET
• /nos/api/cfg/bgp/route-reflector/<vrf_name>/	GET
• /nos/api/info/bgp/global/rib	GET
• /nos/api/info/bgp/global/rib/details/l2vpn/	GET
• /nos/api/info/bgp/global/rib/network	GET
• /nos/api/info/bgp/neighbor/summary	GET
• /nos/api/info/bgp/neighbor/details/	GET
• /nos/api/info/bgp/neighbor/stats	GET
• /nos/api/cfg/bgp/distance/<af_name>/<saf_name>/<vrf_name>	GET
• /nos/api/cfg/bgp/af	GET
• /nos/api/cfg/bgp/af/maximum_paths	GET
• /nos/api/cfg/bgp/af/nht_delay	GET
• /nos/api/cfg/bgp/af/aggregate	GET
• /nos/api/cfg/bgp/af/dampening	GET
• /nos/api/info/bgp/dampening/dampened_path	GET
• /nos/api/cfg/bgp/af/network	GET
• /nos/api/cfg/bgp/af/redistribute	GET, PUT
• /nos/api/cfg/bgp/neighbor/details	GET, PUT
• /nos/api/cfg/bgp/unnumbered	PUT
• /nos/api/cfg/interface/bgp_unnumbered/<if_name>	PUT

The following BGP interface property commands are available:

- [Get BGP Global Statistics](#)
- [Clear BGP Global Statistics](#)
- [Get BGP Neighbor Received RIB Information](#)
- [Get BGP Neighbor RIB Advertised Information](#)

- [Get BGP Global Configuration](#)
- [Get BGP Best Path Configuration](#)
- [Get BGP Confederation Configuration](#)
- [Get BGP Graceful-Restart Configuration](#)
- [Get BGP Route Reflector Information](#)
- [Get BGP RIB Information](#)
- [Get BGP RIB Information for EVPN Routes](#)
- [Get BGP Detailed RIB Information](#)
- [Get BGP Summary Information](#)
- [Get BGP Neighbor Details](#)
- [Get BGP Neighbor Statistics](#)
- [Get BGP Distance Configuration](#)
- [Get BGP Address Family Global Configuration](#)
- [Get BGP Multipath ECMP Numbers Configuration](#)
- [Get BGP Nexthop Trigger-Delay Configuration](#)
- [Get BGP Aggregate Configuration](#)
- [Get BGP Dampening Parameters Configuration](#)
- [Get BGP Dampened Path Configuration](#)
- [Get BGP Network Configuration](#)
- [Get BGP Redistribute Configuration](#)
- [Set BGP Redistribute Configuration](#)
- [Get BGP Neighbor Configuration](#)
- [Set BGP Neighbor Configuration](#)
- [Update BGP Neighbor Configuration](#)
- [Update Global BGP Unnumbered Configuration](#)
- [Update BGP Unnumbered Interface Configuration](#)



## Get BGP Global Statistics

Gets global BGP statistics.

### Request

Method Type	GET
Request URI	/nos/api/info/bgp/global/stats/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	Virtual Routing and Forwarding name; one of the VRF name, "default," "all". Default value: default.

### Response

Response Body (JSON)	<pre>[   {     "vrf_name": "&lt;vrf_name&gt;",     "stats": {       "in_msgs": "&lt;in_msgs&gt;",       "out_msgs": "&lt;sent_msg&gt;",       "bytes_in": "&lt;bytes_in&gt;",       "bytes_out": "&lt;bytes_out&gt;",       "open_in": "&lt;open_in&gt;",       "open_out": "&lt;open_out&gt;",       "update_in": "&lt;update_in&gt;",       "update_out": "&lt;update_out&gt;",       "keepalive_in": "&lt;keepalive_in&gt;",       "keepalive_out": "&lt;keepalive_out&gt;",       "notify_in": "&lt;notify_in&gt;",       "notify_out": "&lt;notify_out&gt;",       "refresh_in": "&lt;refresh_in&gt;",       "refresh_out": "&lt;refresh_out&gt;",       "dynamic_cap_in": "&lt;dynamic_cap_in&gt;",       "dynamic_cap_out": "&lt;dynamic_cap_out&gt;",     }   } ]</pre>
-------------------------	---

where:

Element	Description
<i>vrf_name</i>	VRF name (string).
<i>in_msgs</i>	Received message number; a positive integer.
<i>out_msgs</i>	Send message number; a positive integer.

<b>Element</b>	<b>Description</b>
bytes_in	Bytes received; a positive integer.
bytes_out	Bytes sent; a positive integer.
open_in	Open message input count; a positive integer.
open_out	Open message output count; a positive integer.
update_in	Update message input count; a positive integer.
update_out	Update message output count; a positive integer.
keepalive_in	Keepalive input count; a positive integer.
keepalive_out	Keepalive output count; a positive integer.
notify_in	Notify input count; a positive integer.
notify_out	Notify output count; a positive integer.
refresh_in	Route Refresh input count; a positive integer.
refresh_out	Route Refresh output count; a positive integer.
dynamic_cap_in	Dynamic Capability input count; a positive integer.
dynamic_cap_out	Dynamic Capability output count; a positive integer.

## Clear BGP Global Statistics

Clears global BGP statistics.

### *Request*

Method Type	DELETE
Request URI	nos/api/info/bgp/global/stats/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	Virtual Routing and Forwarding name; one of the VRF name, "default," "all". Default value: default.

### *Response*

Response Body (JSON)	
-------------------------	--

## Get BGP Neighbor Received RIB Information

Gets the BGP neighbor received Routing Information Base information.

### Request

Method Type	GET
Request URI	/nos/api/info/bgp/neighbor/adj_rib_in/<neighbor_ip>/<af_name>/<vrf_name>/<subaf_name>
Request Body (JSON)	

where:

Element	Description
<i>neighbor_ip</i>	Neighbor IP address; a valid IPv4 or IPv6 address.
<i>vrf_name</i>	(Optional) Address family name; one of <code>ipv4</code> or <code>ipv6m</code> . Default value: <code>ipv4</code> .
<i>af_name</i>	(Optional) VRF name; one of the VRF name, <code>default</code> , <code>all</code> . Default value: <code>default</code> .
<i>subaf_name</i>	(Optional) Subaddress family name; one of <code>unicast</code> , <code>multicast</code> . Default value: <code>unicast</code> .

## Response

Response Body (JSON)	<pre>[   {     "routes":       [         {           "origin": "&lt;origin&gt;",           "network": "&lt;network&gt;",           "mask_len": "&lt;mask_len&gt;",           "weight": "&lt;attr_weight&gt;",           "Metric": "&lt;metric&gt;",           "nexthop": "&lt;nexthop&gt;",           "aspath4B": "&lt;aspath4B&gt;",           "status": "&lt;flag&gt;",           "local_pref": "&lt;local_pref&gt;",           "aspath": "&lt;aspath&gt;",         }       ]     }   ]</pre>
-------------------------	---

where:

Element	Description
origin	Route origin attribute; one of: <ul style="list-style-type: none"> <li>● i - IGP</li> <li>● e - EGP</li> <li>● ? - incomplete</li> </ul>
network	Route destination IP address; a valid IPv4 or IPv6 address.
mask_len	Route mask length; an integer from 0-32.
weight	Route weight attribute; an integer from 0-65535.
metric	Route Multi-Exit Discriminator attribute; an integer from 0-4294967295.
nexthop	Route next hop; a valid IP address.
aspath4B	Route 4B AS path; an AS path VTY string.
status	Router status; one of: <ul style="list-style-type: none"> <li>● s - suppressed</li> <li>● d - damped</li> <li>● h - history</li> <li>● * - valid</li> <li>● &gt; - best</li> <li>● i - internal</li> </ul>
local_pref	Route local preference attribute; an integer from 0-4294967295.
aspath	Route AS path attribute; an AS path VTY string.

## Get BGP Neighbor RIB Advertised Information

Gets information about the advertised BGP neighbor Routing Information Base.

### Request

Method Type	GET
Request URI	/nos/api/info/bgp/neighbor/adj_rib_out/<neighbor>/<af_name>/<vrf_name>/<subaf_name>
Request Body (JSON)	

where:

Element	Description
<i>neighbor</i>	Neighbor IP address; a valid IPv4 or IPv6 address.
<i>af_name</i>	(Optional) Address family name; one of <code>ipv4</code> or <code>ipv6m</code> . Default value: <code>ipv4</code> .
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, <code>default</code> , <code>all</code> . Default value: <code>default</code> .
<i>subaf_name</i>	(Optional) Subaddress family name; one of <code>unicast</code> , <code>multicast</code> . Default value: <code>unicast</code> .

## Response

Response Body (JSON)	<pre>[   {     "routes":     [       {         "origin": "&lt;origin&gt;",         "network": "&lt;prefix_addr&gt;",         "mask_len": "&lt;mask_len&gt;",         "weight": "&lt;weight&gt;",         "Metric": "&lt;metric&gt;",         "nexthop": "&lt;nexthop&gt;",         "aspath4B": "&lt;aspath4B&gt;",         "status": "&lt;status&gt;",         "local_pref": "&lt;local_pref&gt;",         "aspath": "&lt;aspath&gt;",       }     ]   } ]</pre>
-------------------------	--

where:

Element	Description
origin	Route origin attribute; one of: <ul style="list-style-type: none"> <li>● i - IGP</li> <li>● e - EGP</li> <li>● ? - incomplete</li> </ul>
network	Route destination IP address; a valid IPv4 or IPv6 address.
mask_len	Route mask length; an integer from 0-32.
weight	Route weight attribute; an integer from 0-65535.
metric	Route med attribute; an integer from 0-4294967295.
nexthop	Route nexthop address; a valid IPv4 or IPv6 address.
aspath4B	Route 4B AS path; an AS path VTY string.
status	Router status; one of: <ul style="list-style-type: none"> <li>● s - suppressed</li> <li>● d - damped</li> <li>● h - history</li> <li>● * - valid</li> <li>● &gt; - best</li> <li>● i - internal</li> </ul>
local_pref	Route local preference attribute; an integer from 0-4294967295.
aspath	Route AS path attribute; a valid AS path VTY string.

## Get BGP Global Configuration

Gets the BGP global configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/global/<vrf_name>/
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, default, all. Default value: default.

### Response

Response Body (JSON)	<pre>[   {     "vrf_name": "&lt;vrf_name&gt;",     "status": "&lt;status&gt;",     "router_id": "&lt;router_id&gt;",     "as_number": "&lt;as_number&gt;",     "keep-alive timer": "&lt;keep-alive timer&gt;",     "hold-down timer": "&lt;hold-down timer&gt;",     "as-local-count ": "&lt;as-local-count&gt;",     "enforce-first-as ": "&lt;enforce-first-as&gt;",     "fast-external-failover ": "&lt;fast-external-failover&gt;",     "log-neighbor-changes ": "&lt;log-neighbor-changes&gt;",     "maxas-limit ": "&lt;maxas-limit&gt;",     "synchronization ": "&lt;synchronization&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, default, all. Default value: default.
<i>status</i>	BGP global status; one of disable, enable.
<i>router_id</i>	BGP router ID; a valid IPv4 or IPv6 address.
<i>as_number</i>	BGP AS number; an integer from 1-4294967295.
<i>keep-alive timer</i>	Keep alive interval, in seconds; an integer from 0-3600.
<i>hold-down timer</i>	Hold time, in seconds; an integer from 0-3600.



Element	Description
as-local-count	Number of times the local AS is to be prepended; an integer from 1-64.
enforce-first-as	Enforce the first AS for EBGp routes; one of enable, disable.
fast-external-failover	Immediately reset session if a link to a directly connected external peer goes down; one of enable, disable.
log-neighbor-changes	Log reasons for neighbor going up, down, and resetting; one of enable, disable.
maxas-limit	Allow the AS-PATH attribute from EBGp neighbor to impose a limit on the number of ASes; an integer from 0-2000.
synchronization	Perform IGP synchronization; one of enable, disable.

## Get BGP Best Path Configuration

Gets the BGP best path configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/bestpath/<vrf_name>/
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <i>default</i> , <i>all</i> . Default value: <i>default</i> .

### Response

Response Body (JSON)	<pre>[   {     "vrf_name": "&lt;vrf_name&gt;",     "always-compare-med ": "&lt;always-compare-med&gt;",     "as-path-ignore": "&lt;as-path-ignore&gt;",     "as-path-multipath-relax": "&lt;as-path-multipath-relax&gt;",     "compare-confed-aspath": "&lt;compare-confed-aspath&gt;",     "compare-routerid ": "&lt;compare-routerid&gt;",     "dont-compare-originator-id": "&lt;dont-compare-originator-id&gt;",     "med-confed ": "&lt;med-confed&gt;",     "med-missing-as-worst": "&lt;med-missing-as-worst&gt;",     "med-non-deterministic": "&lt;med-non-deterministic&gt;",     "med-remove-recv-med ": "&lt;med-remove-recv-med&gt;",     "med-remove-send-med ": "&lt;med-remove-send-med&gt;",     "tie-break-on-age": "&lt;tie-break-on-age&gt;"   } ]</pre>
-------------------------	--

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <i>default</i> , <i>all</i> . Default value: <i>default</i> .
<i>always-compare-med</i>	Allow comparing MED from different neighbors; one of <i>enable</i> , <i>disable</i> .
<i>as-path-ignore</i>	Ignore as-path length in selecting a route; one of <i>enable</i> , <i>disable</i> .
<i>as-path multipath-relax</i>	Relax AS-Path restriction when choosing multipaths; one of <i>enable</i> , <i>disable</i> .

<b>Element</b>	<b>Description</b>
compare-confed-as-path	Allow comparing confederation AS path length; one of <i>enable, disable</i> .
compare-routerid	Compare router IDs for identical EBGp paths; one of <i>enable, disable</i> .
dont-compare-originator-id	Don't compare originator IDs for BGP; one of <i>enable, disable</i> .
med-confed	Compare MED among confederation paths; one of <i>enable, disable</i> .
med-missing-as-worst	Treat missing MED as the least preferred one; one of <i>enable, disable</i> .
med-non-deterministic	Best MED path among paths not selected from same AS; one of <i>enable, disable</i> .
med-remove-recv-med	Whether to remove received MED attribute; one of <i>enable, disable</i> .
med-remove-send-med	Whether to remove send MED attribute; one of <i>enable, disable</i> .
tie-break-on-age	Whether to prefer the old route when <code>compare-route-id</code> is not set; one of <i>enable, disable</i> .

## Get BGP Confederation Configuration

Gets the BGP confederation configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/confed/<vrf_name>/
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <i>default</i> , <i>all</i> . Default value: <i>default</i> .

### Response

Response Body (JSON)	<pre>[   {     "vrf_name": "&lt;vrf_name&gt;",     "identifier": "&lt;identifier&gt;",     "peers": "&lt;peers&gt;",   } ]</pre>
-------------------------	--

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <i>default</i> , <i>all</i> . Default value: <i>default</i> .
<i>identifier</i>	Routing domain confederation AS; an integer from 0-65535.
<i>peers</i>	Peer ASes in BGP confederation; an integer from 1-65535.

## Get BGP Graceful-Restart Configuration

Gets the BGP graceful-restart configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/graceful-restart/<vrf_name>/
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <i>default</i> , <i>all</i> . Default value: <i>default</i> .

### Response

Response Body (JSON)	[ { "vrf_name": "<vrf_name>", "stalepath-time ": "<stalepath-time>", "helper-status": "<helper-status>", } ]
-------------------------	--

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <i>default</i> , <i>all</i> . Default value: <i>default</i> .
<i>stalepath-time</i>	The delay value, in seconds, to remove routes marked as stale; an integer from 1-3600.
<i>helper-status</i>	Status of Graceful Restart Helper Mode functionality; one of <i>enabled</i> , <i>disabled</i> .

## Get BGP Route Reflector Information

Gets BGP route reflector information.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/route-reflector/<vrf_name>/
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <i>default</i> , <i>all</i> . Default value: <i>default</i> .

### Response

Response Body (JSON)	[ { "vrf_name": "<vrf_name>", "cluster-id ": "<cluster-id>", } ]
-------------------------	---

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <i>default</i> , <i>all</i> . Default value: <i>default</i> .
<i>cluster-id</i>	Route reflector cluster ID; a valid IP address.

## Get BGP RIB Information

Gets BGP Routing Information Base Information.

### Request

Method Type	GET
Request URI	/nos/api/info/bgp/global/rib/<af_name>/<vrf_name>/
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	(Optional) Address family name; one of ipv4, ipv6, l2vpn. Default value; both.
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, default, all. Default value: default.

### Response

Response Body (JSON)	<pre>[   {     "status": "{status code}",     "network": "{network}",     "nextHopGlobal": "{global next-hop}",     "nextHopLocal": "{local next-hop}",     "Metric": "{metric}",     "local_pref": "{local preference}",     "weight": "{weight}",     "pathInfo": "{path information}",     "medvalue": "{med value}",     "med": "{med}",     "aspath": "{as path string}",     "aspath4B": "{4B as path string}",     "origin": "{route origin}"   }, ]</pre>
-------------------------	---

where:

Element	Description
status	Router status code; one of: <ul style="list-style-type: none"><li>● s - suppressed</li><li>● d - damped</li><li>● h - history</li><li>● * - valid</li><li>● &gt; - best</li><li>● i - internal</li></ul>

Element	Description
network	Route destination IP address; a valid IPv4 or IPv6 address. For l2vpn: <ul style="list-style-type: none"> <li>● EVPN type-1 prefix: [1]:[ESI]:[EthTag]</li> <li>● EVPN type-2 prefix: [2]:[ESI]:[EthTag]:[MAClen]:[MAC]</li> </ul>
nextHopGlobal	Route nexthop IPv6 address. Not used for IPv4.
nextHopLocal	Route nexthop; a valid IPv4 or IPv6 address.
weight	Route weight attribute; an integer from 0-65535.
pathInfo	Route path information; a valid AS path VTY string.
medvalue	Multi-exit discriminator value if the MED attribute is missing and missing-as-worst is set; an integer from 0-4294967294.
med	Multi-exit discriminator value; an integer from 0-4294967294.
aspath	Route AS path attribute; a valid AS path VTY string.
aspath4B	Route 4B AS path; a valid AS path VTY string.
origin	Route origin attribute; one of the following: <ul style="list-style-type: none"> <li>● i - IGP</li> <li>● e - EGP</li> <li>● ? - incomplete</li> </ul>



## Get BGP RIB Information for EVPN Routes

Gets BGP Routing Information Base Information.

### Request

Method Type	GET
Request URI	nos/api/info/bgp/global/rib/details/l2vpn/<keyword>/<value>/<vni>/<rd>
Request Body (JSON)	

where:

Element	Description
<i>keyword</i>	(Mandatory) A string describing the route type; one of <code>esi</code> , <code>mac</code> .
<i>value</i>	(Mandatory) A MAC or Ethernet segment ID in the following format: <code>EEEE . EEEE . EEEE/ESI</code> .
<i>vni</i>	(Mandatory) The virtual network identifier; an integer from 1 -16777216.
<i>rd</i>	(Optional) The route distinguisher, in the following format: <code>IP_address:nn</code> .

## Response

Response Body (JSON)	<pre>[   {     "table entry for": "{prefix}"     "paths": "{count}"     "best": "{prefix}"     "no advertise": "{prefix}"     " no export": "{prefix}"     " local as": "{prefix}"     " suppress": "{prefix}"     "adv non peer-group": "{ non_peer_group}"     "adv peer-group": "{peer_group}"     "no peer adv": "{peer_no_val}"     {       "as path str": "{as_path_str}"       "aggregator as": "{aggregator_as}"       "aggregator as4": "{aggregator_as4}"       "aggregator address": "{aggregator_addr}"       "Rec from RR-client": "{af_flag}"       "suppressed (damp)": "{rt_state_is_damp}"       "history entry": "{ rt_state_is_history}"       " nexthop address": "{nexthop}"       "peer": "{peer}"       "inaccessible": "{flag}"       "igpmetric": "{igpmetric}"       "from peer": "{peer_su_str}"       "orig id": "{org_id}"       "next-hop local ip": "{nexthop_local_ipv6}"       "metric removed": "{metric_removed}"       "local pref": "{local_pref}"       "weight": "{weight}"       "label": "{label}"       "valid": "{valid}"       "stale": "{stale}"       "multipath-candidate": "{flag_misc}"       "installed": "{flag_misc}"       "synchronized": "{flag_misc}"       "atomic aggregate": "{flags_atomic_agg}"       "best": "{flag}"       "community": "{community}"       "extended community": "{ecommunity}"       "originator": "{originator_id}"       "cluster id": "{cluster_id}"       "reuse info": "{reuse_info}"       "last update": "{curr_time}"     }   }, ]</pre>
-------------------------	---

where:

Element	Description
table entry for	Route IP address/mask; a valid IP address and net mask.
paths	The number of paths to destination.
best	Whether this is the best path; one of <i>Yes</i> , <i>No</i> .

<b>Element</b>	<b>Description</b>
no advertise	Not advertised to any peers; one of <i>Yes, No</i> .
no export	Not advertised to EBGp peers; one of <i>Yes, No</i> .
local as	The local AS number, from 1-4294967295.
suppress	Whether advertisements are suppressed by an aggregate; one of <i>Yes, No</i> .
adv non peer-group	The non-peer group name.
adv peer-group	The peer group name.
no peer adv	Not advertised to any peer; one of <i>Yes, No</i> .
as path str	Route AS path attribute; a valid AS path VTY string.
aggregator as	Aggregator AS number.
aggregator as4	Aggregator 4-byte AS number.
aggregator address	Aggregator address.
rec from RR-client	Received from RR-client; one of <i>Yes, No</i> .
suppressed (damp)	Suppressed due to dampening; one of <i>Yes, No</i> .
history entry	History entry; one of <i>Yes, No</i> .
nexthop address	Route nexthop; a valid IP address.
peer	Peer address
inaccessible	Whether the RIB is can be accessed; one of <i>Yes, No</i> .
igpmetric	IGP metric value.
from peer	The peer address.
orig id	The originator ID.
next-hop local ip	The nexthop IP address, a valid IP address.
metric removed	Whether the metric is removed; one of <i>Yes, No</i> .
local pref	Local preference value.
weight	Route weight attribute; an integer from 0-65535.
label	The label.

<b>Element</b>	<b>Description</b>
valid	Whether the path is valid; one of <i>Yes, No</i> .
stale	Whether the state is stale; one of <i>Yes, No</i> .
multipath-candidate	Whether this is a multipath candidate; one of <i>Yes, No</i> .
installed	Whether installed; one of <i>Yes, No</i> .
synchronized	Whether synchronized; one of <i>Yes, No</i> .
atomic aggregate	Whether this is as atomic aggregate; one of <i>Yes, No</i> .
best	Whether this is the best path; one of <i>Yes, No</i> .
community	The community string.
extended community	The extended community string.
originator	Originator ID.
cluster id	Cluster ID.
reuse info	Reuse information.
last update	Last update time.

## Get BGP Detailed RIB Information

Gets detailed BGP Routing Information Base information.

### Request

Method Type	GET
Request URI	/nos/api/info/bgp/global/rib/network/<af_name>/<route>/<network_mask>/<vrf_name>/
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	(Optional) Address family name; one or both of ipv4, ipv6. Default value: both.
<i>route</i>	Route; a valid IPv4 or IPv6 address.
<i>network_mask</i>	Network mask: <ul style="list-style-type: none"><li>• IPv4: An integer from 0-32.</li><li>• IPv6: An integer from 0-128.</li></ul>
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, default, all. Default value: default.

## Response

Response Body (JSON)	<pre>[   {     "table entry for": "&lt;table entry for&gt;"     "paths": [       {         "as path str": "&lt;as path str&gt;"         "aggregator as": "&lt;aggregator as&gt;"         "aggregator as4": "&lt;aggregator as4&gt;"         "aggregator address": "&lt;aggregator address&gt;"         "Rec from RR-client": "&lt;Rec from RR-client&gt;"         "suppressed (damp)": "&lt;suppressed (damp)&gt;"         "history entry": "&lt;history entry&gt;"         "nexthop address": "&lt;nexthop address&gt;"         "peer": "&lt;peer&gt;"         "inaccessible": "&lt;inaccessible&gt;"         "igpmetric": "&lt;igpmetric&gt;"         "from peer": "&lt;from peer&gt;"         "orig id": "&lt;orig id&gt;"         "next-hop local ip": "&lt;next-hop local ip&gt;"          "origin": "&lt;origin&gt;"         "metric": "&lt;metric&gt;"         "local pref": "&lt;local pref&gt;"         "weight": "&lt;weight&gt;"         "label": "&lt;label&gt;"         "valid": "&lt;valid&gt;"         "stale": "&lt;stale&gt;"         "type": "&lt;type&gt;"         "multipath-candidate": "&lt;multipath-candidate&gt;"         "installed": "&lt;installed&gt;"         "synchronized": "&lt;synchronized&gt;"         "atomic aggregate": "&lt;atomic aggregate&gt;"         "best": "&lt;best&gt;"         "community": "&lt;community&gt;"         "extended community": "&lt;extended community&gt;"         "originator": "&lt;originator&gt;"         "cluster-id": "&lt;cluster-id&gt;"         "reuse info": "&lt;reuse info&gt;"         "last update": "&lt;last update&gt;"       }     ],     "best is no.": "&lt;best is no.&gt;"     "advertised to any peer": "&lt;advertised to any peer&gt;"     "advertised to EBGp peer": "&lt;advertised to EBGp peer&gt;"     "advertised outside local AS ": "&lt;Yes/No&gt;"     "advertisements suppressed by an aggregate":     "&lt;advertisements suppressed by an aggregate&gt;"     "advertised to non peer-group peers": "&lt;advertised to non peer-group peers&gt;"     "advertised to peer-groups": "&lt;advertised to peer-groups&gt;"     "not advertised": "&lt;not advertised&gt;"   }, ]</pre>
-------------------------	--

where:

Element	Description
table entry for	Route IP address/mask; a valid IP address and net mask.
paths	Dictionary; marks the beginning of path table for specific route entry.
as path str	Route path information; a valid AS path VTY string.
aggregator as	Aggregator AS number.
aggregator as4	Aggregator 4-byte AS number.
aggregator address	Aggregator address.
Rec from RR-client	Received from RR-client; <i>Yes</i> . <b>Note:</b> This value only appears if it has been set.
suppressed (damp)	Suppressed due to dampening; <i>Yes</i> . <b>Note:</b> This value only appears if it has been set.
history entry	History entry; <i>Yes</i> . <b>Note:</b> This value only appears if it has been set.
nexthop address	Route nexthop; a valid IPv4 or IPv6 address.
peer	Peer address.
inaccessible	Whether the RIB is can be accessed; one of <i>Yes</i> , <i>No</i> .
igpmetric	IGP metric value; <i>No</i> . <b>Note:</b> This value only appears if it is <i>No</i> .
from peer	Whether the from peer address can be accessed, <i>No</i> . <b>Note:</b> This value only appears if it is <i>No</i> .
orig id	Whether the originator ID can be accessed; <i>No</i> .
next-hop local ip	Whether the next-hop IP address can be accessed; a valid IP address or <i>No</i> . <b>Note:</b> The value <i>NO</i> only appears if it is inaccessible.
metric	Metric; one of the metric value, <i>removed</i> .
local pref	Local preference value; only appears if set.
weight	Route weight attribute; an integer from 0-65535. <b>Note:</b> This value only appears if it is set.
label	Label; only appears if set.

Element	Description
valid	Whether the path is valid; <i>Yes</i> . <b>Note:</b> This value only appears if the path is valid.
stale	Whether the state is stale; <i>Yes</i> . <b>Note:</b> This value only appears if the state is stale.
multipath-candidate	Whether this is a multipath candidate; one of <i>Yes, No</i> .
installed	Whether installed; one of <i>Yes, No</i> .
synchronized	Whether synchronized; one of <i>Yes, No</i> .
atomic aggregate	Whether this is an atomic aggregate; <i>Yes</i> . <b>Note:</b> This value only appears if it is <i>Yes</i> .
best	Whether this is the best path; one of <i>Yes, No</i> .
community	Community string.
extended community	Extended community string.
originator	Originator ID.
cluster-id	Cluster ID.
reuse info	Reuse information.
last update	Last update time.
best is no.	Which path number is best; the maximum number of paths for this destination.
advertised to any peer	Whether this is advertised to any peers; one of <i>Yes, No</i> .
advertised to EBGp peer	Whether this is advertised to an EBGp peer; one of <i>Yes, No</i> .
advertised outside local AS	Whether this is advertised outside the local AS; one of <i>Yes, No</i> .
advertisements suppressed by an aggregate	Whether advertisements are suppressed by an aggregate; one of <i>Yes, No</i> .
advertised to non peer-group peers	IP address advertised to non peer-group peers.
advertised to peer-groups	IP address advertised to peer groups.



Element	Description
not advertised	Not advertised to any peer. <b>Note:</b> This value only appears if <i>true</i> .

## Get BGP Summary Information

Gets BGP summary information.

### *Request*

Method Type	GET
Request URI	/nos/api/info/bgp/neighbor/summary/<af_name> /<subaf_name>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	(Optional) Address family name; one of ipv4, ipv6, l2vpn. Default value: ipv4.
<i>subaf_name</i>	Subsequent Address Family Identifier name; unicast, evpn. Default value: unicast.
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, default, all. Default value: default.

## Response

Response Body (JSON)	<pre>[   {     "router id": "{router_id}"     "table version": "{table_version}"     "path count": "{aspath_count}"     "conf max ebgp paths": "{cfg_maxpath_ebgp}"     "max ebgp paths": "{maxpath_ebgp}"     "conf max ibgp paths": "{cfg_maxpath_ibgp}"     "max ibgp paths": "{maxpath_ibgp}"     "local AS count": "{local_as_count}"     "peer": "{host_name}"     "peer version": "{version}"     "peer AS": "{peer_as}"     "open in": "{open_in}"     "update in": "{update_in}"     "keepalive in": "{keepalive_in}"     "refresh in": "{refresh_in}"     "dynamic cap in": "{dynamic_cap_in}"     "open out": "{open_out}"     "update out": "{update_out}"     "keepalive out": "{keepalive_out}"     "refresh out": "{refresh_out}"     "dynamic cap out": "{dynamic_cap_out}"   }, ]</pre>
-------------------------	--

where:

Element	Description
router id	Router ID; a valid IPv4 or IPv6 address.
table version	The table version.
path count	The path number.
conf max ebgp paths	The maximum configured EBGp paths.
max ebgp paths	The maximum EBGp paths.
conf max ibgp paths	The maximum configured IBGP paths.
max ibgp paths	The maximum IBGP paths.
local AS count	The local AS count.
peer	Peer address; a valid IPv4 or IPv6 address.
peer version	Peer version.
peer AS	Peer AS.
open in	Number of received open messages.
update in	Number of received updates.
keepalive in	Number of received keepalives.

<b>Element</b>	<b>Description</b>
refresh in	Number of received route refresh.
dynamic cap in	Dynamic capabilities input count.
open out	Number of sent open messages.
update out	Number of sent updates.
keepalive out	Number of sent keepalive messages.
refresh out	Number of sent route refresh messages.
dynamic cap out	Dynamic capabilities output count.

## Get BGP Neighbor Details

Gets BGP neighbor detailed information.

### Request

Method Type	GET
Request URI	/nos/api/info/bgp/neighbor/details/<nbr-ip>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>nbr-ip</i>	(Optional) Neighbor IP address; a valid IPv4 or IPv6 address.
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, default, all. Default value: default.

### Response

Response Body (JSON)	<pre>[   {     "neighbor": "&lt;neighbor&gt;"     "vrfname": "&lt;vrfname&gt;"     "remote AS": "&lt;remote AS&gt;"     "local AS": "&lt;local AS&gt;"     "address family": "&lt;address family&gt;"     "table version": "&lt;table version&gt;"     "neighbor version": "&lt;neighbor version&gt;"     "index val": "&lt;index val&gt;"     "index offset": "&lt;index offset&gt;"     "index mask": "&lt;index mask&gt;"     "link type": "&lt;link type&gt;"     "version": "&lt;version&gt;"     "description": "&lt;description&gt;"     "remote router-ID": "&lt;remote router-ID&gt;"     "admin": "&lt;admin&gt;"     "ifbound": "&lt;ifbound&gt;"     "state": "&lt;state&gt;"     "dyncap_adv": "&lt;dyncap_adv&gt;"     "dyncap_rec": "&lt;dyncap_rec&gt;"     "refresh_adv": "&lt;refresh_adv&gt;"     "refresh_new_rec": "&lt;refresh_new_rec&gt;"     "refresh_old_rec": "&lt;refresh_old_rec&gt;"     "ext_asn_adv": "&lt;ext_asn_adv&gt;"     "ext_asn_rec": "&lt;ext_asn_rec&gt;"     "afc_adv": "&lt;afc_adv&gt;"     "afc_recv": "&lt;afc_recv&gt;"     "afc_VPN_adv": "&lt;afc_VPN_adv&gt;"     "afc_VPN_recv": "&lt;afc_VPN_recv&gt;"     "afc_mcast_adv": "&lt;afc_mcast_adv&gt;"     "afc_mcast_recv": "&lt;afc_mcast_recv&gt;"   } ]</pre>
-------------------------	--

Response Body (JSON-continued)	<pre> "uptime": "&lt;uptime&gt;" "peer-group name": "&lt;peer-group name&gt;" "holdtime": "&lt;holdtime&gt;" "keepalive": "&lt;keepalive&gt;" "conf holdtime": "&lt;conf holdtime&gt;" "conf keepalive": "&lt;conf keepalive&gt;" "recvMsg": "&lt;recvMsg&gt;" "recvNotf": "&lt;recvNotf&gt;" "recvQueue": "&lt;recvQueue&gt;" "sentMsg": "&lt;sentMsg&gt;" "sentNotf": "&lt;sentNotf&gt;" "sentQueue": "&lt;sentQueue&gt;" "refresh_in": "&lt;refresh_in&gt;" "refresh_out": "&lt;refresh_out&gt;" "routeadv": "&lt;routeadv&gt;" "update_if": "&lt;update_if&gt;" "update_source": "&lt;update_source&gt;" "established": "&lt;established&gt;" "dropped": "&lt;dropped&gt;" "prefix overflow": "&lt;prefix overflow&gt;" "ttl": "&lt;ttl&gt;" "local address": "&lt;local address&gt;" "local port": "&lt;local port&gt;" "remote address": "&lt;remote address&gt;" "remote port": "&lt;remote port&gt;" "nextHopAddress": "&lt;nextHopAddress&gt;" "nextHopLocalV6": "&lt;nextHopLocalV6&gt;" "nextHopGlobalV6": "&lt;nextHopGlobalV6&gt;" "shared_network": "&lt;shared_network&gt;" "next conn retry": "&lt;next conn retry&gt;" "err notif": "&lt;err notif&gt;" "last_reset_time": "&lt;last_reset_time&gt;" "error code": "&lt;error code&gt;" "error subcode": "&lt;error subcode&gt;" "rmap_map": "&lt;rmap_map&gt;"       },     ] </pre>
-----------------------------------	--

where:

Element	Description
neighbor	Neighbor address.
vrfname	VRF name.
remote AS	AS number.
local AS	Local AS number.
address family	Address family.
table version	Table version.
neighbor version	Neighbor index value.
index val	Index offset.
index offset	Index mask.
index mask	Link type; one of <i>internal</i> , <i>external</i> .

Element	Description
link type	Link type; one of <i>internal</i> , <i>external</i> .
version	Version.
description	Description.
remote router-ID	Remote router ID.
admin	Admin state.
ifbound	Whether the interface is bound; one of <i>No interface binding</i> , <i>Interface bound</i> .
state	Neighbor state.
dyncap_adv	Dynamic capability advertised, only if advertised.
dyncap_rec	Dynamic capability received, only if received.
refresh_adv	Refresh capability advertised, only if advertised.
refresh_new_rec	Refresh New received, only if received.
refresh_old_rec	Refresh Old received, only if received.
ext_asn_adv	Extended ASN capability advertised.
ext_asn_rec	Extended ASN capability received.
afc_adv	Address family unicast sent.
afc_recv	Address family unicast received.
afc_VPN_adv	Address family VPN sent.
afc_VPN_recv	Address family VPN received.
afc_mcast_adv	Address family multicast sent.
afc_mcast_recv	Address family multicast received.
uptime	Uptime.
peer-group name	Peer IP address.
holdtime	Holdtime.
keepalive	Keepalive time.
conf holdtime	Configured holdtime.
conf keepalive	Configured keepalive time.
recvMsg	Number of received messages.
recvNotf	Number of received notifications.
recvQueue	Received messages queue count.
sentMsg	Number of sent messages.

Element	Description
sentNotf	Number of sent notifications.
sentQueue	Sent messages queue count.
refresh_in	Number of route refresh messages received.
refresh_out	Number of route refresh messages sent.
routeadv	Number of router advertisements.
update_if	Update interface.
update_source	Update source address.
established	Established count.
dropped	Dropped count.
prefix overflow	Whether there is a prefix overflow; one of <i>Yes, No</i> .
ttl	Time to live value.
local address	Local neighbor IP address.
local port	Local port number.
remote address	Remote peer IP address.
remote port	Remote port number.
nextHopAddress	Next-hop address.
nextHopLocalV6	Next-hop address (link local).
nextHopGlobalV6	Next-hop address (global).
shared network	Shared network.
next conn retry	Number of retries.
err notif	Whether there was an error notification; one of <i>sent, received</i> .
last_reset_time	Last reset time.
err code	Code string.
err subcode	Subcode string.
rmap_name	Default originating route map.



## Get BGP Neighbor Statistics

Gets BGP neighbor detailed statistics.

### Request

Method Type	GET
Request URI	/nos/api/info/bgp/neighbor/stats/<nbr-ip>/<item>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>nbr-ip</i>	IP address; one or more valid IPv4 or IPv6 addresses. Default; all neighbor IP addresses.
<i>item</i>	The type of statistics; one or more of <i>keepalive</i> , <i>notification</i> , <i>open</i> , <i>update</i> , <i>recv_msgs</i> , <i>sent_msgs</i> . Default; show all items.
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, <i>default</i> , <i>all</i> . Default value: <i>default</i> .

### Response

Response Body (JSON)	[ { "statistic type": "<statistic>" "received": "<received>" "sent": "<sent>" } ]
-------------------------	---

where:

Element	Description
<i>statistic type</i>	Statistic type; one or more of <i>keepalive</i> , <i>notification</i> , <i>open</i> , <i>update</i> , <i>recv_msgs</i> , <i>sent_msgs</i> .
<i>received</i>	Number of received messages of the specified type or types.
<i>sent</i>	Number of sent messages of the specified type or types.

## Get BGP Distance Configuration

Gets the BGP distance configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/distance/<af_name>/<saf_name>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	Address family name; one or both of <code>ipv4</code> , <code>ipv6</code> . Default value; both.
<i>saf_name</i>	Subsequent Address Family Identifier name; <code>unicast</code> . Default value: <code>unicast</code> .
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, <code>default</code> , <code>all</code> . Default value: <code>default</code> .

### Response

Response Body (JSON)	[ { "vrf_name": "<vrf_name>" "distance_ebgp": "<distance_ebgp>" "distance_ibgp": "<distance_ibgp>" "distance_local": "<distance_local>" } ]
-------------------------	--

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <code>default</code> , <code>all</code> . Default value: <code>default</code> .
<i>distance_ebgp</i>	Distance for routes external to the AS; an integer from 0-255.
<i>distance_ibgp</i>	Distance for routes internal to the AS; an integer from 0-255.
<i>distance_local</i>	Distance for routes local to the AS; an integer from 0-255.

## Get BGP Address Family Global Configuration

Gets the BGP address family global configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/af/<af_name>/<saf_name>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	Address family name; one or both of ipv4, ipv6. Default value; both.
<i>saf_name</i>	Subsequent Address Family Identifier name; unicast. Default value: unicast.
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, default, all. Default value: default.

### Response

Response Body (JSON)	[ { "vrf_name": "<vrf_name>" "cc_reflection": "<cc_reflection>" "synchronization": "<synchronization>" "network_synchronization": "<network_synchronization>" } ]
-------------------------	--

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, default, all. Default value: default.
<i>cc_reflection</i>	Client-to-client reflect; one of enable, disable.
<i>synchronization</i>	Perform IGP synchronization; one of enable, disable.
<i>network_synchronization</i>	Perform IGP synchronization on network routes; one of enable, disable.

## Get BGP Multipath ECMP Numbers Configuration

Gets the BGP multipath maximum ECMP numbers configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/af/maximum_paths/<af_name>/<saf_name>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	Address family name; one or both of <code>ipv4</code> , <code>ipv6</code> . Default value; both.
<i>saf_name</i>	Subsequent Address Family Identifier name; <code>unicast</code> . Default value: <code>unicast</code> .
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, <code>default</code> , <code>all</code> . Default value: <code>default</code> .

### Response

Response Body (JSON)	[ { "vrf_name": "<vrf_name>" "ibgp_max_number": "<ibgp_max_number>" "ebgp_max_number": "<ebgp_max_number>" } ]
-------------------------	--

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <code>default</code> , <code>all</code> . Default value: <code>default</code> .
<i>ibgp_max_number</i>	IBGP multipath maximum ECMP number; an integer from 1-32.
<i>ebgp_max_number</i>	EBGP multipath maximum ECMP number; an integer from 1-32.

## Get BGP Nexthop Trigger-Delay Configuration

Gets the BGP nexthop trigger-delay configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/af/nht_delay/<af_name>/<saf_name>
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	Address family name; one or both of ipv4, ipv6. Default value; both.
<i>saf_name</i>	Subsequent Address Family Identifier name; unicast. Default value: unicast.

### Response

Response Body (JSON)	[ { "critical": "<critical>" "non-critical": "<noncritical>" } ]
-------------------------	---

where:

Element	Description
<i>critical</i>	Nexthop changes affecting reachability; an integer from 1-4294967295.
<i>non-critical</i>	Nexthop changes affecting metric; an integer from 1-4294967295.

## Get BGP Aggregate Configuration

Gets the BGP aggregate configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/af/aggregate/<af_name>/<saf_name>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	Address family name; one or both of <code>ipv4</code> , <code>ipv6</code> . Default value; both.
<i>saf_name</i>	Subsequent Address Family Identifier name; <code>unicast</code> . Default value: <code>unicast</code> .
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, <code>default</code> , <code>all</code> . Default value: <code>default</code> .

### Response

Response Body (JSON)	[ { "vrf_name": "<vrf_name>" "prefix": "<prefix>" "type": "<type>" } ]
-------------------------	--

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <code>default</code> , <code>all</code> . Default value: <code>default</code> .
<i>prefix</i>	Aggregate prefix; an IP address in one of the following forms: <ul style="list-style-type: none"><li>• A.B.C.D/M</li><li>• X:X::X:X/M.</li></ul>
<i>type</i>	Aggregate type; one of the following: <ul style="list-style-type: none"><li>• <code>as_set</code> - Generate AS set path information.</li><li>• <code>summary_only</code> - Filter more specific routes from updates.</li><li>• <code>as_set_summary_only</code> - Both <code>as-set</code> and <code>summary-only</code>.</li></ul>

## Get BGP Dampening Parameters Configuration

Gets the BGP dampening parameters configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/af/dampening/<af_name>/<saf_name>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	Address family name; one or both of ipv4, ipv6. Default value; both.
<i>saf_name</i>	Subsequent Address Family Identifier name; unicast. Default value: unicast.
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, default, all. Default value: default.

### Response

Response Body (JSON)	[ { "vrf_name ": "<vrf_name>", "half_life ": "<half_life>", "reuse_penalty ": "<reuse_penalty>", "suppress_penalty ": "<suppress_penalty>", "max_suppress ": "<max_suppress>", "unreach_half_life ": "<unreach_half_life>", "rmap_name ": "<rmap_name>" } ]
-------------------------	---

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, default, all. Default value: default.
<i>half_life</i>	Reachability half-life time for the penalty, in minutes; an integer from 1-45.
<i>reuse_penalty</i>	Value to start reusing a route; an integer from 1-20000.
<i>suppress_penalty</i>	Value to start suppressing a route; an integer from 1-20000.

Element	Description
max_suppress	Maximum duration to suppress a stable route, in minutes; an integer from 1-255.
unreach_half_life	Unreachability half-life time for the penalty, in minutes; an integer from 1-45.
rmap_name	Route-map name; a string up to 63 characters long.



## Get BGP Dampened Path Configuration

Gets the BGP dampened path configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/af/dampening/dampened_path/<af_name>/<saf_name>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	Address family name; one or both of ipv4, ipv6. Default value; both.
<i>saf_name</i>	Subsequent Address Family Identifier name; unicast. Default value: unicast.
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, default, all. Default value: default.

### Response

Response Body (JSON)	[ { "statusCode": "<statusCodeVal>", "network": "<networkVal>", "nextHopGlobal": "<nextHopGlobalVal>", "nextHopLocal": "<nextHopLocalVal>", "metric": "<metricVal>", "pathInfo": "<pathInfoVal>", "reuseTime": "<reuseTimeVal>", "asPathStr": "<asPathStrVal>", "asPath4BStr": "<asPath4BStrVal>", "routeOriginType": "<routeOriginTypeVal>" } ]
-------------------------	---

where:

Element	Description
statusCode	Router status code; one of: <ul style="list-style-type: none"><li>● s - suppressed</li><li>● d - damped</li><li>● h - history</li><li>● * - valid</li><li>● &gt; - best</li><li>● i - internal</li></ul>
network	Route destination IP address; a valid IPv4 or IPv6 address.
nextHopGlobal	Route nexthop IPv6 address. Not used for IPv4.
nextHopLocal	Route nexthop; a valid IPv4 or IPv6 address.
metric	Route metric; an integer.
pathInfo	Route path information; a valid AS path VTY string.
reuseTime	Route reuse time; a string.
asPathStr	Route AS path attribute; a valid AS path VTY string.
asPath4BStr	Route 4B AS path; a valid AS path VTY string.
routeOriginType	Route origin type; one of the following: <ul style="list-style-type: none"><li>● i - IGP</li><li>● e - EGP</li><li>● ? - incomplete</li></ul>

## Get BGP Network Configuration

Gets the BGP network configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/af/network/<af_name>/<saf_name>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	Address family name; one or both of ipv4, ipv6. Default value; both.
<i>saf_name</i>	Subsequent Address Family Identifier name; unicast. Default value: unicast.
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, default, all. Default value: default.

### Response

Response Body (JSON)	[ { "vrf_name ": "<vrf_name>", "prefix ": "<prefix>", "backdoor": "<backdoor>", "rmap_name": "<rmap_name>" } ]
-------------------------	---

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, default, all. Default value: default.
<i>prefix</i>	Network prefix; an IP address in one of the following forms: <ul style="list-style-type: none"><li>● A.B.C.D/M</li><li>● X:X::X:X/M.</li></ul>
<i>backdoor</i>	Whether a BGP backdoor route is specified; one of <i>enable</i> , <i>disable</i> .
<i>rmap_name</i>	Route map name; a string up to 63 characters long.

## Get BGP Redistribute Configuration

Gets the BGP network redistribute configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/bgp/af/redistribute/<af_name>/<saf_name>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>af_name</i>	Address family name; one or both of <code>ipv4</code> , <code>ipv6</code> . Default value; both.
<i>saf_name</i>	Subsequent Address Family Identifier name; <code>unicast</code> . Default value: <code>unicast</code> .
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, <code>default</code> , <code>all</code> . Default value: <code>default</code> .

### Response

Response Body (JSON)	<pre>[   {     "vrf_name ": "&lt;vrf_name&gt;",     "redist_direct": "&lt;redist_direct&gt;",     "direct_rmap_name ": "&lt;direct_rmap_name&gt;",     "redist_ospf": "&lt;redist_ospf&gt;",     "ospf_rmap_name ": "&lt;ospf_rmap_name&gt;",     "redist_static ": "&lt;redist_static&gt;",     "static_rmap_name ": "&lt;static_rmap_name&gt;"   } ]</pre>
-------------------------	--

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <code>default</code> , <code>all</code> . Default value: <code>default</code> .
<i>redist_direct</i>	Whether redistribute direct is enabled; one of <code>enable</code> , <code>disable</code> .
<i>direct_rmap_name</i>	Route map name for redistribute direct; a string up to 63 characters long.

Element	Description
redist_ospf	Whether redistribute OSPF is enabled; one of <i>enable</i> , <i>disable</i> .
ospf_rmap_ name	Route map name for redistribute OSPF; a string up to 63 characters long.
redist_static	Whether redistribute static is enabled; one of <i>enable</i> , <i>disable</i> .
static_rmap_ name	Route map name for redistribute static; a string up to 63 characters long.

## Set BGP Redistribute Configuration

Sets the BGP address family redistribute configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/bgp/af/redistribute/<afi>/<safi>
Request Body (JSON)	[ { "redist_host_info": "enable" } ]

where:

Element	Description
<i>af_name</i>	Address family name; one of <i>ipv4</i> , <i>ipv6</i> , <i>l2vpn</i> . Default value: <i>all</i> .
<i>subaf_name</i>	Subsequent Address Family Identifier name; <i>unicast</i> , <i>evpn</i> . Default value: <i>unicast</i> .

### Response

Response Body (JSON)	[ { "redist_host_info": "enable" } ]
-------------------------	--

where:

Element	Description
<i>redist_host_info</i>	Redistribution for host information; one of <i>enable</i> , <i>disable</i> .

## Get BGP Neighbor Configuration

Gets the BGP network neighbor configuration.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/bgp/neighbor/details/<neighbor_ip>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>neighbor_ip</i>	(Optional) The IP address of the neighbor; a valid IPv4 or IPv6 address. No value will display all neighbors.
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, default, all. Default value: default.

## Response

Response Body (JSON)	<pre>[   {     "neighbor": "&lt;neighbor&gt;",     "vrfname": "&lt;vrfname&gt;",     "remote as": "&lt;remote as&gt;",     "local as": "&lt;local as&gt;",     "address family": "&lt;address family&gt;",     "advertisement interval": "&lt;advertisement interval&gt;",     "bfd": "&lt;bfd&gt;",     "connection retry time": "&lt;connection retry time&gt;",     "description": "&lt;description&gt;",     "disallow infinite holdtime": "&lt;disallow infinite holdtime&gt;",     "do not capability negotiate": "&lt;do not capability negotiate&gt;",     "advertise dynamic capability": "&lt;advertise dynamic capability&gt;",     "EBGP multihop": "&lt;EBGP multihop&gt;",     "remote private as": "&lt;remote private as&gt;",     "maximum peers": "&lt;maximum peers&gt;",     "password": "&lt;password&gt;",     "shutdown": "&lt;shutdown&gt;",     "peer holdtime": "&lt;peer holdtime&gt;",     "peer keepalive": "&lt;peer keepalive&gt;",     "connection-mode passive": "&lt;connection-mode passive&gt;",     "ttl security hops": "&lt;ttl security hops&gt;",     "update-source": "&lt;update-source&gt;",     "weight": "&lt;weight&gt;",     "allow as in": "&lt;allow as in&gt;",     "default originate": "&lt;default originate&gt;",     "default originate rmap": "&lt;default originate rmap&gt;",     "prefix-list in": "&lt;prefix-list in&gt;",     "prefix-list out": "&lt;prefix-list out&gt;",     "maximum-prefix": "&lt;maximum-prefix&gt;",     "maximum-prefix warning": "&lt;maximum-prefix warning&gt;",     "maximum-prefix threshold percent": "&lt;maximum-prefix threshold percent&gt;",     "next-hop-self": "&lt;next-hop-self&gt;",     "filter-list in": "&lt;filter-list in&gt;",     "filter-list out": "&lt;filter-list out&gt;",     "route-map in": "&lt;route-map in&gt;",     "route-map out": "&lt;route-map out&gt;",     "route reflector client": "&lt;route reflector client&gt;",     "send community": "&lt;send community&gt;",     "send community extended": "&lt;send community extended&gt;",     "soft reconfiguration inbound": "&lt;soft reconfiguration inbound&gt;",     "unsuppress-map": "&lt;unsuppress-map&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
neighbor	Neighbor IP address; a valid IPv4 or IPv6 address.
vrf_name	VRF name; one of the VRF name, <i>default</i> , <i>all</i> . Default value: <i>default</i> .
remote as	Current neighbor AS; an AS number.
local as	Switch AS; an AS number.



Element	Description
address family	Neighbor address family; an address family.
advertisement interval	Minimum interval between BGP updates, in seconds; an integer.
bfd	BFD state; one of: <ul style="list-style-type: none"> <li>● <i>enabled</i></li> <li>● <i>disabled</i></li> <li>● <i>multihop enabled</i></li> </ul>
connection retry time	BGP connect timer, in seconds; an integer.
description	Neighbor description; a string.
disallow infinite holdtime	Neighbor disallow infinite hold time; one of <i>Yes</i> , <i>No</i> .
do not capability negotiate	Whether to perform capability negotiations; one of <i>Yes</i> , <i>No</i> .
advertise dynamic capability	Advertise dynamic capability to this neighbor; one of <i>Yes</i> , <i>No</i> .
EBGP multihop	Number of multihops; an integer from 1 - 255.
remote private as	Whether to remove private AS number from outbound packets; one of <i>Yes</i> , <i>No</i> .
maximum peers	Maximum number of peers for this prefix; an integer from 1-96.
password	Neighbor password; an encrypted password.
shutdown	Neighbor state; one of <i>Yes</i> , <i>No</i> .
peer holdtime	Holdtime value, in seconds; an integer from 0-3600.
peer keepalive	Keepalive value, in seconds; an integer from 0-3600.
connection-mode passive	Whether to allow a passive connection; one of <i>Yes</i> , <i>No</i> .
ttl security hops	Number of hops; an integer from 1-254.
update-source	Source of routing updates; one of: <ul style="list-style-type: none"> <li>● <i>ethernet</i></li> <li>● <i>vlan</i></li> <li>● <i>loopback interfaces</i></li> </ul>
weight	The default weight for routes from this neighbor; an integer from 0–65535.

Element	Description
allow as in	Accept AS path with own AS in it; an integer from 1-10.
default originate	Whether to originate default route to this neighbor; one of <i>Yes, No</i> .
default originate rmap	Route map that specifies criteria; an RMAP name.
prefix-list in	Filter updates from this neighbor; a filter name.
prefix-list out	Filter updates to this neighbor; a filter name.
maximum-prefix	Maximum number of prefix accept from this peer; an integer from -15782.
maximum-prefix warning	Whether to only give a warning message when limit is exceeded; one of <i>Yes, No</i> .
maximum-prefix threshold percent	Threshold value; an integer from 1-100.
next-hop-self	Whether to disable the next hop calculation for this neighbor; one of <i>Yes, No</i> .
filter-list in	Establish filter for incoming routes; a filter name.
filter-list out	Establish filter for outgoing routes; a filter name.
route-map in	Apply routemap for incoming routes; an RMAP name.
route-map out	Apply routemap for outgoing routes; an RMAP name.
route reflector client	Whether to set neighbor as route reflector client; one of <i>Yes, No</i> .
send community	Whether to send community attribute to this neighbor; one of <i>Yes, No</i> .
send community extended	Whether to send extended community attribute to this neighbor; one of <i>Yes, No</i> .
soft reconfiguration inbound	Whether to allow inbound soft reconfiguration for this neighbor; one of <i>Yes, No</i> .
unsuppress-map	Route map to selectively unsuppress suppressed routes; an RMAP name.

## Set BGP Neighbor Configuration

Sets the BGP network neighbor configuration details. If a neighbor does not exist, it will be created.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/bgp/neighbor/details/<neighbor_ip>/<mask>/vrf/<vrf_name>
Request Body (JSON)	[ { "address family":{afi safi value} } ]

where:

Element	Description
<i>neighbor_ip</i>	(Mandatory) The IP address of the neighbor; a valid IPv4 or IPv6 address.
<i>mask</i>	The group mask: <ul style="list-style-type: none"> <li>● 1-32 for IPv4</li> <li>● 1-128 for IPv6</li> </ul>
<i>vrf</i>	The VFR instance name; must be specified before <vrf_name>.
<i>vrf_name</i>	(Optional) VRF name; one of the VRF name, default. Default value: default.
<i>address family</i>	The Address Family Identifier or Subsequent Address Family Identifier value; ipv4 unicast, ipv6 unicast, l2vpn evpn. <b>Note:</b> When this is configured, send extended community is automatically set.

## Response

Response Body (JSON)	<pre>[   {     " neighbor ":"{ip_addr }",     " vrfname": "{ vrf }",     " remote as ": "{ as value of neighbor }",     " local as": "{ local as value }",     " address family ": "{ address family type }",     " advertisement interval ": "{ advertisement interval value }",     " bfd ": "{ enabled/disabled/multihop enabled }",     "connection retry time" : "{ connection retry time vaue }",     "description" : "{ peer description }",     "disallow infinite holdtime" : "{ yes/no }",     "do not capability negotiate" : "{ yes/no }",     "advertise dynamic capability" : "{ yes/no }",     "EBGP multihop" : "{ multihop value }",     "remote private as" : "{ yes/no }",     "maximum peers" : "{ maximum peers value }",     "password" : "{ encrypted password }",     "shutdown" : "{ yes/no }",     "peer holdtime" : "{ holdtime value }",     "peer keepalive" : "{ keepalive value }",     "connection-mode passive" : "{ yes/no }",     "ttl security hops" : "{ number of hops }",     "update-source" : "{ eupdate source }",     "weight" : "{ weight value }",     "allow as in" : "{ number of as allowed }",     "default originate" : "{ yes/no }",     "default originate rmap" : "{ rmap name }",     "prefix-list in" : "{ prefix list name }",     "prefix-list out" : "{ prefix list name }",     "maximum-prefix" : "{ max prefix value }",     "maximum-prefix warning" : "{ yes/no }",     "maximum-prefix threshold percent" : "{ percent value }",     "next-hop-self" : "{ yes/no }",     "filter-list in" : "{ list name }",     "filter-list out" : "{ list name }",     "route-map in" : "{ route map name }",     "route-map out" : "{ route map name }",     "route reflector client" : "{ yes/no }",     "send community" : "{ yes/no }",     "send community extended" : "{ yes/no }",     "soft reconfiguration inbound" : "{ yes/no }",     "unsuppress-map" : "{ route map name }"   } ]</pre>
-------------------------	---

where:

Element	Description
neighbor	Neighbor IP address; a valid IPv4 or IPv6 address.
vrf_name	VRF name; one of the VRF name, <i>default</i> . Default value: <i>default</i> .
remote as	Current neighbor AS; an AS number.
local as	Switch AS; an AS number.

Element	Description
address family	Neighbor address family; an address family.
advertisement interval	Minimum interval between BGP updates, in seconds; an integer.
bfd	BFD state; one of: <ul style="list-style-type: none"> <li>● <i>enabled</i></li> <li>● <i>disabled</i></li> <li>● <i>multihop enabled</i></li> </ul>
connection retry time	BGP connect timer, in seconds; an integer.
description	Neighbor description; a string.
disallow infinite holdtime	Neighbor disallow infinite hold time; one of <i>Yes, No</i> .
do not capability negotiate	Whether to perform capability negotiations; one of <i>Yes, No</i> .
advertise dynamic capability	Advertise dynamic capability to this neighbor; one of <i>Yes, No</i> .
EBGP multihop	Number of multihops; an integer from 1 - 255.
remote private as	Whether to remove private AS number from outbound packets; one of <i>Yes, No</i> .
maximum peers	Maximum number of peers for this prefix; an integer from 1-96.
password	Neighbor password; an encrypted password.
shutdown	Neighbor state; one of <i>Yes, No</i> .
peer holdtime	Holdtime value, in seconds; an integer from 0-3600.
peer keepalive	Keepalive value, in seconds; an integer from 0-3600.
connection-mode passive	Whether to allow a passive connection; one of <i>Yes, No</i> .
ttl security hops	Number of hops; an integer from 1-254.
update-source	Source of routing updates; one of: <ul style="list-style-type: none"> <li>● <i>ethernet</i></li> <li>● <i>vlan</i></li> <li>● <i>loopback interfaces</i></li> </ul>
weight	The default weight for routes from this neighbor; an integer from 0–65535.
allow as in	Accept AS path with own AS in it; an integer from 1-10.

Element	Description
default originate	Whether to originate default route to this neighbor; one of <i>Yes, No</i> .
default originate rmap	Route map that specifies criteria; an RMAP name.
prefix-list in	Filter updates from this neighbor; a filter name.
prefix-list out	Filter updates to this neighbor; a filter name.
maximum-prefix	Maximum number of prefix accept from this peer; an integer from -15782.
maximum-prefix warning	Whether to only give a warning message when limit is exceeded; one of <i>Yes, No</i> .
maximum-prefix threshold percent	Threshold value; an integer from 1-100.
next-hop-self	Whether to disable the next hop calculation for this neighbor; one of <i>Yes, No</i> .
filter-list in	Establish filter for incoming routes; a filter name.
filter-list out	Establish filter for outgoing routes; a filter name.
route-map in	Apply routemap for incoming routes; an RMAP name.
route-map out	Apply routemap for outgoing routes; an RMAP name.
route reflector client	Whether to set neighbor as route reflector client; one of <i>Yes, No</i> .
send community	Whether to send community attribute to this neighbor; one of <i>Yes, No</i> .
send community extended	Whether to send extended community attribute to this neighbor; one of <i>Yes, No</i> .
soft reconfiguration inbound	Whether to allow inbound soft reconfiguration for this neighbor; one of <i>Yes, No</i> .
unsuppress-map	Route map to selectively unsuppress suppressed routes; an RMAP name.

## Update BGP Neighbor Configuration

Updates the configuration of a specific BGP neighbor. If the BGP neighbor is inexistent, it will be created.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/bgp/neighbor/details/<IP>/<mask>/vrf/<vrf_name>
Request Body (JSON)	<pre>[   {     "remote as": "{as value of neighbor}",     "local as": "{local as value}",     "advertisement interval": "{advertisement interval value}",     "bfd": "{enabled/disabled/multihop enabled}",     "connection retry time": "{connection retry time value}",     "description": "{peer description}",     "disallow infinite holdtime": "{yes/no}",     "do not capability negotiate": "{yes/no}",     "advertise dynamic capability": "{yes/no}",     "EBGP multihop": "{multihop value}",     "remote private as": "{yes/no}",     "maximum peers": "{maximum peers value}",     "password": "{encrypted password}",     "unencrypt-password": "{yes/no}",     "shutdown": "{yes/no}",     "peer holdtime": "{holdtime value}",     "peer keepalive": "{keepalive value}",     "connection-mode passive": "{yes/no}",     "ttl security hops": "{number of hops}",     "update-source": "{update source}",     "weight": "{weight value}",     "allow as in": "{number of as allowed}",     "default originate": "{yes/no}",     "default originate rmap": "{rmap name}",     "prefix-list in": "{prefix list name}",     "prefix-list out": "{prefix list name}",     "maximum-prefix": "{max prefix value}",     "maximum-prefix warning": "{yes/no}",     "maximum-prefix threshold percent": "{percent value}",     "next-hop-self": "{yes/no}",     "filter-list in": "{list name}",     "filter-list out": "{list name}",     "route-map in": "{route map name}",     "route-map out": "{route map name}",     "route reflector client": "{yes/no}",     "send community": "{yes/no}",     "send community extended": "{yes/no}",     "soft reconfiguration inbound": "{yes/no}",     "unsuppress-map": "{route map name}"   } ]</pre>

where:

Element	Description
<i>neighbor_ip</i>	The IP address of the BGP neighbor.
<i>vrf_name</i>	The VRF instance for the BGP neighbor.
remote as	The current neighbor AS number; an integer from 1-4294967295.
local as	The current local AS number; an integer from 1-4294967295.
advertisement interval	The minimum time interval, in seconds, between consecutive BGP updates; an integer from 1-65535.
bfd	The status of Bidirectional Forwarding Detection (BFD). Valid values: <ul style="list-style-type: none"> <li>● <i>enabled</i></li> <li>● <i>disable</i></li> <li>● <i>multihop enabled</i></li> </ul>
connection retry time	The connection retry time, in seconds; an integer from 1-65535.
description	The BGP neighbor description (string).
disallow infinite holdtime	Whether the configuration of infinite hold-time is disallowed; one of <i>yes, no</i> .
do not capability negotiate	Whether capability negotiations are disabled; one of <i>yes, no</i> .
advertise dynamic capability	Whether dynamic capability advertisements are enabled; one of <i>yes, no</i> .
EBGP multihop	The number of EBGP multi-hops, an integer from 1-255.
remote private as	Whether the removal of private AS numbers from outbound routes updates is enabled; one of <i>yes, no</i> .
maximum peers	The maximum number of peers configured for the prefix of the BGP neighbor, an integer from 1-96.
password	The encrypted password for the BGP neighbor (string).
unencrypt-password	Whether the password for the BGP neighbor is unencrypted; one of <i>yes, no</i> .
shutdown	Shuts down the BGP neighbor; one of <i>yes, no</i> .
peer holdtime	The time interval, in seconds, the switch awaits before transitioning the BGP neighbor to IDLE state, if the switch doesn't receive an update or keepalive message from the neighbor; an integer from 0-3600.



Element	Description
peer keepalive	The time interval, in seconds, the switch awaits before sending another keep-alive message to the BGP neighbor; an integer from 0-3600.
connection-mode passive	Whether the initiations of TCP sessions with the BGP neighbor are disabled; one of <i>yes, no</i> .
ttl security hops	The minimum number of TTL router hops an IP packet must have to not be discarded; one of <i>yes, no</i> .
update-source	The source of the BGP session and updates; one of: <ul style="list-style-type: none"> <li>• <i>ethernet port</i></li> <li>• <i>VLAN interface</i></li> <li>• <i>loopback interface</i></li> </ul>
weight	The default weight of routes incoming from the BGP neighbor; an integer from 1-65535.
allow as in	The number of AS paths with the local AS number that are accepted by the switch; an integer from 1-10.
default originate	Whether to distribute a default route to the BGP neighbor; one of <i>yes, no</i> .
default originate rmap	The name of the route map for the default route.
prefix-list in	The prefix list for routes incoming from the BGP neighbor.
prefix-list out	The prefix list for routes outgoing to the BGP neighbor.
maximum-prefix	The maximum number of prefixes that can be received from the BGP neighbor, an integer from 1-15872.
maximum-prefix warning	Whether warning messages are generated only when the maximum prefix limit is exceeded; one of <i>yes, no</i> .
maximum-prefix threshold percent	The percentage of the maximum prefix limit at which the switch starts to generate a warning message; an integer from 1-100.
next-hop-self	Whether next-hop calculations for the BGP neighbor are disabled; one of <i>yes, no</i> .
filter-list in	The AS path ACL for routes incoming from the BGP neighbor. Default value: the ACL name.
filter-list out	The AS path ACL for routes outgoing to the BGP neighbor. Default value: the ACL name.
route-map in	The route map for routes incoming from the BGP neighbor. Default value: the route map name.

Element	Description
route-map out	The route map for routes outgoing to the BGP neighbor. Default value: the route map name.
route reflector client	Whether the BGP neighbor is a route reflector client; one of <i>yes, no</i> .
send community	Whether community attributes are sent to the BGP neighbor; one of <i>yes, no</i> .
send community extended	Whether extended community attributes are sent to the BGP neighbor; one of <i>yes, no</i> .
soft reconfiguration inbound	Whether the switch stores BGP neighbor updates; one of <i>yes, no</i> .
unsuppress-map	The route map to selectively unsuppress suppressed routes. Default value: the route map name.

## Response

Response Body (JSON)	<pre>[   {     "neighbor": "{ip_addr}",     "vrf_name": "{vrf_name}",     "remote as": "{as value of neighbor}",     "local as": "{local as value}",     "address family": "{address family type}",     "advertisement interval": "{advertisement interval value}",     "bfd": "{enabled/disabled/multihop enabled}",     "connection retry time": "{connection retry time value}",     "description": "{peer description}",     "disallow infinite holdtime": "{yes/no}",     "do not capability negotiate": "{yes/no}",     "advertise dynamic capability": "{yes/no}",     "EBGP multihop": "{multihop value}",     "remote private as": "{yes/no}",     "maximum peers": "{maximum peers value}",     "password": "{encrypted password}",     "shutdown": "{yes/no}",     "peer holdtime": "{holdtime value}",     "peer keepalive": "{keepalive value}",     "connection-mode passive": "{yes/no}",     "ttl security hops": "{number of hops}",     "update-source": "{update source}",     "weight": "{weight value}",     "allow as in": "{number of as allowed}",     "default originate": "{yes/no}",     "default originate rmap": "{rmap name}",     "prefix-list in": "{prefix list name}",     "prefix-list out": "{prefix list name}",     "maximum-prefix": "{max prefix value}",     "maximum-prefix warning": "{yes/no}",     "maximum-prefix threshold percent": "{percent value}",     "next-hop-self": "{yes/no}",     "filter-list in": "{list name}",     "filter-list out": "{list name}",     "route-map in": "{route map name}",     "route-map out": "{route map name}",     "route reflector client": "{yes/no}",     "send community": "{yes/no}",     "send community extended": "{yes/no}",     "soft reconfiguration inbound": "{yes/no}",     "unsuppress-map": "{route map name}"   } ]</pre>
----------------------	---

where:

Element	Description
neighbor_ip	The IP address of the BGP neighbor.
vrf_name	The VRF instance for the BGP neighbor. Default value: the VRF instance name.
remote as	The current neighbor AS number; an integer from 1-4294967295.
local as	The current local AS number; an integer from 1-4294967295.
address family	The BGP neighbor address family; one of: <ul style="list-style-type: none"> <li>● IPv4</li> <li>● IPv6</li> </ul>
advertisement interval	The minimum time interval, in seconds, between consecutive BGP updates; an integer from 1-65535.
bfd	The status of Bidirectional Forwarding Detection (BFD); one of: <ul style="list-style-type: none"> <li>● enabled</li> <li>● disable</li> <li>● multihop enabled</li> </ul>
connection retry time	The connection retry time, in seconds; an integer from 1-65535.
description	The BGP neighbor description (string).
disallow infinite holdtime	Whether the configuration of infinite hold-time is disallowed; one of <i>yes, no</i> .
do not capability negotiate	Whether capability negotiations are disabled; one of <i>yes, no</i> .
advertise dynamic capability	Whether dynamic capability advertisements are enabled; one of <i>yes, no</i> .
EBGP multihop	The number of EBGP multi-hops; an integer from 1-255.
remote private as	Whether the removal of private AS numbers from outbound routes updates is enabled; one of <i>yes, no</i> .
maximum peers	The maximum number of peers configured for the prefix of the BGP neighbor; an integer from 1-96.
password	The encrypted password for the BGP neighbor (string).
shutdown	Shuts down the BGP neighbor; one of <i>yes, no</i> .

Element	Description
peer holdtime	The time interval, in seconds, the switch awaits before transitioning the BGP neighbor to IDLE state, if the switch doesn't receive an update or keepalive message from the neighbor; an integer from 0-3600.
peer keepalive	The time interval, in seconds, the switch awaits before sending another keep-alive message to the BGP neighbor; an integer from 0-3600.
connection-mode passive	Whether the initiations of TCP sessions with the BGP neighbor are disabled; one of <i>yes</i> , <i>no</i> .
ttl security hops	The minimum number of TTL router hops an IP packet must have to not be discarded; an integer from 1-254.
update-source	The source of the BGP session and updates; one of: <ul style="list-style-type: none"> <li>• <i>ethernet port</i></li> <li>• <i>VLAN interface</i></li> <li>• <i>loopback interface</i></li> </ul>
weight	The default weight of routes incoming from the BGP neighbor; an integer from 1-65535.
allow as in	The number of AS paths with the local AS number that are accepted by the switch; an integer from 1-10.
default originate	Whether to distribute a default route to the BGP neighbor; one of <i>yes</i> , <i>no</i> .
default originate rmap	The name of the route map for the default route. Valid value: the route map name.
prefix-list in	The prefix list for routes incoming from the BGP neighbor. Valid value: the prefix list name.
prefix-list out	The prefix list for routes outgoing to the BGP neighbor. Valid value: the prefix list name.
maximum-prefix	The maximum number of prefixes that can be received from the BGP neighbor; an integer from 1-15872.
maximum-prefix warning	Whether warning messages are generated only when the maximum prefix limit is exceeded; one of <i>yes</i> , <i>no</i> .
maximum-prefix threshold percent	The percentage of the maximum prefix limit at which the switch starts to generate a warning message; an integer from 1-100.
next-hop-self	Whether next-hop calculations for the BGP neighbor are disabled; one of <i>yes</i> , <i>no</i> .
filter-list in	The AS path ACL for routes incoming from the BGP neighbor. Valid value: the ACL name.
filter-list out	The AS path ACL for routes outgoing to the BGP neighbor. Valid value: the ACL name.

Element	Description
route-map in	The route map for routes incoming from the BGP neighbor. Valid value: the route map name.
route-map out	The route map for routes outgoing to the BGP neighbor. Valid value: the route map name.
route reflector client	Whether the BGP neighbor is a route reflector client; one of <i>yes, no</i> .
send community	Whether community attributes are sent to the BGP neighbor; one of <i>yes, no</i> .
send community extended	Whether extended community attributes are sent to the BGP neighbor; one of <i>yes, no</i> .
soft reconfiguration inbound	Whether the switch stores BGP neighbor updates; one of <i>yes, no</i> .
unsuppress-map	The route map to selectively unsuppress suppressed routes. Valid value: the route map name.

## Update Global BGP Unnumbered Configuration

Updates the global BGP unnumbered configuration.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/bgp/unnumbered
Request Body (JSON)	{ "state": "{enabled disabled}" "bfd": "{enabled disabled}" }

where:

Element	Description
state	The status of the global BGP unnumbered feature; one of: <i>enabled</i> , <i>disabled</i> .
bfd	(Optional) The BFD feature status for all unnumbered neighbors; one of: <i>enabled</i> , <i>disabled</i> . Default value: <i>disabled</i> .

### *Response*

True if the operation succeeded; otherwise False.

## Update BGP Unnumbered Interface Configuration

Updates the BGP unnumbered configuration for a specific switch interface.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/interface/bgp_unnumbered/<if_name>
Request Body (JSON)	{ "state": "{enabled disabled}" }

where:

Element	Description
<i>if_name</i>	The name of the switch interface, for example, <i>Ethernet1/12</i> .
<i>state</i>	The status of the global BGP unnumbered feature; one of: <i>enabled</i> , <i>disabled</i> .

### *Response*

True if the operation succeeded; otherwise False.



---

## CEE

The following Converged Enhanced Ethernet (CEE) URIs are available:

- /nos/api/cfg/cee GET, PUT
- /nos/api/cfg/cee/pfc GET, PUT
- /nos/api/cfg/cee/pfc/<if\_name> GET, PUT
- /nos/api/info/cee/pfc/counters/<if\_name> GET
- /nos/api/cfg/cee/ets GET, PUT
- /nos/api/cfg/cee/app-proto GET, POST, DELETE
- /nos/api/cfg/cee/dcbx/<if\_name> GET, PUT
- /nos/api/info/cee/dcbx/ctrl/<if\_name> GET
- /nos/api/info/cee/dcbx/admin/<if\_name> GET
- /nos/api/info/cee/dcbx/oper/<if\_name> GET
- /nos/api/info/cee/dcbx/remote/<if\_name> GET

The following CEE commands are available:

- [Get CEE Configuration](#)
- [Update CEE Configuration](#)
- [Get PFC Configuration](#)
- [Update PFC Configuration](#)
- [Get PFC Interface Configuration](#)
- [Update PFC Interface Configuration](#)
- [Get PFC Interface Statistics](#)
- [Get ETS Configuration](#)
- [Update ETS Configuration](#)
- [Get Application Protocol Configuration](#)
- [Create Application Protocol Configuration](#)
- [Delete Application Protocol Configuration](#)
- [Get DCBX Configuration](#)
- [Update DCBX Configuration](#)
- [Get DCBX Control Interface Information](#)
- [Get DCBX Administrative Interface Information](#)
- [Get DCBX Operational Interface Information](#)
- [Get DCBX Remote Interface Information](#)

## Get CEE Configuration

Gets the current CEE configuration.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/cee
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "status": "{off on}", }
----------------------	---------------------------------

where:

Element	Description
status	The status of the CEE service on the switch; one of <i>off</i> ( <i>disabled</i> ), <i>on</i> ( <i>enabled</i> ). Default value: <i>off</i> .

## Update CEE Configuration

Updates the CEE configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/cee
Request Body (JSON)	{ "status":"{off on}", }

where:

Element	Description
status	The status of the CEE service on the switch; one of <i>off (disabled)</i> , <i>on (enabled)</i> . Default value: <i>off</i> .

### Response

Response Body (JSON)	{ "status":"{off on}", }
----------------------	--------------------------------

where:

Element	Description
status	The status of the CEE service on the switch; one of <i>off (disabled)</i> , <i>on (enabled)</i> . Default value: <i>off</i> .

## Get PFC Configuration

Gets the current Priority Flow Control (PFC) configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/cee/pfc
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "state": "{off on}",   "priority_map": "{priority_map}" }</pre>
----------------------	--

where:

Element	Description
state	The status of PFC on the switch; one of <i>off (disabled)</i> , <i>on (enabled)</i> . Default value: <i>on</i> .
priority_map	The PFC priority flow map. Valid value: the list of enabled priorities: 0-7. Default value: 3.

## Update PFC Configuration

Updates the PFC configuration.

**Note:** Unlike the CLI command, the PUT operation overwrites any previous configurations.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/cee/pfc
Request Body (JSON)	{ "state": "{off on}", "priority_map": "{priority_map}" }

where:

Element	Description
state	The status of PFC on the switch; one of <i>off (disabled)</i> , <i>on (enabled)</i> . Default value: <i>on</i> .
priority_map	The PFC priority flow map. Valid value: the list of enabled priorities: 0-7. Default value: 3.  <b>Notes:</b> <ul style="list-style-type: none"><li>Up to two PFC priorities can be simultaneously enabled, except for the NE10032, where the limit is one priority.</li><li>The PFC priority flow map must not contain a combination of enabled and disabled priorities. Configure ETS appropriately and then enabled PFC to avoid configuration issues.</li></ul>

### Response

Response Body (JSON)	{ "state": "{off on}", "priority_map": "{priority_map}" }
----------------------	--

where:

Element	Description
state	The status of PFC on the switch; one of <i>off (disabled)</i> , <i>on (enabled)</i> .
priority_map	The PFC priority flow map. Valid value: the list of enabled priorities: 0-7.

## Get PFC Interface Configuration

Gets the current PFC configuration for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/cee/pfc/{if_name}
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The name of the switch interface. Valid values: <ul style="list-style-type: none"><li>• <i>Interface name</i> (for example, <i>Ethernet1/12</i>)</li></ul>

### Response

Response Body (JSON)	{ "if_name": "{if_name}", "state": "{off on}", }
----------------------	---

where:

Element	Description
<i>if_name</i>	The name of the switch interface, for example: <i>Ethernet1/12</i> .
<i>state</i>	The status of PFC on the switch; one of: <i>off</i> ( <i>disabled</i> ), <i>on</i> ( <i>enabled</i> ).

## Update PFC Interface Configuration

Updates the PFC configuration for a specific switch interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/cee/pfc/{if_name}
Request Body (JSON)	{ "if_name": "{if_name}", "state": "{off on}", }

where:

Element	Description
<i>if_name</i>	The name of the switch interface, for example: <i>Ethernet1/12</i> .
<i>state</i>	The status of PFC on the switch; one of: <i>off (disabled)</i> , <i>on (enabled)</i> . Default value: <i>on</i> .

### Response

Response Body (JSON)	{ "if_name": "{if_name}", "state": "{off on}", }
----------------------	---

where:

Element	Description
<i>if_name</i>	The name of the switch interface, for example: <i>Ethernet1/12</i> .
<i>state</i>	The status of PFC on the switch; one of: <i>off (disabled)</i> , <i>on (enabled)</i> .

## Get PFC Interface Statistics

Gets PFC statistics for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/info/cee/pfc/counters/{if_name}
Request Body (JSON)	

### Response

Response Body (JSON)	{ "if_name": "{if_name}", "pfc_received": {Rx count}, "pfc_sent": {Tx count} }
----------------------	--

where:

Element	Description
if_name	The name of the switch interface, for example: <i>Ethernet1/12</i> .
pfc_received	The number of received PFC packets (integer).
pfc_sent	The number of sent PFC packets (integer).



## Get ETS Configuration

Gets the current Enhanced Transmission Selection (ETS) configuration.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/cee/ets
Request Body (JSON)	

## Response

Response Body (JSON)	<pre>[   {     "pgid": 0,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 1,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 2,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 3,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 4,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 5,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 6,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 7,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 15,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   }, ]</pre>
----------------------	---

where:

Element	Description
pgid	The ID of the ETS priority group; an integer from 0-7, or 15.

<b>Element</b>	<b>Description</b>
bandwidth	The bandwidth percentage allocated to the priority group; an integer from 0-100.
priority_ pgid_ mapping	The priorities mapped to the priority group; an integer from 0-7.

## Update ETS Configuration

Updates the ETS configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/cee/ets
Request Body (JSON)	<pre>[   {     "pgid": 0,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 1,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 2,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 3,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 4,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 5,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 6,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 7,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 15,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   }, ]</pre>

where:

Element	Description
pgid	The ID of the ETS priority group; an integer from 0-7, or 15.
bandwidth	The bandwidth percentage allocated to the priority group; an integer from 0-100. <b>Note:</b> The total bandwidth percentage for all priority groups must not exceed 100%
priority_ pgid_ mapping	The priorities mapped to the priority group; an integer from 0-7.

## Response

Response Body (JSON)	<pre>[   {     "pgid": 0,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 1,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 2,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 3,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 4,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 5,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 6,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 7,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   },   {     "pgid": 15,     "bandwidth": "{bandwidth}",     "priority_pgid_mapping": "{priority_map}"   }, ]</pre>
----------------------	---

where:

Element	Description
pgid	The ID of the ETS priority group; an integer from 0-7, or 15.

<b>Element</b>	<b>Description</b>
bandwidth	The bandwidth percentage allocated to the priority group; an integer from 0-100.
priority_ pgid_ mapping	The priorities mapped to the priority group; an integer from 0-7.

## Get Application Protocol Configuration

Gets the current application protocol configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/cee/app-proto
Request Body (JSON)	

### Response

Response Body (JSON)	[ { "config_name": "{config_name}", "protocol": "{protocol}", "protoid": "{proto_id}", "priority": "{priority}" }, ]
----------------------	---

where:

Element	Description
config_name	The name of application protocol configuration (string).
protocol	The name of the protocol (string). For example: Ethertype, TCP, or UDP.
protoid	The protocol identifier; one of: <ul style="list-style-type: none"><li>● <i>hexadecimal</i> for Ethernet type (for example, <i>0x8900</i>)</li><li>● <i>fcoe, iscsi, roce, or rocev2</i> for well known protocols</li><li>● <i>0-65535</i> for TCP or UDP ports</li></ul>
priority	The priority mapped to the application protocol configuration; an integer from 0-7.



## Create Application Protocol Configuration

Creates a new application protocol configuration.

### Request

Method Type	POST
Request URI	/nos/api/cfg/cee/app-proto
Request Body (JSON)	[ <pre>           {             "config_name": "{config_name}",             "protocol": "{protocol}",             "protoid": "{proto_id}",             "priority": "{priority}"           },         </pre> ]

where:

Element	Description																				
config_name	The name of application protocol configuration (string).																				
protocol	(Optional) The unique name of the configured application protocol (string). For example: Ethertype, TCP, or UDP. <b>Note:</b> For well known protocols (fcoe, iscsi, roce, rocev2) this variable is not mandatory. For user defined protocols, the value of the variable must be <i>ethertype</i> and <i>protoid</i> must be a valid Ethernet type value (0x800 - 0x9100).																				
protoid	The protocol identifier; one of: <ul style="list-style-type: none"> <li>• <i>hexadecimal</i> for Ethernet type (for example, 0x8900)</li> <li>• <i>fcoe, iscsi, roce, or rocev2</i> for well known protocols</li> <li>• <i>0-65535</i> for TCP or UDP ports</li> </ul> <b>Note:</b> This variable is optional for well known protocols To create a new application protocol for other proto-IDs, protocol information is required as showed in the following example for TCP port 8090. <table border="1"> <thead> <tr> <th>Protocol</th> <th>ProtoId</th> <th>Priorities</th> <th>ConfigName</th> </tr> </thead> <tbody> <tr> <td>Ethertype</td> <td>fcoe</td> <td>5</td> <td>fcoe_app</td> </tr> <tr> <td>TCP</td> <td>iSCSI</td> <td>4</td> <td>iscsi_app</td> </tr> <tr> <td>UDP</td> <td>RoCEv2</td> <td>3</td> <td>rocev2_app</td> </tr> <tr> <td>Ethertype</td> <td>0x8900</td> <td>1</td> <td>my_eth_app</td> </tr> </tbody> </table>	Protocol	ProtoId	Priorities	ConfigName	Ethertype	fcoe	5	fcoe_app	TCP	iSCSI	4	iscsi_app	UDP	RoCEv2	3	rocev2_app	Ethertype	0x8900	1	my_eth_app
Protocol	ProtoId	Priorities	ConfigName																		
Ethertype	fcoe	5	fcoe_app																		
TCP	iSCSI	4	iscsi_app																		
UDP	RoCEv2	3	rocev2_app																		
Ethertype	0x8900	1	my_eth_app																		
priority	The priority mapped to the application protocol configuration; an integer from 0-7.																				

## Response

Response Body (JSON)	<pre>[   {     "config_name": "{config_name}",     "protocol": "{protocol}",     "protoid": "{proto_id}",     "priority": "{priority}"   }, ]</pre>
----------------------	---

where:

Element	Description
config_name	The name of application protocol configuration (string).
protocol	The name of the protocol (string). For example: Ethertype, TCP, or UDP.
protoid	The protocol identifier; one of: <ul style="list-style-type: none"><li>● <i>hexadecimal</i> for Ethernet type (for example, <i>0x8900</i>)</li><li>● <i>fcoe, iscsi, roce, or rocev2</i> for well known protocols</li><li>● <i>0-65535</i> for TCP or UDP ports</li></ul>
priority	The priority mapped to the application protocol configuration; an integer from 0-7.

## Delete Application Protocol Configuration

Deletes an application protocol configuration.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/cee/app-proto/{ <i>config_name</i> }
Request Body (JSON)	

where:

Element	Description
<i>config_name</i>	The name of application protocol configuration (string).

## Get DCBX Configuration

Gets the current Data Center Bridging Exchange (DCBX) configuration for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/cee/dcbx/{if_name}
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "{if_name}",   "dcbx state": "{enable disable}",   "pfc advt": "{on off}",   "ets advt": "{on off}",   "app advt": "{on off}" }</pre>
----------------------	---

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
dcbx state	The status of DCBX on the interface; one of: <i>enable, disable</i> .
pfc advt	The status of PFC local configuration advertisement to the DCBX peer; one of: <i>on, off</i> .
ets advt	The status of ETS local configuration advertisement to the DCBX peer; one of: <i>on, off</i> .
app advt	The status of application protocol local configuration advertisement to the DCBX peer; one of: <i>on, off</i> .

## Update DCBX Configuration

Updates the DCBX configuration for a specific switch interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/cee/dcbx/{if_name}
Request Body (JSON)	<pre>{   "if_name": "{if_name}",   "dcbx state": "{enable disable}",   "pfc advt": "{on off}",   "ets advt": "{on off}",   "app advt": "{on off}" }</pre>

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
dcbx state	The status of DCBX on the interface; one of <i>enable</i> , <i>disable</i> . Default value: <i>on</i>
pfc advt	The status of PFC local configuration advertisement to the DCBX peer; one of <i>on</i> , <i>off</i> . Default value: <i>on</i>
ets advt	The status of ETS local configuration advertisement to the DCBX peer; one of: <i>on</i> , <i>off</i> . Default value: <i>on</i>
app advt	The status of application protocol local configuration advertisement to the DCBX peer; one of <i>on</i> , <i>off</i> . Default value: <i>on</i>

### Response

Response Body (JSON)	<pre>{   "if_name": "{if_name}",   "dcbx state": "{enable disable}",   "pfc advt": "{on off}",   "ets advt": "{on off}",   "app advt": "{on off}" }</pre>
----------------------	---

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
dcbx state	The status of DCBX on the interface; one of <i>enable</i> , <i>disable</i> .
pfc advt	The status of PFC local configuration advertisement to the DCBX peer; one of <i>on</i> , <i>off</i> .

Element	Description
ets advt	The status of ETS local configuration advertisement to the DCBX peer; one of <i>on</i> , <i>off</i> .
app advt	The status of application protocol local configuration advertisement to the DCBX peer; one of <i>on</i> , <i>off</i> .

## Get DCBX Control Interface Information

Gets DCBX control information for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/info/cee/dcbx/ctrl/{if_name}
Request Body (JSON)	

### Response

Response Body (JSON)	{ "if_name": "{if_name}", "DCBX Admin-state": "{disable enable}", "DCBX version": "{dcbx_version}" }
----------------------	--

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
DCBX Admin-state	The status of DCBX on the switch interface; one of <i>enable</i> , <i>disable</i> .
DCBX version	The version of DCBX; one of: <ul style="list-style-type: none"><li>● <i>DCBX CEE (v1.01)</i></li><li>● <i>DCBX IEEE 802.1Qaz (v2.5)</i></li></ul>
seq_no	The sequence number, in case of DCBX CEE.
ack_no	The acknowledgement number, in case of DCBX CEE.

## Get DCBX Administrative Interface Information

Gets DCBX administrative information for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/info/cee/dcbx/admin/{if_name}
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "{if_name}",   "dcbx_state": "{enable disable}",   "pfc_admin":   {     "state": "{on off}",     "adv_t": "{on off}",     "willing": "{on off}",     "max_cap": "{max_cap}",     "syncd": "{on off}",     "priority_map": "{priority_map}"   },   "ets_admin":   {     "state": "{on off}",     "adv_t": "{on off}",     "willing": "{on off}",     "syncd": "{on off}",     "tcg":     [       {         "pgid": 0,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       {         "pgid": 1,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       {         "pgid": 2,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       {         "pgid": 3,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       }     ],     ...   } }</pre>
----------------------	---



Response Body (JSON)	<pre> ...     {       "pgid": 4,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },     {       "pgid": 5,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },     {       "pgid": 6,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },     {       "pgid": 7,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },     {       "pgid": 15,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },   ],   "app_admin":   {     "state": "{on off}",     "advt": "{on off}",     "willing": "{on off}",   },   "app_protocol":   [     {       "protocol": "{protocol}",       "protostr": "{proto_str}",       "priority": "{priority}"     },   ], } </pre>
----------------------	--

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
dcbx state	The status of DCBX on the interface; one of <i>enable</i> , <i>disable</i> .
pfc_admin	The current PFC configuration.
state	The status of PFC on the switch interface; one of <i>on</i> , <i>off</i> .
advt	The status of PFC local configuration advertisement to the DCBX peer; one of <i>on</i> , <i>off</i> .

Element	Description
willing	Whether the switch is “willing” to learn PFC configurations from a DCBX peer; one of <i>on, off</i> .
max_cap	The maximum PFC capability (integer).
syncd	The status of PFC information synchronization; one of <i>on, off</i> .
priority_map	The PFC priorities enabled on the interface; an integer from 0-7.
ets_admin	The current ETS configuration.
state	The status of ETS on the switch interface; one of <i>on, off</i> .
adv	The status of ETS local configuration advertisement to the DCBX peer; one of <i>on, off</i> .
willing	Whether the switch is “willing” to learn ETS configurations from a DCBX peer; one of <i>on, off</i> .
syncd	The status of ETS information synchronization; one of <i>on, off</i> .
pgid	The ID of the ETS priority group; an integer from 0-7, or 15.
bandwidth	The bandwidth percentage allocated to the priority group; an integer from 0-100.
priority_pgid_mapping	The priorities mapped to the priority group; an integer from 0-7.
app_admin	The current application control configuration.
state	The status of application control on the switch interface; one of <i>on, off</i> .
adv	The status of application control local configuration advertisement to the DCBX peer; one of <i>on, off</i> .
willing	Whether the switch is “willing” to learn application control configurations from a DCBX peer; one of <i>on, off</i> .
app_protocol	The list of created application protocols (string).
protocol	The name of the protocol (string). For example: Ethertype, TCP, or UDP.
protostr	The protocol identifier; one of: <ul style="list-style-type: none"> <li>● <i>string</i> for Ethertype or well known protocols</li> <li>● 0-65535 for TCP or UDP ports</li> </ul>
priority	The priority mapped to the application protocol configuration; an integer from 0-7.

## Get DCBX Operational Interface Information

Gets DCBX operational information for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/info/cee/dcbx/oper/{if_name}
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "{if_name}",   "dcbx_state": "{enable disable}",   "pfc_admin":   {     "state": "{on off}",     "max_cap": "{max_cap}",     "syncd": "{on off}",     "priority_map": "{priority_map}"   },   "ets_admin":   {     "state": "{on off}",     "tcg":     [       {         "pgid": 0,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       {         "pgid": 1,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       {         "pgid": 2,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       {         "pgid": 3,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       {         "pgid": 4,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       ...     ]   } }</pre>
----------------------	--

Response Body (JSON)	<pre> ...     {       "pgid": 5,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },     {       "pgid": 6,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },     {       "pgid": 7,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },     {       "pgid": 15,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },   ],   "app_admin":   {     "state": "{on off}",   },   "app_protocol":   [     {       "protocol": "{protocol}",       "protostr": "{proto_str}",       "priority": "{priority}"     },   ], ] } </pre>
----------------------	---

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
dcbx state	The status of DCBX on the interface; one of <i>enable</i> , <i>disable</i> .
pfc_admin	The current PFC configuration.
state	The status of PFC on the switch interface; one of <i>on</i> , <i>off</i> .
max_cap	The maximum PFC capability (integer).
syncd	The status of PFC information synchronization; one of <i>on</i> , <i>off</i> .
priority_map	The PFC priorities enabled on the interface; an integer from 0-7.
ets_admin	The current ETS configuration.
state	The status of ETS on the switch interface; one of <i>on</i> , <i>off</i> .

Element	Description
pgid	The ID of the ETS priority group; an integer from 0-7, or 15.
bandwidth	The bandwidth percentage allocated to the priority group; an integer from 0-100.
priority_ pgid_ mapping	The priorities mapped to the priority group; an integer from 0-7.
app_admin	The current application control configuration.
state	The status of application control on the switch interface; one of <i>on</i> , <i>off</i> .
app_ protocol	The list of created application protocols (string).
protocol	The name of the protocol. For example: Ethertype, TCP, or UDP.
protostr	The protocol identifier; one of: <ul style="list-style-type: none"> <li>• <i>string</i> for Ethertype or well known protocols</li> <li>• 0-65535 for TCP or UDP ports</li> </ul>
priority	The priority mapped to the application protocol configuration; an integer from 0-7.

## Get DCBX Remote Interface Information

Gets DCBX remote information for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/info/cee/dcbx/remote/{if_name}
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "{if_name}",   "dcbx_state": "{enable disable}",   "pfc_admin":   {     "state": "{on off}",     "willing": "{on off}",     "max_cap": "{max_cap}",     "priority_map": "{priority_map}"   },   "ets_admin":   {     "state": "{on off}",     "willing": "{on off}",     "tcg":     [       {         "pgid": 0,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       {         "pgid": 1,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       {         "pgid": 2,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       {         "pgid": 3,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       {         "pgid": 4,         "bandwidth": "{bandwidth}",         "priority_pgid_mapping": "{priority_map}"       },       ...     ]   } }</pre>
----------------------	---

Response Body (JSON)	<pre> ...     {       "pgid": 5,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },     {       "pgid": 6,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },     {       "pgid": 7,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },     {       "pgid": 15,       "bandwidth": "{bandwidth}",       "priority_pgid_mapping": "{priority_map}"     },   ],   "app_admin":   {     "state": "{on off}",     "willing": "{on off}",   },   "app_protocol":   [     {       "protocol": "{protocol}",       "protostr": "{proto_id}",       "priority": "{priority}"     },   ], } </pre>
----------------------	---

where:

Element	Description
if_name	The name of the switch interface. For example <i>Ethernet1/12</i> .
dcbx state	The status of DCBX on the interface; one of <i>enable</i> , <i>disable</i> .
pfc_admin	The current PFC configuration.
state	The status of PFC on the switch interface; one of <i>on</i> , <i>off</i> .
willing	Whether the switch is “willing” to learn PFC configurations from a DCBX peer; one of <i>on</i> , <i>off</i> .
max_cap	The maximum PFC capability (integer).
priority_map	The PFC priorities enabled on the interface; an integer from 0-7.
ets_admin	The current ETS configuration.

Element	Description
state	The status of ETS on the switch interface; one of <i>on</i> , <i>off</i> .
willing	Whether the switch is “willing” to learn ETS configurations from a DCBX peer; one of <i>on</i> , <i>off</i> .
pgid	The ID of the ETS priority group; an integer from 0-7, or 15.
bandwidth	The bandwidth percentage allocated to the priority group; an integer from 0-100.
priority_ pgid_ mapping	The priorities mapped to the priority group; an integer from 0-7.
app_admin	The current application control configuration.
state	The status of application control on the switch interface; one of <i>on</i> , <i>off</i> .
willing	Whether the switch is “willing” to learn application control configurations from a DCBX peer; one of <i>on</i> , <i>off</i> .
app_ protocol	The list of created application protocols (string).
protocol	The name of the protocol (string). For example Ethertype, TCP, or UDP.
protostr	The protocol identifier; one of: <ul style="list-style-type: none"> <li>• <i>string</i> for Ethertype or well known protocols</li> <li>• 0-65535 for TCP or UDP ports</li> </ul>
priority	The priority mapped to the application protocol configuration; an integer from 0-7.



---

## DCI

The following Data Center Interconnection (DCI) URIs are available:

- `/nos/api/cfg/nwv` GET, POST
- `/nos/api/cfg/nwv/vxlan` GET, POST, PUT
- `/nos/api/cfg/<if_name>/vxlan` GET, POST, PUT
- `/nos/api/cfg/lag/<id>/vxlan` GET, POST, PUT
- `/nos/api/info/nwv/vxlan` GET
- `/nos/api/info/nwv/vxlan/mac-address` GET
- `/nos/api/info/nwv/vxlan/vni` GET
- `/nos/api/info/nwv/vxlan/vni/counters` GET, DELETE
- `/nos/api/info/nwv/vxlan/tunnel` GET
- `/nos/api/info/nwv/vxlan/virtual-port` GET
- `/nos/api/info/nwv/vxlan/virtual-port/counters` GET

The following DCI commands are available:

- [Get NWV Configuration](#)
- [Update NWV Configuration](#)
- [Get NWV VXLAN \(DCI\) Configuration](#)
- [Set NWV VXLAN \(DCI\) Configuration](#)
- [Update NWV VXLAN \(DCI\) Configuration](#)
- [Get Interface Ethernet VXLAN Configuration](#)
- [Set Interface Ethernet VXLAN Configuration](#)
- [Update Interface Ethernet VXLAN Configuration](#)
- [Get Interface LAG VXLAN Configuration](#)
- [Set Interface LAG VXLAN Configuration](#)
- [Update Interface LAG VXLAN Configuration](#)
- [Get NWV VXLAN Information](#)
- [Get NWV VXLAN VNI Information](#)
- [Get NWV VXLAN VNI Counters Information](#)
- [Delete NWV VXLAN VNI Counters](#)
- [Get NWV VXLAN Tunnel Information](#)
- [Get NWV VXLAN MAC-Address Information](#)
- [Get NWV VXLAN Virtual Ports Information](#)
- [Get NWV VXLAN Virtual Port Counters Information](#)

## Get NWV Configuration

Gets global Network Virtualization (NWV) configuration of the system.

### Request

Method Type	GET
Request URI	/nos/api/cfg/nwv
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "mode": "disabled   static   bgp-evpn ",   "ha" : "disabled   vlag",   "encapsulation" : "vtep" }</pre>
-------------------------	--

where:

Element	Description
mode	NWM mode; one of <i>disabled</i> , <i>static</i> , <i>bgp-evpn</i> . Default value: <i>disabled</i> . <b>Note:</b> If the hardware install/uninstall process is not finished, "Vxlan not ready" is displayed.
ha	High Availability; one of <i>vlag</i> , <i>disabled</i> .
encapsulation	The Encapsulation method: VTEP (VXLAN). <b>Note:</b> This parameter is valid for <i>hsc</i> and <i>disabled</i> modes.

## Update NWV Configuration

Updates the NWV status.

### Request

Method Type	POST
Request URI	/nos/api/cfg/nwv
Request Body (JSON)	{ "mode": "static", "ha" : "vlag", "encapsulation": "vtep" }

where:

Element	Description
mode	NWM mode; one of <i>disabled</i> , <i>static</i> , <i>bgp-evpn</i> . Default value: <i>disabled</i> . <b>Note:</b> If the hardware install/uninstall process is not finished, "Vxlan not ready" is displayed.
ha	High Availability; one of <i>vlag</i> , <i>disabled</i> .
encapsulation	The Encapsulation method: VTEP (VXLAN). <b>Note:</b> This parameter is valid for <i>hsc</i> and <i>disabled</i> modes.

### Response

Response Body (JSON)	{ "mode": "disabled   static   bgp-evpn ", "ha" : "disabled   vlag", "encapsulation" : "vtep" }
-------------------------	---

where:

Element	Description
mode	NWM mode; one of <i>disabled</i> , <i>static</i> , <i>bgp-evpn</i> . Default value: <i>disabled</i> . <b>Note:</b> If the hardware install/uninstall process is not finished, "Vxlan not ready" is displayed.
ha	High Availability; one of <i>vlag</i> , <i>disabled</i> .
encapsulation	The Encapsulation method: VTEP (VXLAN). <b>Note:</b> This parameter is valid for <i>hsc</i> and <i>disabled</i> modes.

## Get NWV VXLAN (DCI) Configuration

Gets NWV VXLAN (DCI) configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/nwv/vxlan
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "tunnel_ip_addr": "2.100.30.30",   "vlan_bindings": [     "map",     [       [101, 10001],       [201, 20001]     ]   ],   "remote_vtep": [     "map",     [       [         10001,         [           "10.10.1.1",           "10.2.2.3"         ]       ],       [         20001,         [           "10.10.1.5"         ]       ]     ]   ] }</pre>
-------------------------	--

where:

Element	Description
tunnel_ip_addr	Configures the local VTEP interface.
vlan_bindings	Maps the global VLAN ID to a Virtual Network ID.
remote_vtep	Maps the VTEP to a specific VNID network.

## Set NWV VXLAN (DCI) Configuration

Updates the NWV VXLAN (DCI) configuration.

### Request

Method Type	POST
Request URI	/nos/api/cfg/nwv/vxlan
Request Body (JSON)	<pre>{   "tunnel_ip_addr": "2.100.30.30",   "vlan_bindings": ["map", [[101,10001],[201,20001]]],   "remote_vtep": ["map",     [[ 10001,       ["10.10.1.1", "10.2.2.3"]     ],     [ 20001,       ["10.10.1.5"]     ]   ] }</pre>

where:

Element	Description
tunnel_ip_addr	(Mandatory) Configures the local VTEP interface; a valid IP address. <b>Note:</b> Make sure the IP address is properly configured.
vlan_bindings	(Optional) Configure the global VLAN-VNI mapping; a list of VLANID, VNID. The <code>map</code> parameter is used to add a new mapping to the existing one.
remote_vtep	(Optional) A list of VTEP IP address per VNID. The <code>map</code> parameter is used to add a new VTEP to the existing one.

## Response

Response Body (JSON)	<pre>{   "tunnel_ip_addr": "2.100.30.30",   "vlan_bindings": [     "map",     [       [101, 10001],       [201, 20001]     ]   ],   "remote_vtep": [     "map",     [       [ 10001,         ["10.10.1.1", "10.2.2.3"]       ],       [ 20001,         ["10.10.1.5"]       ]     ]   ] }</pre>
----------------------	--

where:

Element	Description
tunnel_ip_addr	Configures the local VTEP interface; a valid IP address. <b>Note:</b> Make sure the IP address is properly configured.
vlan_bindings	Configure the global VLAN-VNI mapping; a list of VLANID, VNID.
remote_vtep	A list of VTEP IP address per VNID. The map parameter is used to add a new VTEP to the existing one.

## Update NWV VXLAN (DCI) Configuration

Updates the NWV VXLAN (DCI) configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/nwv/vxlan
Request Body (JSON)	<pre>{   "tunnel_ip_addr": "2.100.30.30",   "vlan_bindings": ["set", [[201,20001]]],   "remote_vtep": ["set",     [       [ 10001,         ["10.10.1.1", "10.2.2.3"]       ],       [ 20001,         ["10.10.1.5"]       ]     ]   ] }</pre>

where:

Element	Description
tunnel_ip_addr	(Optional) Configures the local VTEP interface; a valid IP address. <b>Note:</b> Make sure the IP address is properly configured.
vlan_bindings	(Optional) Configure the global VLAN-VNI mapping; a list of VLANID, VNID. <b>set</b> removes the vni-mapping, <b>map</b> adds a new vni-mapping to the existing list.
remote_vtep	(Optional) A list of VTEP IP address per VNID. <b>set</b> removes the remote-vtep. The <b>map</b> parameter is used to add a new remote-vtep to the existing list.

## Response

Response Body (JSON)	<pre>{   "tunnel_ip_addr": "2.100.30.30",   "vlan_bindings": [     "map",     [       [101, 10001],       [201, 20001]     ]   ],   "remote_vtep": [     "map",     [       [         10001,         ["10.10.1.1", "10.2.2.3"]       ],       [         20001,         ["10.10.1.5"]       ]     ]   ], }</pre>
-------------------------	---

where:

Element	Description
tunnel_ip_addr	Configures the local VTEP interface; a valid IP address. <b>Note:</b> Make sure the IP address is properly configured.
vlan_bindings	Configure the global VLAN-VNI mapping; a list of VLANID, VNID.
remote_vtep	A list of VTEP IP address per VNID.



## Get Interface Ethernet VXLAN Configuration

Gets VXLAN configuration for a specified interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/<if_name>/vxlan
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	Interface name. <b>Note:</b> The interface must exist. For example <i>Ethernet 1/1</i> or <i>Ethernet1%2F1</i> for RESTfulAPI.

### Response

Response Body (JSON)	{ "vxlan": "enabled   disabled" }
-------------------------	---

where:

Element	Description
<i>if_name</i>	Interface name. <b>Note:</b> The interface must exist. For example <i>Ethernet 1/1</i> or <i>Ethernet1%2F1</i> for RESTfulAPI.
<i>vxlan</i>	The VXLAN interface state; one of <i>enabled</i> , <i>disabled</i> . Default value: <i>disabled</i> .

## Set Interface Ethernet VXLAN Configuration

Updates the VXLAN configuration for a specified interface.

### Request

Method Type	POST
Request URI	/nos/api/cfg/<if_name>/vxlan
Request Body (JSON)	{ "vxlan": "enabled   disabled  " }

where:

Element	Description
<i>if_name</i>	(Mandatory) Interface name. <b>Note:</b> The interface must exist. For example <i>Ethernet 1/1</i> or <i>Ethernet1%2F1</i> for RESTfulAPI.
<i>vxlan</i>	(Mandatory) The VXLAN interface state; one of <i>enabled</i> , <i>disabled</i> . Default value: <i>disabled</i> (null).

### Response

Response Body (JSON)	{ "vxlan": "disabled" }
-------------------------	-------------------------------

where:

Element	Description
<i>if_name</i>	Interface name. <b>Note:</b> The interface must exist.
<i>vxlan</i>	The VXLAN interface state; one of <i>enabled</i> , <i>disabled</i> . Default value: <i>disabled</i> .

## Update Interface Ethernet VXLAN Configuration

Updates the VXLAN configuration for a specified interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/<if_name>/vxlan
Request Body (JSON)	{ "vxlan": "enabled   disabled" }

where:

Element	Description
<i>if_name</i>	(Mandatory) Interface name. <b>Note:</b> The interface must exist.
<i>vxlan</i>	(Mandatory) The VXLAN interface state; one of <i>enabled</i> , <i>disabled</i> . Default value: <i>disabled</i> .

### Response

Response Body (JSON)	{ "vxlan": "disabled" }
-------------------------	-------------------------------

where:

Element	Description
<i>if_name</i>	Interface name. <b>Note:</b> The interface must exist.
<i>vxlan</i>	The VXLAN interface state; one of <i>enabled</i> , <i>disabled</i> . Default value: <i>disabled</i> .

## Get Interface LAG VXLAN Configuration

Gets VXLAN configuration for a specified interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/lag/<id>/vxlan
Request Body (JSON)	

where:

Element	Description
<i>id</i>	LAG interface ID.

### Response

Response Body (JSON)	<pre>{   "vxlan": "enabled   disabled" }</pre>
-------------------------	--

where:

Element	Description
<i>id</i>	LAG interface ID.
<i>vxlan</i>	The VXLAN interface state; one of <i>enabled</i> , <i>disabled</i> . Default value: <i>disabled</i> .

## Set Interface LAG VXLAN Configuration

Updates VXLAN configurations for a specified interface.

### Request

Method Type	POST
Request URI	/nos/api/cfg/lag/<id>/vxlan
Request Body (JSON)	{ "vxlan": "enabled   disabled" }

where:

Element	Description
<i>id</i>	(Mandatory) LAG interface ID.
<i>vxlan</i>	(Mandatory) The VXLAN interface state; one of <i>enabled</i> , <i>disabled</i> . Default value: <i>disabled</i> (null).

### Response

Response Body (JSON)	{ "vxlan": "disabled" }
-------------------------	-------------------------------

where:

Element	Description
<i>id</i>	LAG interface ID.
<i>vxlan</i>	The VXLAN interface state; one of <i>enabled</i> , <i>disabled</i> . Default value: <i>disabled</i> .

## Update Interface LAG VXLAN Configuration

Updates the VXLAN configuration for a specific interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/lag/<id>/vxlan
Request Body (JSON)	{ "vxlan": "enabled   disabled" }

where:

Element	Description
<i>id</i>	LAG interface ID.
<i>vxlan</i>	The VXLAN interface state; one of <i>enabled</i> , <i>disabled</i> . Default value: <i>disabled</i> .

### Response

Response Body (JSON)	{ "vxlan": "disabled" }
-------------------------	-------------------------------

where:

Element	Description
<i>id</i>	LAG interface ID.
<i>vxlan</i>	The VXLAN interface state; one of <i>enabled</i> , <i>disabled</i> . Default value: <i>disabled</i> .

## Get NWV VXLAN Information

Gets the NWV VXLAN information.

### Request

Method Type	GET
Request URI	/nos/api/info/nwv/vxlan
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "tunnel_ip_addr": "2.100.30.30",   "vlan_bindings": ["map",     [[101,10001]]   ],   "remote_vtep": ["map",     [[ 10001,       ["10.10.1.1", "10.2.2.3"]     ],     [ 20001,       ["10.10.1.5"]     ]]   ] }</pre>
----------------------	---

where:

Element	Description
tunnel_ip_addr	Configures the local VTEP interface; a valid IP address.
vlan_bindings	The global VLAN ID to Virtual Network ID mapping.
remote_vtep	The VTEP mapping to a specific VNID network.

## Get NWV VXLAN VNI Information

Gets NWV VXLAN VNI information.

### *Request*

Method Type	GET
Request URI	/nos/api/info/nwv/vxlan/vni
Request Body (JSON)	

### *Response*

Response Body (JSON)	<pre>{   "count": 2,   "vni": [10000, 10001] }</pre>
----------------------	--

where:

Element	Description
count	The total number of configured Virtual Network Instances (VNI).
vni	The list of configured VNI.



## Get NWV VXLAN VNI Counters Information

Displays the NWV VXLAN virtual network counters.

### Request

Method Type	GET
Request URI	/nos/api/info/nwv/vxlan/vni/counters
Request Body (JSON)	

### Response

Response Body (JSON)	[ { "bin": 583118262, "pktin": 695709, "bout": 1106560846, "pktout": 3099569, "vni": 1 }, { "bin": 768436428, "pktin": 929277, "bout": 1104301875, "pktout": 3044261, "vni": 2 }]
----------------------	--

where:

Element	Description
bin	Number of bytes received.
pktin	Number of packets in.
bout	Number of bytes sent.
pktout	Number of packets out.
vni	The number of configured VNI.

## Delete NWW VXLAN VNI Counters

Resets the NWW VXLAN virtual network counters.

### *Request*

Method Type	DELETE
Request URI	/nos/api/info/nww/vxlan/vni/counters
Request Body (JSON)	

### *Response*

Response Body (JSON)	
----------------------	--

## Get NWV VXLAN Tunnel Information

Gets NWV VXLAN tunnel information.

### Request

Method Type	GET
Request URI	/nos/api/info/nwv/vxlan/tunnel
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "count":1,   "tunnel":[     {"remote-ip":"192.168.1.3", "status":"UP"},     {"remote-ip":"192.168.1.4", "status":"UP"},     {"remote-ip":"192.168.1.4", "status":"UP"},   ] }</pre>
-------------------------	--

where:

Element	Description
count	The total number of tunnels.
tunnel	The list of configured VTEP. The remote IP address and BFD status are displayed for each tunnel.

## Get NWV VXLAN MAC-Address Information

Gets NWV VXLAN MAC-Address information.

### Request

Method Type	GET
Request URI	/nos/api/info/nwv/vxlan/mac-address
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "local-count": 3048,   "local-umac": [     {       "tunnel": "200.100.0.128",       "mac": "00:B3:33:33:33:38",       "vni": 206     },     {       "tunnel": "200.100.0.128",       "mac": "00:B3:33:33:33:39",       "vni": 207     },     {       "tunnel": "200.100.0.128",       "mac": "00:B3:33:33:33:3A",       "vni": 208     },     {       "tunnel": "10.99.250.1",       "mac": "00:AA:AA:AB:18:09",       "vni": 3000     },     {       "tunnel": "10.99.250.1",       "mac": "00:AA:AA:AB:27:A9",       "vni": 3000     }   ] }</pre>
-------------------------	---

where:

Element	Description
local-count	Number of local MAC addresses.
remote-count	Number of remote MAC addresses.
local-umac	List of local MAC address. Each MAC address has an associated VNI and VTEP.
remote-umac	List of remote MAC address. Each MAC address has an associated VNI and VTEP.

## Get NWV VXLAN Virtual Ports Information

Displays the virtual ports.

### *Request*

Method Type	GET
Request URI	/nos/api/info/nwv/vxlan/virtualport
Request Body (JSON)	

### *Response*

Response Body (JSON)	<pre>{   "count": 2,   "virtual-port": [     {"remoteTEP": "LOCAL", "vlan": "10",      "port": "Ethernet1/7/2(A)", "vnid": "10001"},     {"remoteTEP": "18.18.200.3", "vlan": "4093",      "port": "Ethernet1/7/1(N,M)", "vnid": "10001"}] }</pre>
-------------------------	--

where:

Element	Description
count	The total number of virtual ports.
virtual-port	The list of virtual-ports and associated interface name, VNI and VLAN. The type is displayed for each virtual port (local/remote) VLAN and VNI.

## Get NWV VXLAN Virtual Port Counters Information

Displays the virtual ports counters.

### Request

Method Type	GET
Request URI	/nos/api/info/nwv/vxlan/virtualport/counters
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "virtualport-counters":   [{"bin": 0, "vnid": "201", "pktout": 0, "pktin": 0, "bout":   0, "port": "po100"},   {"bin": 2343960, "vnid": "201", "pktout": 67404, "pktin":   34470, "bout": 2239512, "port": "po4000"},   {"bin": 0, "vnid": "202", "pktout": 0, "pktin": 0, "bout":   0, "port": "po100"},   {"bin": 2343960, "vnid": "202", "pktout": 39712, "pktin":   34470, "bout": 356456, "port": "po4000"},    {"bin": 54930725, "vnid": "2999", "pktout": 115577,   "pktin": 68947, "bout": 52406893, "port": "po520"},   {"bin": 0, "vnid": "3000", "pktout": 0, "pktin": 0, "bout":   0, "port": "po100"},   {"bin": 54951789, "vnid": "3000", "pktout": 115701,   "pktin": 68947, "bout": 52511883, "port": "po520"},   {"bin": 0, "vnid": "MULTIPLE", "pktout": 0, "pktin": 0,   "bout": 0, "port": "Ethernet1/11"},   {"bin": 0, "vnid": "MULTIPLE", "pktout": 0, "pktin": 0,   "bout": 0, "port": "Ethernet1/11"}]}</pre>
-------------------------	---

where:

Element	Description
virtual-port-counters	The list of counters for each virtual-port: <ul style="list-style-type: none"><li>● bin: number of bytes in</li><li>● bout: number of bytes out</li><li>● pktout: number of packets out</li><li>● pktin: number of packets in</li></ul>

---

## Default IP Address

The following default IP address URI is available:

- [/nos/api/cfg/defaultipaddress/](#) GET, POST

The following default IP address commands are available:

- [Get Default IP Address](#)
- [Set Default IP Address](#)

## Get Default IP Address

Gets default IP address on the management interface.

### Request

Method Type Type	GET
Request URI	/nos/api/cfg/defaultipaddress/
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "interface": "mgmt0",   "state": &lt;state_value&gt; }</pre>
----------------------------	---

where:

Element	Description
interface	The interface name; a string. <b>Note:</b> The interface must exist.
state	The state value; one of <i>set</i> , <i>unset</i> .



## Set Default IP Address

Sets default IP address on the management interface.

### Request

Method Type Type	POST
Request URI	/nos/api/cfg/defaultipaddress/
Request Body (JSON)	<pre>{   "state": &lt; state_value &gt; }</pre>

where:

Element	Description
state	The state value; one of <i>set</i> , <i>unset</i> .

### Response

Response Body (JSON)	<pre>{   "interface": "mgmt0",   "state": &lt;state_value&gt; }</pre>
----------------------------	---

where:

Element	Description
interface	The interface name; a string. <b>Note:</b> The interface must exist.
state	The state value; one of <i>set</i> , <i>unset</i> .



---

## DHCP

The following DHCP URIs are available:

● /nos/api/cfg/dhcp	GET, PUT
● /nos/api/cfg/dhcp_client/interface	GET
● /nos/api/cfg/dhcp_client/interface/<if_name>	PUT
● /nos/api/cfg/dhcp_client/interface/class_id/<if_name>	DELETE
● /nos/api/cfg/dhcp_relay	GET, PUT
● /nos/api/cfg/dhcp_relay/interface	GET
● /nos/api/cfg/dhcp_relay/interface/<if_name>	GET, PUT
● /nos/api/cfg/dhcp_relay/interface/<if_name>/<relay_address>	DELETE
● /nos/api/cfg/dhcpsnp/entry	GET, POST
● /nos/api/cfg/dhcpsnp/entry/<mac_vlan_ifname>	DELETE
● /nos/api/cfg/dhcpsnp	GET, PUT
● /nos/api/cfg/dhcpsnp/vlan	GET
● /nos/api/cfg/dhcpsnp/vlan/<vlan_id>	PUT, DELETE
● /nos/api/cfg/dhcpsnp/trust	GET, PUT
● /nos/api/info/dhcpsnp/cnt	GET, DELETE

The following DHCP commands are available:

- [Get the Global DHCP Client Feature Property](#)
- [Update DHCP Client Feature Property](#)
- [Get DHCP Client Properties of All Interfaces](#)
- [Update DHCP Client Interface Properties](#)
- [Delete the Vendor Class Identifier of an Interface](#)
- [Get the Global DHCP Relay Service Property](#)
- [Update the Global DHCP Relay Service Property](#)
- [Get the DHCP Relay Properties of All Interfaces](#)
- [Get DHCP Relay Interface Properties](#)
- [Update DHCP Relay Interface Properties](#)
- [Delete DHCP Relay Interface Properties](#)
- [Get DHCP Snooping Binding Table Entry](#)
- [Create DHCP Snooping Binding Table Entry](#)
- [Delete DHCP Snooping Binding Table Entry](#)
- [Get DHCP Snooping Configuration](#)

- Update DHCP Snooping Configuration
- Get DHCP Snooping VLAN Configuration
- Update DHCP Snooping VLAN Configuration
- Delete DHCP Snooping VLAN Configuration
- Get DHCP Snooping Trusted Ports Configuration
- Update DHCP Snooping Trusted Ports Configuration
- Get DHCP Snooping Statistics
- Clear DHCP Snooping Statistics

## Get the Global DHCP Client Feature Property

Gets the global DHCP client feature property (whether or not DHCP is globally enabled).

### Request

Method Type	GET
Request URI	/nos/api/cfg/dhcp
Request Body (JSON)	

### Response

Response Body (JSON)	{ "ena_dhcp_feature": "<ena_dhcp_feature>" }
-------------------------	--

where:

Element	Description
ena_dhcp_feature	Whether the DHCP client feature is enabled globally; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> . <b>Note:</b> If disabled globally, DHCP client and DHCP relay is disabled on all interfaces. If enabled globally, the per-interface setting of DHCP client and DHCP relay takes effect.

## Update DHCP Client Feature Property

Sets the global DHCP client feature property (whether or not DHCP is globally enabled).

### Request

Method Type	PUT
Request URI	/nos/api/cfg/dhcp
Request Body (JSON)	{ "ena_dhcp_feature": "<ena_dhcp_feature>" }

where:

Element	Description
ena_dhcp_feature	Whether the DHCP client feature is enabled globally; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .  <b>Note:</b> If disabled globally, DHCP client and DHCP relay is disabled on all interfaces. If enabled globally, the per-interface setting of DHCP client and DHCP relay takes effect.

### Response

Response Body (JSON)	{ "ena_dhcp_feature": "<ena_dhcp_feature>" }
-------------------------	--

where:

Element	Description
ena_dhcp_feature	Whether the DHCP client feature is enabled globally; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .  <b>Note:</b> If disabled globally, DHCP client and DHCP relay is disabled on all interfaces. If enabled globally, the per-interface setting of DHCP client and DHCP relay takes effect.

## Get DHCP Client Properties of All Interfaces

Gets DHCP client properties of all interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/dhcp_client/interface/
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "ena_v4_client": "&lt;ena_v4_client&gt;",   "ena_v6_client": "&lt;ena_v6_client&gt;",   "req_hostname": "&lt;req_hostname&gt;",   "req_ntp_server": "&lt;req_ntp_server&gt;",   "req_log_server": "&lt;req_log_server&gt;",   "class_id": "&lt;class_id&gt;" }</pre>
-------------------------	---

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
ena_v4_client	Whether the DHCPv4 client is enabled on the interface; one of <i>Yes</i> , <i>No</i> . Default values: <i>Yes</i> for the management interface and <i>No</i> for other switch interfaces.
ena_v6_client	Whether the DHCPv6 client is enabled on the interface; one of <i>Yes</i> , <i>No</i> . Default values: <i>Yes</i> for the management interface and <i>No</i> for other switch interfaces.
req_hostname	Whether a request has been issued for the host name option on an interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>No</i> .
req_ntp_server	Whether a request has been issued for the NTP-server option on an interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>No</i> .
req_log_server	Whether a request has been issued for the Log server option on an interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>No</i> .
class_id	The name of Vendor class identifier. <b>Note:</b> The Vendor class identifier name must exist.

## Update DHCP Client Interface Properties

Updates DHCP client properties of a specific interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/dhcp_client/interface/<if_name>
Request Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "ena_v4_client": "&lt;ena_v4_client&gt;",   "ena_v6_client": "&lt;ena_v6_client&gt;",   "req_hostname": "&lt;req_hostname&gt;",   "req_ntp_server": "&lt;req_ntp_server&gt;",   "req_log_server": "&lt;req_log_server&gt;",   "class_id": "&lt;class_id&gt;" }</pre>

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
ena_v4_client	Whether the DHCPv4 client is enabled on the interface; one of <i>Yes</i> , <i>No</i> . Default values: <i>Yes</i> for the management interface and <i>No</i> for other switch interfaces.
ena_v6_client	Whether the DHCPv6 client is enabled on the interface; one of <i>Yes</i> , <i>No</i> . Default values: <i>Yes</i> for the management interface and <i>No</i> for other switch interfaces.
req_hostname	Whether a request has been issued for the host name option on an interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>No</i> .
req_ntp_server	Whether a request has been issued for the NTP-server option on an interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>No</i> .
req_log_server	Whether a request has been issued for the Log server option on an interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>No</i> .
class_id	The name of Vendor class identifier. <b>Note:</b> The Vendor class identifier name must exist.



## Response

Response Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "ena_v4_client": "&lt;ena_v4_client&gt;",   "ena_v6_client": "&lt;ena_v6_client&gt;",   "req_hostname": "&lt;req_hostname&gt;",   "req_ntp_server": "&lt;req_ntp_server&gt;",   "req_log_server": "&lt;req_log_server&gt;",   "class_id": "&lt;class_id&gt;" }</pre>
-------------------------	---

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
ena_v4_client	Whether the DHCPv4 client is enabled on the interface; one of <i>Yes</i> , <i>No</i> . Default values: <i>Yes</i> for the management interface and <i>No</i> for other switch interfaces.
ena_v6_client	Whether the DHCPv6 client is enabled on the interface; one of <i>Yes</i> , <i>No</i> . Default values: <i>Yes</i> for the management interface and <i>No</i> for other switch interfaces.
req_hostname	Whether a request has been issued for the host name option on an interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>No</i> .
req_ntp_server	Whether a request has been issued for the NTP-server option on an interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>No</i> .
req_log_server	Whether a request has been issued for the Log server option on an interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>No</i> .
class_id	The name of Vendor class identifier. <b>Note:</b> The Vendor class identifier name must exist.

## Delete the Vendor Class Identifier of an Interface

Deletes the vendor class identifier of a specific interface.

### Request

Method Type	DELETE
Request URI	/nos/api/cfg/dhcp_client/interface/class_id/<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	Interface name. <b>Note:</b> The interface must exist.

### Response

Response Body (JSON)	
-------------------------	--

## Get the Global DHCP Relay Service Property

Gets the global DHCP relay service property (whether the relay service has been enabled globally) class identifier of a specific interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/dhcp_relay
Request Body (JSON)	

### Response

Response Body (JSON)	{ "ena_v4_relay": "<ena_v4_relay>", "ena_v6_relay": "<ena_v6_relay>", }
-------------------------	--

where:

Element	Description
ena_v4_relay	Whether DHCPv4 relay is enabled on the interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>Yes</i> . <b>Note:</b> If disabled globally, DHCPv4 relay is disabled on all interfaces. If DHCPv4 relay service is enabled globally, the per-interface setting of DHCPv4 relay takes effect.
ena_v6_relay	Whether DHCPv6 relay is enabled on the interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>Yes</i> . <b>Note:</b> If disabled globally, DHCPv6 relay is disabled on all interfaces. If DHCPv6 relay service is enabled globally, the per-interface setting of DHCPv6 relay takes effect.

## Update the Global DHCP Relay Service Property

Updates the global DHCP relay service property (whether the relay service has been enabled globally) class identifier of a specific interfaces.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/dhcp_relay
Request Body (JSON)	

### Response

Response Body (JSON)	{ "ena_v4_relay": "<ena_v4_relay>", "ena_v6_relay": "<ena_v6_relay>", }
-------------------------	--

where:

Element	Description
ena_v4_relay	Whether DHCPv4 relay is enabled on the interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>Yes</i> . <b>Note:</b> If disabled globally, DHCPv4 relay is disabled on all interfaces. If DHCPv4 relay service is enabled globally, the per-interface setting of DHCPv4 relay takes effect.
ena_v6_relay	Whether DHCPv6 relay is enabled on the interface; one of <i>Yes</i> , <i>No</i> . Default value: <i>Yes</i> . <b>Note:</b> If disabled globally, DHCPv6 relay is disabled on all interfaces. If DHCPv6 relay service is enabled globally, the per-interface setting of DHCPv6 relay takes effect.

## Get the DHCP Relay Properties of All Interfaces

Gets the DHCP relay properties for all interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/dhcp_relay/interface/
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "dhcpv4_relay":   [     {       "v4_relay_addr": "&lt;v4_relay_addr&gt;",     }   ],   "dhcpv6_relay":   [     {       "v6_relay_addr": "&lt;v6_relay_addr&gt;",       "v6_relay_out_if": "&lt;v6_relay_out_if&gt;"     }   ] }</pre>
-------------------------	--

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
v4_relay_addr	IPv4 address of the relay server; a valid IPv4 address.
v6_relay_addr	IPv6 address of the relay server; a valid IPv6 address.
v6_relay_out_if	Outgoing interface of the relay service. <b>Note:</b> The interface must exist.

## Get DHCP Relay Interface Properties

Gets the DHCP relay interface properties for a specific interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/dhcp_relay/interface/<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	Interface name. <b>Note:</b> The interface must exist.

### Response

Response Body (JSON)	<pre>[   {     "if_name": "&lt;if_name&gt;",     "dhcpv4_relay":     [       {         "v4_relay_addr": "&lt;v4_relay_addr&gt;",       }     ],     "dhcpv6_relay":     [       {         "v6_relay_addr": "&lt;v6_relay_addr&gt;",         "v6_relay_out_if": "&lt;v6_relay_out_if&gt;"       }     ]   } ]</pre>
-------------------------	--

where:

Element	Description
<i>if_name</i>	Interface name. <b>Note:</b> The interface must exist.
<i>v4_relay_addr</i>	IPv4 address of the relay server; a valid IPv4 address.
<i>v6_relay_addr</i>	IPv6 address of the relay server; a valid IPv6 address.

Element	Description
v6_relay_out_if	Outgoing interface of the relay service. <b>Note:</b> The interface must exist.

**Notes:**

- The response body will be empty if no DHCP relay configuration has been made on the specified interface.
- Only the what is configured will be displayed. For example, if no dhcpv6\_relay is configured, none will be displayed.

## Update DHCP Relay Interface Properties

Updates the DHCP relay interface properties for a specific interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/dhcp_relay/interface/<if_name>
Request Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "dhcpv4_relay":   [     {       "v4_relay_addr": "&lt;v4_relay_addr&gt;",     }   ],   "dhcpv6_relay":   [     {       "v6_relay_addr": "&lt;v6_relay_addr&gt;",       "v6_relay_out_if": "&lt;v6_relay_out_if&gt;"     }   ] }</pre>

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
v4_relay_addr	IPv4 address of the relay server; a valid IPv4 address.
v6_relay_addr	IPv6 address of the relay server; a valid IPv6 address.
v6_relay_out_if	Outgoing interface of the relay service. <b>Note:</b> The interface must exist.



## Response

Response Body (JSON)	<pre>[   {     "if_name": "&lt;if_name&gt;",     "dhcpv4_relay":       [         {           "v4_relay_addr": "&lt;v4_relay_addr&gt;",         }       ],     "dhcpv6_relay":       [         {           "v6_relay_addr": "&lt;v6_relay_addr&gt;",           "v6_relay_out_if": "&lt;v6_relay_out_if&gt;"         }       ]   } ]</pre>
-------------------------	--

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
v4_relay_addr	IPv4 address of the relay server; a valid IPv4 address.
v6_relay_addr	IPv6 address of the relay server; a valid IPv6 address.
v6_relay_out_if	Outgoing interface of the relay service. <b>Note:</b> The interface must exist.

## Delete DHCP Relay Interface Properties

Deletes the DHCP relay interface properties for a specific interface.

### Request

Method Type	DELETE
Request URI	/nos/api/cfg/dhcp_relay/interface/<if_name>/<relay_address>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	Interface name. <b>Note:</b> The interface must exist.
<i>relay_address</i>	IPv4 or IPv6 address of the relay server; a valid IPv4 or IPv6 address. <b>Note:</b> If no relay address is specified, all relay server configuration information for this interface will be removed.

### Response

Response Body (JSON)	
-------------------------	--

## Get DHCP Snooping Binding Table Entry

Gets the DHCP Snooping binding table entries.

### Request

Method Type	GET
Request URI	/nos/api/cfg/dhcpsnp/entry
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "mac": "{mac address}",     "ip_addr": "{ip address}",     "lease_time": "{lease time in seconds}",     "type": "{dynamic/static}",     "vlan": "{vlan number}",     "if_name": "{if_name}",   } ]</pre>
----------------------	---

where:

Element	Description
mac	The MAC address of the binding table entry, in the following format: XX:XX:XX:XX:XX:XX.
ip_addr	The IP address of the binding table entry.
lease_time	The lease time, in seconds, for the binding table entry; an integer from 1-4294967295.
type	The type of the binding table entry; one of <i>dynamic</i> , <i>static</i> .
vlan	The VLAN of the binding table entry; an integer from 1-4093.
if_name	The name of the switch interface for the binding table entry. For example <i>Ethernet1/12</i> .

## Create DHCP Snooping Binding Table Entry

Adds a DHCP Snooping binding table entry.

### Request

Method Type	POST
Request URI	/nos/api/cfg/dhcpsnp/entry
Request Body (JSON)	{ "mac": "{mac address}", "ip_addr": "{ip address}", "lease_time": "{lease time in seconds}", "vlan": "{vlan number}", "if_name": "{if_name}", }

where:

Element	Description
mac	The MAC address of the binding table entry, in the following format: XX:XX:XX:XX:XX:XX.
ip_addr	The IP address of the binding table entry.
lease_time	The lease time, in seconds, for the binding table entry; an integer from 1-4294967295.
type	The type of the binding table entry; one of <i>dynamic</i> , <i>static</i> .
vlan	The VLAN of the binding table entry; an integer from 1-4093.

## Delete DHCP Snooping Binding Table Entry

Removes an entry from the DHCP Snooping binding table.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/dhcpsnp/entry/<mac_vlan_ifname>
Request Body (JSON)	

where:

Element	Description
<i>mac_vlan_ifname</i>	The MAC address, VLAN, or interface name to identify the binding table entry; one of: <ul style="list-style-type: none"><li>● MAC address in format <i>XX:XX:XX:XX:XX:XX</i></li><li>● VLAN number: 1-4093</li><li>● Interface name (for example, <i>Ethernet1/12</i>)</li></ul>

## Get DHCP Snooping Configuration

Gets the DHCP Snooping configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/dhcpsnp
Request Body (JSON)	

### Response

Response Body (JSON)	{ "dhcpsnp_feature": "{enable/disable}", "option_82": "{enable/disable}", }
----------------------	--

where:

Element	Description
dhcpsnp_ feature	The global status of the DHCP service on the switch; one of <i>enable</i> , <i>disable</i> .
option_82	The status of DHCP Option 82; one of <i>enable</i> , <i>disable</i> .

## Update DHCP Snooping Configuration

Updates the DHCP Snooping configuration.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/dhcpsnp
Request Body (JSON)	{ "dhcpsnp_feature": "{enable/disable}", "option_82": "{enable/disable}", }

### *Response*

Response Body (JSON)	
----------------------	--

where:

Element	Description
dhcpsnp_feature	The global status of the DHCP service on the switch; one of <i>enable</i> , <i>disable</i> .
option_82	The status of DHCP Option 82; one of <i>enable</i> , <i>disable</i> .

## Get DHCP Snooping VLAN Configuration

Gets the DHCP Snooping VLAN configuration.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/dhcpsnp/vlan
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "vlan_enabled": "{vlan_id}", }
----------------------	--

where:

Element	Description
vlan_enabled	The VLAN for DHCP Snooping; an integer from 1-4093.



## Update DHCP Snooping VLAN Configuration

Updates the DHCP Snooping VLAN configuration.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/dhcpsnp/vlan
Request Body (JSON)	{ "vlan_enabled": {vlan_id} }

where:

Element	Description
vlan_enabled	The VLAN on which DHCP Snooping is enabled; an integer from 1-4093.

## Delete DHCP Snooping VLAN Configuration

Deletes the DHCP Snooping VLAN configuration.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/dhcpsnp/vlan/<vlan_id>
Request Body (JSON)	

where:

Element	Description
vlan_id	The VLAN for DHCP Snooping; an integer from 1-4093.

## Get DHCP Snooping Trusted Ports Configuration

Gets the DHCP Snooping trusted ports configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/dhcpsnp/trust
Request Body (JSON)	

### Response

Response Body (JSON)	[ { "if_name": "{interface name}", "trusted": "{yes/no}" } ]
----------------------	---

where:

Element	Description
if_name	The name of the switch interface to be configured as a DHCP Snooping trusted port. For example: <i>Ethernet1/12</i> .
trusted	Whether the specified switch interface is a trusted port; one of <i>yes</i> , <i>no</i> .

## Update DHCP Snooping Trusted Ports Configuration

Updates the DHCP Snooping trusted ports configuration.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/dhcpsnp/trust
Request Body (JSON)	{ "if_name": "{interface name}", "trusted": "{yes/no}" }

where:

Element	Description
if_name	The name of the switch interface to be configured as a DHCP Snooping trusted port. For example: <i>Ethernet1/12</i> .
trusted	Whether the specified switch interface is a trusted port. one of: <i>yes, no</i> .

## Get DHCP Snooping Statistics

Gets DHCP Snooping statistics.

### Request

Method Type	GET
Request URI	/nos/api/info/dhcpsnp/cnt
Request Body (JSON)	

### Response

Response Body (JSON)	{ "rcv_req_pkts": "{Received Request packets}", "rcv_rep_pkts": "{Received Reply packets}", "drop_pkts": "{Dropped packets}" }
----------------------	--

where:

Element	Description
rcv_req_pkts	The number of received DHCP request packets; an integer from 0-4294967295.
rcv_rep_pkts	The number of received DHCP reply packets. an integer from 0-4294967295.
drop_pkts	The number of dropped DHCP packets. an integer from 0-4294967295.

## Clear DHCP Snooping Statistics

Resets DHCP Snooping statistics.

### *Request*

Method Type	DELETE
Request URI	/nos/api/info/dhcpsnp/cnt
Request Body (JSON)	

---

## DNS

The following Domain Name System (DNS) URIs are available:

- /nos/api/info/dns GET
- /nos/api/cfg/dns POST
- /nos/api/cfg/dns/nameserver POST, DELETE
- /nos/api/cfg/dns/defaultdomain POST, DELETE
- /nos/api/cfg/dns/domain POST, DELETE
- /nos/api/cfg/dns/nametoip POST, DELETE

The following DNS commands are available:

- [Get DNS Host Information](#)
- [Configure DNS Client Service](#)
- [Configure DNS Name Server](#)
- [Delete DNS Name Server](#)
- [Configure DNS Default Domain Name](#)
- [Delete DNS Default Domain Name](#)
- [Configure DNS Domain Name](#)
- [Delete DNS Domain Name](#)
- [Configure DNS Hostname to IP Address Mapping](#)
- [Delete DNS Hostname to IP Address Mapping](#)

## Get DNS Host Information

Gets DNS Client information, such as domain-lookup service state, default domain name, and additional domain names.

### Request

Method Type	GET
Request URI	/nos/api/info/dns
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "domain_lookup": "enable/disable",   "dynamic_domain": "Dynamic domain/No dynamic domain",   "dynamic_nameserver": "Dynamic name server/Static name server",   "domain_list": [{"domain_name": "&lt;domain&gt;"}],   "nameserver_list": [{"address": "&lt;address&gt;"}],   "nametoip_list": [{"name": "&lt;name&gt;", "address": "&lt;address&gt;"}] }</pre>
----------------------	--

where:

Element	Description
domain_lookup	The status of the DNS service on the switch; one of <i>enabled</i> , <i>disabled</i> .
dynamic_domain	Whether the DNS Client domain name is dynamically learnt; one of <i>dynamic domain</i> , <i>no dynamic domain</i> .
dynamic_nameserver	Whether the DNS Client name server is dynamically learnt; one of <i>dynamic name server</i> , <i>static name server</i> .
domain_list	(Optional) The DNS Client configured domain name list.
nameserver_list	(Optional) The DNS Client configured name server list.
nametoip_list	(Optional) The DNS Client configured hostname to IP address mapping list. Valid value: the list of hostname to IP address mappings.



## Configure DNS Client Service

Configures the status of the DNS Client service on the switch.

### *Request*

Method Type	POST
Request URI	/nos/api/cfg/dns
Request Body (JSON)	{ "dns_client_status": "enabled/disabled" }

where:

Element	Description
dns_client_status	The status of the DNS Client service; one of <i>enabled</i> , <i>disabled</i> .

### *Response*

Response Body (JSON)	{ "dns_client_status": "enabled/disabled" }
----------------------	---

## Configure DNS Name Server

Configures a DNS name server.

### *Request*

Method Type	POST
Request URI	/nos/api/cfg/dns/nameserver
Request Body (JSON)	<pre>{   "nameserver1": "&lt;server1_address&gt;",   "nameserver2": "&lt;server2_address&gt;",   "nameserver3": "&lt;server3_address&gt;",   "vrf": "&lt;vrf_name&gt;" }</pre>

where:

Element	Description
nameserver1	The first name server address. Valid value: the IP address.
nameserver2	The second name server address. Valid value: the IP address.
nameserver3	The third name server address. Valid value: the IP address.
vrf	The VRF instance for the name server. Valid value: the VRF instance name.

## Delete DNS Name Server

Removes a configured DNS name server.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/dns/nameserver/<server_addr>/<vrf>

where:

Element	Description
<i>server_addr</i>	The name server address. Valid value: the IP address.
<i>vrf</i>	The VRF instance for the name server. Valid value: the VRF instance name. Default value: <i>default</i> .

## Configure DNS Default Domain Name

Configures the default DNS domain name.

### *Request*

Method Type	POST
Request URI	/nos/api/cfg/dns/defaultdomain
Request Body (JSON)	{ "domain_name": "<default_domain_name>", "vrf": "<vrf_name>" }

where:

Element	Description
domain_name	The name of the default DNS domain (string).
vrf	The VRF instance for the default DNS domain. Valid value: the VRF instance name. Default value: <i>default</i> .

## Delete DNS Default Domain Name

Removes the default DNS domain name.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/dns/defaultdomain/<domain_name>/<vrf>

where:

Element	Description
<i>domain_name</i>	The name of the default DNS domain (string).
<i>vrf</i>	The VRF instance for the default DNS domain. Valid value: the VRF instance name. Default value: default.

## Configure DNS Domain Name

Configures a DNS domain name.

### *Request*

Method Type	POST
Request URI	/nos/api/cfg/dns/domain
Request Body (JSON)	{ "domain_name": "<domain_name>", "vrf": "<vrf_name>" }

where:

Element	Description
domain_name	The name of the default DNS domain (string).
vrf	The VRF instance for the default DNS domain. Valid value: the VRF instance name. Default value: <i>default</i> .

## Delete DNS Domain Name

Removes a configured DNS domain name.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/dns/domain/<domain_name>/<vrf>

where:

Element	Description
<i>domain_name</i>	The name of the default DNS domain (string).
<i>vrf</i>	The VRF instance for the default DNS domain. Valid value: the VRF instance name. Default value: <i>default</i> .

## Configure DNS Hostname to IP Address Mapping

Configures a DNS server hostname to IP address mapping.

### Request

Method Type	POST
Request URI	/nos/api/cfg/dns/nametoip
Request Body (JSON)	<pre>{   "hostname": "&lt;hostname&gt;",   "ip_addr1": "&lt;address1&gt;",   "ip_addr2": "&lt;address2&gt;",   "vrf": "&lt;vrf_name&gt;" }</pre>

where:

Element	Description
hostname	The hostname of the DNS server (string).
ip_addr1	The first IP address of the DNS server.
ip_addr2	The second IP address of the DNS server.
vrf	The VRF instance for the default DNS domain. Valid value: the VRF instance name. Default value: <i>default</i> .



## Delete DNS Hostname to IP Address Mapping

Removes a configured DNS server hostname to IP address mapping.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/dns/nametoip/<hostname>/<addr>/<vrf>

where:

Element	Description
<i>hostname</i>	The hostname of the DNS server (string).
<i>addr</i>	The IP address of the DNS server.
<i>vrf</i>	The VRF instance for the default DNS domain. Valid value: the VFR instance name. Default value: <code>default</code> .



---

## ECMP

The following Equal Cost Multiple Paths (ECMP) URIs are available:

- /nos/api/cfg/ip/ecmp/weight GET, PUT
- /nos/api/info/ip/ecmp/weight/ipv4/<ipv4\_address> GET
- /nos/api/info/ip/ecmp/weight/ipv6/<ipv6\_address> GET
- /nos/api/info/ip/ecmp/weight/interface/<interface\_name> GET
- /nos/api/cfg/ip/ecmp/weight/ipv4 POST
- /nos/api/cfg/ip/ecmp/weight/ipv6 POST
- /nos/api/cfg/ip/ecmp/weight/interface POST

The following ECMP commands are available:

- [Get Weighted ECMP Status](#)
- [Update Weighted ECMP Status](#)
- [Get IPv4 Next-hop ECMP Weight](#)
- [Configure IPv4 Next-hop ECMP Weight](#)
- [Get IPv6 Next-hop ECMP Weight](#)
- [Configure IPv6 Next-hop ECMP Weight](#)
- [Get Interface ECMP Weight](#)
- [Configure Interface ECMP Weight](#)

## Get Weighted ECMP Status

Gets the status of weighted ECMP on the switch.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/ip/ecmp/weight
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "weighted_ecmp_state": "{Enable Disable}" }
----------------------	---

where:

Element	Description
weighted_ ecmp_state	The status of weighted ECMP; one of <i>enable</i> , <i>disable</i> .

## Update Weighted ECMP Status

Updates the status of weighted ECMP on the switch.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ip/ecmp/weight
Request Body (JSON)	{ "weighted_ecmp_state": "{enable disable}" }

where:

Element	Description
weighted_ ecmp_state	The status of weighted ECMP; one of <i>enable</i> , <i>disable</i> .

### Response

Response Body (JSON)	{ "weighted_ecmp_state": "{enable disable}" }
----------------------	---

where:

Element	Description
weighted_ ecmp_state	The status of weighted ECMP; one of <i>enable</i> , <i>disable</i> .

## Get IPv4 Next-hop ECMP Weight

Gets the ECMP weight of a specified IPv4 next-hop.

### Request

Method Type	GET
Request URI	nos/api/info/ip/ecmp/weight/ipv4/<ipv4_address>
Request Body (JSON)	

### Response

Response Body (JSON)	{ "ipv4_nexthop_address": "{IPv4 address}", "ipv4_nexthop_weight": {weight} }
----------------------	--

where:

Element	Description
ipv4_nexthop_address	The IPv4 address of the next-hop.
ipv4_nexthop_weight	The ECMP weight of the specified next-hop; an integer from 1-4.

## Configure IPv4 Next-hop ECMP Weight

Configures the ECMP weight of a specific IPv4 next-hop.

### Request

Method Type	POST
Request URI	/nos/api/cfg/ip/ecmp/weight/ipv4
Request Body (JSON)	{ "ipv4_nexthop_address": "{IPv4 address}", "ipv4_nexthop_weight": {weight} }

where:

Element	Description
ipv4_nexthop_address	The IPv4 address of the next-hop.
ipv4_nexthop_weight	The ECMP weight of the specified next-hop; an integer from 1-4.

### Response

Response Body (JSON)	{ "ipv4_nexthop_address": "{IPv4 address}", "ipv4_nexthop_weight": {weight} }
----------------------	--

where:

Element	Description
ipv4_nexthop_address	The IPv4 address of the next-hop.
ipv4_nexthop_weight	The ECMP weight of the specified next-hop; an integer from 1-4.

## Get IPv6 Next-hop ECMP Weight

Gets the ECMP weight of a specified IPv6 next-hop.

### Request

Method Type	GET
Request URI	/nos/api/info/ip/ecmp/weight/ipv6/<ipv6_address>
Request Body (JSON)	

### Response

Response Body (JSON)	{ "ipv6_nexthop_address": "{IPv6 address}", "ipv6_nexthop_weight": {weight} }
----------------------	--

where:

Element	Description
ipv6_nexthop_address	The IPv6 address of the next-hop.
ipv6_nexthop_weight	The ECMP weight of the specified next-hop; an integer from 1-4.



## Configure IPv6 Next-hop ECMP Weight

Configures the ECMP weight of a specific IPv6 next-hop.

### Request

Method Type	POST
Request URI	/nos/api/cfg/ip/ecmp/weight/ipv6
Request Body (JSON)	{ "ipv6_nexthop_address": "{IPv6 address}", "ipv6_nexthop_weight": {weight} }

where:

Element	Description
ipv6_nexthop_address	The IPv6 address of the next-hop.
ipv6_nexthop_weight	The ECMP weight of the specified next-hop; an integer from 1-4.

### Response

Response Body (JSON)	{ "ipv6_nexthop_address": "{IPv6 address}", "ipv6_nexthop_weight": {weight} }
----------------------	--

where:

Element	Description
ipv6_nexthop_address	The IPv6 address of the next-hop.
ipv6_nexthop_weight	The ECMP weight of the specified next-hop; an integer from 1-4.

## Get Interface ECMP Weight

Gets the ECMP weight of a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/info/ip/ecmp/weight/interface/<interface name>
Request Body (JSON)	

### Response

Response Body (JSON)	{ "interface_name": "{interface name}", "interface_weight": {weight} }
----------------------	---

where:

Element	Description
interface_name	The name of the switch interface.
interface_weight	The ECMP weight of the specified switch interface. an integer from 1-4.

## Configure Interface ECMP Weight

Configures the ECMP weight of a specific switch interface.

### Request

Method Type	POST
Request URI	/nos/api/cfg/ip/ecmp/weight/interface
Request Body (JSON)	{ "interface_name": "{interface name}", "interface_weight": {weight} }

where:

Element	Description
interface_name	The name of the switch interface.
interface_weight	The ECMP weight of the specified switch interface; an integer from 1-4.

### Response

Response Body (JSON)	{ "interface_name": "{interface name}", "interface_weight": {weight} }
----------------------	---

where:

Element	Description
interface_name	The name of the switch interface.
interface_weight	The ECMP weight of the specified switch interface; an integer from 1-4.



---

## FDB

The following Forwarding Database (FDB) URIs are available:

- /nos/api/info/fdb/list POST
- /nos/api/info/fdb/count POST
- /nos/api/info/fdb/global GET
- /nos/api/info/fdb/interface/<if\_name> GET
- /nos/api/cfg/fdb GET, POST, PUT
- /nos/api/cfg/fdb/global GET, PUT
- /nos/api/cfg/fdb/interface/<if\_name> GET, PUT

The following FDB commands are available:

- [Get List of MAC Addresses](#)
- [Get Number of MAC Addresses](#)
- [Get Global FDB Runtime Settings](#)
- [Get Global FDB Configured Settings](#)
- [Update Global FDB Settings](#)
- [Get MAC Address Learning Interface Runtime Setting](#)
- [Get MAC Address Learning Interface Configured Setting](#)
- [Update Interface MAC Address Learning Setting](#)
- [Get Static MAC Addresses](#)
- [Create Static MAC Address](#)
- [Delete MAC Address or Interface for Multicast MAC Address](#)

## Get List of MAC Addresses

Gets all MAC addresses that match the search criteria.

### Request

Method Type	POST
Request URI	/nos/api/info/fdb/list
Request Body (JSON)	<pre>{   "fdb_type": "{static multicast dynamic}",   "mac_address": "{mac_address}",   "interfaces": ["{if_name}"],   "vlan_id": "{vlan_id}" }</pre>

where:

Element	Description
<code>fdb_type</code>	The type of MAC address to filter on; one of: <ul style="list-style-type: none"><li>• <i>static</i></li><li>• <i>dynamic</i></li><li>• <i>multicast</i></li></ul>
<code>mac_address</code>	The MAC address matching the criteria.
<code>interfaces</code>	The name of the switch interface to filter on. For example: <i>Ethernet1/12</i> .
<code>vlan_id</code>	The VLAN number to filter on; an integer from 1-4094.

## Response

Response Body (JSON)	<pre>{   "address_table":   [     {       "vlan_id": "{vlan_id}",       "mac_address": "{mac_address}",       "is_static": "{true false}",       "if_name": "{if_name}"     }   ] }</pre>
----------------------	---

where:

Element	Description
address_table	The MAC table entries.
vlan_id	The VLAN number for the MAC table entry; an integer from 1-4094.
mac_address	The MAC address matching the search criteria.
is_static	Whether the MAC address is statically configured; one of <i>true</i> , <i>false</i> .
if_name	The name of the switch interface to filter on. For example: <i>Ethernet1/12</i> .

## Get Number of MAC Addresses

Gets the total number of MAC addresses matching the search criteria.

### Request

Method Type	POST
Request URI	/nos/api/info/fdb/count
Request Body (JSON)	{ "fdb_type": "{static multicast dynamic}", "mac_address": "{mac_address}", "interfaces": ["{if_name}"], "vlan_id": "{vlan_id}" }

where:

Element	Description
fdb_type	The type of MAC address to filter on; one of: <ul style="list-style-type: none"><li>• <i>static</i></li><li>• <i>dynamic</i></li><li>• <i>multicast</i></li></ul>
mac_address	The MAC address matching the criteria.
interfaces	The name of the switch interface to filter on. For example <i>Ethernet1/12</i> .
vlan_id	The VLAN number to filter on; an integer from 1-4094.

### Response

Response Body (JSON)	{ "dynamic_add_cnt": "{dynamic_add_cnt}", "static_add_cnt": "{static_add_cnt}", "multicast_add_cnt": "{multicast_add_cnt}", "total_in_use_cnt": "{total_in_use_cnt}" }
----------------------	---

where:

Element	Description
dynamic_add_cnt	The number of dynamically learnt MAC addresses (integer).
static_add_cnt	The number of statically configured MAC addresses (integer).



<b>Element</b>	<b>Description</b>
multicast_ add_cnt	The number of multicast MAC addresses (integer).
total_in_ use_cnt	The total number of MAC addresses (integer).

## Get Global FDB Runtime Settings

Gets the global FDB runtime settings.

### Request

Method Type	GET
Request URI	/nos/api/info/fdb/global
Request Body (JSON)	

### Response

Response Body (JSON)	{ "global_learning_status": "{enabled disabled}", "aging_time": "{aging_time}" }
----------------------	---

where:

Element	Description
global_learning_status	The status of global MAC address learning; one of <i>enabled</i> , <i>disabled</i> .
aging_time	The MAC address aging time, in seconds; an integer from 0-1000000.

## Get Global FDB Configured Settings

Gets the global FDB configured settings.

### Request

Method Type	GET
Request URI	/nos/api/cfg/fdb/global
Request Body (JSON)	

### Response

Response Body (JSON)	{ "global_learning_status": "{enabled disabled}", "aging_time": "{aging_time}" }
----------------------	---

where:

Element	Description
global_learning_status	The status of global MAC address learning; one of <i>enabled</i> , <i>disabled</i> .
aging_time	The MAC address aging time, in seconds; an integer from 0-1000000.

## Update Global FDB Settings

Updates the global FDB settings.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/fdb/global
Request Body (JSON)	{ "global_learning_status": "{enabled disabled}", "aging_time": "{aging_time}" }

where:

Element	Description
global_learning_status	The status of global MAC address learning; one of <i>enabled</i> , <i>disabled</i> .
aging_time	The MAC address aging time, in seconds; an integer from 0-1000000.

### Response

Response Body (JSON)	{ "global_learning_status": "{enabled disabled}", "aging_time": "{aging_time}" }
----------------------	---

where:

Element	Description
global_learning_status	The status of global MAC address learning; one of <i>enabled</i> , <i>disabled</i> .
aging_time	The MAC address aging time, in seconds; an integer from 0-1000000. <b>Note:</b> Setting this variable to 0 disables MAC address aging.

## Get MAC Address Learning Interface Runtime Setting

Gets the runtime setting of MAC learning for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/info/fdb/interface/<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example: <i>Ethernet1/12</i> .

### Response

Response Body (JSON)	{ "learning_status": "{enabled disabled}" }
----------------------	---

where:

Element	Description
learning_status	The status of MAC address learning for the specified interface; one of <i>enabled</i> , <i>disabled</i> .

## Get MAC Address Learning Interface Configured Setting

Gets the configured setting of MAC learning for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/fdb/interface/<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example: <i>Ethernet1/12</i> .

### Response

Response Body (JSON)	{ "learning_status": "{enabled disabled}" }
----------------------	---

where:

Element	Description
learning_status	The status of MAC address learning for the specified interface; one of: <i>enabled</i> , <i>disabled</i> .

## Update Interface MAC Address Learning Setting

Gets the status of MAC learning for a specific switch interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/fdb/interface/<if_name>
Request Body (JSON)	{ "learning_status": "{enabled disabled}" }

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example: <i>Ethernet1/12</i> .
<i>learning_status</i>	The status of MAC address learning for the specified interface; one of <i>enabled</i> , <i>disabled</i> .

### Response

Response Body (JSON)	{ "learning_status": "{enabled disabled}" }
----------------------	---

where:

Element	Description
<i>learning_status</i>	The status of MAC address learning for the specified interface; one of <i>enabled</i> , <i>disabled</i> .

## Get Static MAC Addresses

Gets all statically configured MAC addresses.

### Request

Method Type	GET
Request URI	/nos/api/cfg/fdb
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "address_table":   [     {       "vlan_id": "{vlan_id}",       "mac_address": "{mac_address}",       "is_static": "{true false}",       "if_name": "{if_name}"     }   ] }</pre>
----------------------	---

where:

Element	Description
address_table	The MAC table entries.
vlan_id	The VLAN number for the MAC table entry; an integer from 1-4094.
mac_address	The MAC address.
is_static	Whether the MAC address is statically configured; one of <i>true</i> , <i>false</i> .
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .



## Create Static MAC Address

Adds a new statically configured MAC address.

### Request

Method Type	POST
Request URI	/nos/api/cfg/fdb
Request Body (JSON)	<pre>{   "mac_address": "{mac_address}",   "vlan_id": "{vlan_id}",   "interfaces": ["{if_name}"] }</pre>

where:

Element	Description
mac_address	The MAC address.
vlan_id	The VLAN number; an integer from 1-4094.
interfaces	The name of the switch interface. For example: <i>Ethernet1/12</i> .

### Response

Response Body (JSON)	<pre>{   "mac_address": "{mac_address}",   "vlan_id": "{vlan_id}",   "is_static": "{true false}",   "if_name": "{if_name}" }</pre>
----------------------	--

where:

Element	Description
mac_address	The MAC address.
vlan_id	The VLAN number; an integer from 1-4094.
is_static	Whether the MAC address is statically configured; one of <i>true</i> , <i>false</i> .
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .

## Delete MAC Address or Interface for Multicast MAC Address

Removes a MAC address matching the search criteria, or removes a switch interface from a multicast MAC address.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/fdb
Request Body (JSON)	<pre>{   "fdb_type": "{static dynamic}",   "mac_address": "{mac_address}",   "interfaces": ["{if_name}"],   "vlan_id": "{vlan_id}" }</pre>

where:

Element	Description
<code>fdb_type</code>	The type of MAC address to delete; one of <i>static</i> , <i>dynamic</i> .
<code>mac_address</code>	The MAC address matching the criteria.
<code>interfaces</code>	The name of the switch interface to filter on. For example <i>Ethernet1/12</i> .
<code>vlan_id</code>	The VLAN number to filter on; an integer from 1-4094.

---

## HSC

The following Hardware Switch Controller (HSC) related URIs are available:

- /nos/api/cfg/hsc/mode POST, PUT, GET
- /nos/api/cfg/hsc/devicename POST, PUT, GET
- /nos/api/cfg/hsc/ha POST, PUT, GET
- /nos/api/cfg/hsc/controller POST, PUT, GET
- /nos/api/cfg/hsc/tunnel POST, PUT, GET
- /nos/api/cfg/hsc/vtep POST, PUT
- /nos/api/cfg/hsc/vtep/ip POST, PUT
- /nos/api/cfg/hsc/vtep-port POST, PUT
- /nos/api/info/hsc/controller-connection GET
- /nos/api/info/hsc/restc-connection GET
- /nos/api/info/hsc/vtep GET
- /nos/api/info/hsc/mac-address GET
- /nos/api/info/hsc/tunnel GET
- /nos/api/info/hsc/virtual-net GET
- /nos/api/info/hsc/virtual-port GET

The following HSC commands are available:

- [Configure HSC Mode](#)
- [Update HSC Mode](#)
- [Configure Device Name](#)
- [Update Device Name](#)
- [Configure HSC HA Mode](#)
- [Update HSC HA Mode](#)
- [Configure HSC Controller](#)
- [Update HSC Controller](#)
- [Configure HSC Tunnel](#)
- [Update HSC Tunnel](#)
- [Configure HSC VTEP](#)
- [Update HSC VTEP](#)
- [Configure HSC VTEP Port](#)
- [Update HSC VTEP Port](#)
- [Configure HSC VTEP IP](#)

- Update HSC VTEP IP
- Get HSC Mode
- Get Device Name
- Get HSC HA Mode
- Get HSC Controller
- Get HSC Tunnel
- Get HSC Controller-Connection Information
- Get HSC RESTC-Connection Information
- Get HSC VTEP Basic Information
- Get HSC VTEP MAC-Address Information
- Get HSC VTEP Tunnel Information
- Get HSC VTEP Virtual-Network Information
- Get HSC VTEP Virtual-Port Information

## Configure HSC Mode

Enables or disables HSC mode.

### Request

Method Type	POST
Request URI	/nos/api/cfg/hsc/mode
Request Body (JSON)	{ "mode": "<mode>" }

where:

Element	Description
mode	Set HSC mode: <ul style="list-style-type: none"><li>● <i>vtep</i> sets the HSC mode to VTEP</li><li>● <i>none</i> disables HSC mode</li></ul>

### Response

Response Body (JSON)	{ "mode": "<mode>" }
-------------------------	----------------------------

where:

Element	Description
mode	Set HSC mode: <ul style="list-style-type: none"><li>● <i>vtep</i> sets the HSC mode to VTEP</li><li>● <i>none</i> disables HSC mode</li></ul>

## Update HSC Mode

Updates HSC mode.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/hsc/mode
Request Body (JSON)	{ "mode": "<mode>" }

where:

Element	Description
mode	Set HSC mode: <ul style="list-style-type: none"><li>• <i>vtep</i> sets the HSC mode to VTEP</li><li>• <i>none</i> disables HSC mode</li></ul>

### *Response*

Response Body (JSON)	{ "mode": "<mode>" }
-------------------------	----------------------------

where:

Element	Description
mode	Set HSC mode: <ul style="list-style-type: none"><li>• <i>vtep</i> sets the HSC mode to VTEP</li><li>• <i>none</i> disables HSC mode</li></ul>

## Configure Device Name

Configures the HSC device name.

### *Request*

Method Type	POST
Request URI	/nos/api/cfg/hsc/devicename
Request Body (JSON)	{ "device-name": "<device-name>" }

where:

Element	Description
device-name	Set the device name using <device-name> (string). A null string ("" ) deletes the device name.

### *Response*

Response Body (JSON)	{ "device-name": "<device-name>" }
-------------------------	--

where:

Element	Description
device-name	Set the device name using <device-name> (string). A null string ("" ) deletes the device name.

## Update Device Name

Updates the HSC device name.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/hsc/devicename
Request Body (JSON)	{ "device-name": "<device-name>" }

where:

Element	Description
device-name	Set the device name using <device-name> (string). A null string ("" ) deletes the device name.

### *Response*

Response Body (JSON)	{ "device-name": "<device-name>" }
-------------------------	--

where:

Element	Description
device-name	Set the device name using <device-name> (string). A null string ("" ) deletes the device name.



## Configure HSC HA Mode

Configures the HSC HA mode.

### Request

Method Type	POST
Request URI	/nos/api/cfg/hsc/ha
Request Body (JSON)	{ "ha-mode": "<ha-mode>" }

where:

Element	Description
ha-mode	Set the HA mode: <ul style="list-style-type: none"><li>● <i>vlag</i> sets the HSC mode to VLAG</li><li>● <i>none</i> disables HA mode</li></ul>

### Response

Response Body (JSON)	{ "ha-mode": "<ha-mode>" }
-------------------------	----------------------------------

where:

Element	Description
ha-mode	Set the HA mode: <ul style="list-style-type: none"><li>● <i>vlag</i> sets the HSC mode to VLAG</li><li>● <i>none</i> disables HA mode</li></ul>

## Update HSC HA Mode

Updates the HSC HA mode.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/hsc/ha
Request Body (JSON)	{ "ha-mode": "<ha-mode>" }

where:

Element	Description
ha-mode	Set the HA mode: <ul style="list-style-type: none"><li>• <i>vlag</i> sets the HSC mode to VLAG</li><li>• <i>none</i> disables HA mode</li></ul>

### Response

Response Body (JSON)	{ "ha-mode": "<ha-mode>" }
-------------------------	----------------------------------

where:

Element	Description
ha-mode	Set the HA mode: <ul style="list-style-type: none"><li>• <i>vlag</i> sets the HSC mode to VLAG</li><li>• <i>none</i> disables HA mode</li></ul>

## Configure HSC Controller

Configures the HSC controller.

### Request

Method Type	POST
Request URI	/nos/api/cfg/hsc/controller
Request Body (JSON)	{ "provider" : "nsx", "IP" : "A.B.C.D", "port" : 6640, "vrf" : "management" }

where:

Element	Description
provider	A specified string value which sets the controller provider: <ul style="list-style-type: none"><li>• <i>nsx</i> sets the provider to VMware NSX Controller</li><li>• <i>none</i> remove all the controller configuration</li></ul>
IP	The Controller IP address.
port	The port number; an integer from 1-65535. Default value: 6640.
vrf	A specified string value which determines the VRF used to connect to the controller; one of: <ul style="list-style-type: none"><li>• <i>management</i> to use management VRF</li><li>• <i>default</i> to use default VRF</li></ul> Default value: <i>management</i> .

### Response

Response Body (JSON)	{ "provider" : "nsx", "IP" : "A.B.C.D", "port" : 6640, "vrf" : "management" }
-------------------------	--

where:

Element	Description
provider	A specified string value which sets the controller provider: <ul style="list-style-type: none"><li>• <i>nsx</i> sets the provider to VMware NSX Controller</li><li>• <i>none</i> remove all the controller configuration</li></ul>
IP	The Controller IP address.

Element	Description
port	The port number; an integer from 1-65535. Default value: 6640.
vrf	A specified string value which determines the VRF used to connect to the controller; one of: <ul style="list-style-type: none"><li>• <i>management</i> to use management VRF</li><li>• <i>default</i> to use default VRF</li></ul> Default value: <i>management</i> .

## Update HSC Controller

Updates the HSC controller.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/hsc/controller
Request Body (JSON)	{ "provider" : "nsx", "IP" : "A.B.C.D", "port" : 6640, "vrf" : "management" }

where:

Element	Description
provider	A specified string value which sets the controller provider: <ul style="list-style-type: none"><li>● <i>nsx</i> sets the provider to VMware NSX Controller</li><li>● <i>none</i> remove all the controller configuration</li></ul>
IP	The Controller IP address.
port	The port number; an integer from 1-65535. Default value: 6640.
vrf	A specified string value which determines the VRF used to connect to the controller; one of: <ul style="list-style-type: none"><li>● <i>management</i> to use management VRF</li><li>● <i>default</i> to use default VRF</li></ul> Default value: <i>management</i> .

### Response

Response Body (JSON)	{ "provider" : "nsx", "IP" : "A.B.C.D", "port" : 6640, "vrf" : "management" }
-------------------------	--

where:

Element	Description
provider	A specified string value which sets the controller provider: <ul style="list-style-type: none"><li>● <i>nsx</i> sets the provider to VMware NSX Controller</li><li>● <i>none</i> remove all the controller configuration</li></ul>
IP	The Controller IP address.

Element	Description
port	The port number; an integer from 1-65535. Default value: 6640.
vrf	<p>A specified string value which determines the VRF used to connect to the controller; one of:</p> <ul style="list-style-type: none"> <li>● <i>management</i> to use management VRF</li> <li>● <i>default</i> to use default VRF</li> </ul> <p>Default value: <i>management</i>.</p>

## Configure HSC Tunnel

Configures the HSC tunnel.

### *Request*

Method Type	POST
Request URI	/nos/api/cfg/hsc/tunnel
Request Body (JSON)	{ "tunnel-IP": "A.B.C.D" }

where:

Element	Description
tunnel-IP	The IP address to be used as tunnel IP. "A.B.C.D" sets the tunnel IP to a valid IPv4 address. A null string ("") deletes the configured tunnel IP.

### *Response*

Response Body (JSON)	{ "tunnel-IP": "A.B.C.D" }
-------------------------	----------------------------------

where:

Element	Description
tunnel-IP	The IP address to be used as tunnel IP. "A.B.C.D" sets the tunnel IP to a valid IPv4 address. A null string ("") deletes the configured tunnel IP.

## Update HSC Tunnel

Updates the HSC tunnel.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/hsc/tunnel
Request Body (JSON)	{ "tunnel-IP": "A.B.C.D" }

where:

Element	Description
tunnel-IP	The IP address to be used as tunnel IP. "A.B.C.D" sets the tunnel IP to a valid IPv4 address. A null string ("") deletes the configured tunnel IP.

### Response

Response Body (JSON)	{ "tunnel-IP": "A.B.C.D" }
-------------------------	----------------------------------

where:

Element	Description
tunnel-IP	The IP address to be used as tunnel IP. "A.B.C.D" sets the tunnel IP to a valid IPv4 address. A null string ("") deletes the configured tunnel IP.



## Configure HSC VTEP

Configures the HSC VTEP.

### Request

Method Type	POST
Request URI	/nos/api/cfg/hsc/vtep
Request Body (JSON)	<pre>{   "vtep-id" : &lt;1-2&gt;,   "IP" : "A.B.C.D",   "port" : &lt;1-65535&gt;,   "vrf" : "&lt;management default&gt;",   "username" : "&lt;string&gt;",   "password" : "&lt;string&gt;" }</pre>

where:

Element	Description
vtep-id	The VTEP ID; one of 1,2.
IP	The local VTEP IP address used to connect with HSC. Entering no IP address deletes the specified tunnel IP.
port	The port number; an integer from 1-65535. Default value: 443.
vrf	A specified string value which determines the VRF used for the HSC - local VTEP connection; one of: <ul style="list-style-type: none"><li>• <i>management</i> to use management VRF</li><li>• <i>default</i> to use default VRF</li></ul> Default value: <i>management</i> .
username	The username. Default value: <i>admin</i> .
password	The password. Default value: <i>admin</i> .

### Response

True if the operation succeeded; otherwise False.

## Update HSC VTEP

Updates the HSC VTEP.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/hsc/vtep
Request Body (JSON)	<pre>{   "vtep-id" : &lt;1-2&gt;,   "IP" : "A.B.C.D",   "port" : &lt;1-65535&gt;,   "vrf" : "&lt;management default&gt;",   "username" : "&lt;string&gt;",   "password" : "&lt;string&gt;" }</pre>

where:

Element	Description
vtep-id	The VTEP ID; one of 1,2.
IP	The local VTEP IP address used to connect with HSC. Entering no IP address deletes the specified tunnel IP.
port	The port number; an integer from 1-65535. Default value: 443.
vrf	A specified string value which determines the VRF used for the HSC - local VTEP connection; one of: <ul style="list-style-type: none"><li>• <i>management</i> to use management VRF</li><li>• <i>default</i> to use default VRF</li></ul> Default value: <i>management</i> .
username	The username. Default value: <i>admin</i> .
password	The password. Default value: <i>admin</i> .

### Response

True if the operation succeeded; otherwise False.

## Configure HSC VTEP IP

Resets the HSC VTEP IP address.

### *Request*

Method Type	POST
Request URI	/nos/api/cfg/hsc/vtep/ip
Request Body (JSON)	{ "vtep-id" : <1-2>, "IP" : "A.B.C.D" }

where:

Element	Description
vtep-id	The VTEP ID; one of 1,2.
IP	The local VTEP IP address, in the following format: "A.B.C.D". Entering no IP address deletes the specified VTEP IP.

### *Response*

True if the operation succeeded; otherwise False.

## Update HSC VTEP IP

Updates the HSC VTEP IP address.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/hsc/vtep/ip
Request Body (JSON)	{ "vtep-id" : <1-2>, "IP" : "A.B.C.D" }

where:

Element	Description
vtep-id	The VTEP ID; one of 1,2.
IP	The local VTEP IP address, in the following format: "A.B.C.D". Entering no IP address deletes the specified VTEP IP.

### *Response*

True if the operation succeeded; otherwise False.

## Configure HSC VTEP Port

Configures the HSC VTEP port.

### Request

Method Type	POST
Request URI	/nos/api/cfg/hsc/vtep-port
Request Body (JSON)	<pre>{   "vtep-id" : &lt;1-2&gt;,   "vxlan-port":     {       "eth":{"action": "add", port-list : "1/3, 1/5-10"},       "aggregation": {"action": "add", "port-list": "2,4,5-8"},       "vlag-instance": {"action": "add", "port-list": "1,5,7-9"}     } }</pre>

where:

Element	Description
vtep-id	The VTEP ID; one of 1,2.
action	The configuration type: <ul style="list-style-type: none"><li>● <i>add</i> to add a new port.</li><li>● <i>remove</i> to remove a port from the current configuration.</li><li>● <i>set</i> to set the current configuration with port-list; this overwrites the current VXLAN port.</li></ul>
vxlan-port	Configure the VXLAN enabled interfaces; one of: <ul style="list-style-type: none"><li>● <i>eth</i> enables VXLAN on an ethernet interface</li><li>● <i>aggregation</i> enables VXLAN on an aggregation interface</li><li>● <i>vlag-instance</i> enables VXLAN on a VLAG instance</li></ul>

### Response

True if the operation succeeded; otherwise False.

## Update HSC VTEP Port

Updates the HSC VTEP port.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/hsc/vtep-port
Request Body (JSON)	<pre>{   "vtep-id" : &lt;1-2&gt;,   "vxlan-port":   {     "eth":{"action": "add", port-list : "1/3, 1/5-10"},     "aggregation": {"action": "add", "port-list": "2,4,5-8"},     "vlag-instance": {"action": "add", "port-list": "1,5,7-9"}   } }</pre>

where:

Element	Description
vtep-id	The VTEP ID; one of 1,2.
action	The configuration type: <ul style="list-style-type: none"><li>• <i>add</i> to add a new port.</li><li>• <i>remove</i> to remove a port from the current configuration.</li><li>• <i>set</i> to set the current configuration with port-list; this overwrites the current VXLAN port.</li></ul>
vxlan-port	Configure the VXLAN enabled interfaces; one of: <ul style="list-style-type: none"><li>• <i>eth</i> enables VXLAN on an ethernet interface</li><li>• <i>aggregation</i> enables VXLAN on an aggregation interface</li><li>• <i>vlag-instance</i> enables VXLAN on a VLAG instance</li></ul>

### Response

True if the operation succeeded; otherwise False.

## Get HSC Mode

Returns the HSC mode.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/hsc/mode
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "mode": "<mode>" }
-------------------------	----------------------------

where:

Element	Description
mode	Set HSC mode: <ul style="list-style-type: none"><li>• <i>vtep</i>: HSC mode is VTEP</li><li>• <i>none</i>: HSC mode is disabled</li></ul>

## Get Device Name

Returns the HSC device name.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/hsc/devicename
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "device-name": "<device-name>" }
-------------------------	--

where:

Element	Description
device-name	The device name is set to <device-name> (string). A null string ("" ) means the device name is set to default.



## Get HSC HA Mode

Returns the HSC HA mode.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/hsc/ha
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "ha-mode": "vlag" }
-------------------------	-----------------------------

where:

Element	Description
ha-mode	Set the HA mode: <ul style="list-style-type: none"><li>• <i>vlag</i>: HSC mode is VLAG</li><li>• <i>none</i>: HA mode is disabled</li></ul>

## Get HSC Controller

Returns the HSC controller.

### Request

Method Type	GET
Request URI	/nos/api/cfg/hsc/controller
Request Body (JSON)	

### Response

Response Body (JSON)	{ "provider" : "nsx", "IP" : "A.B.C.D", "port" : 6640, "vrf" : "management" }
-------------------------	--

where:

Element	Description
provider	A specified string values which shows the controller provider: <ul style="list-style-type: none"><li>• <i>nsx</i>: sets the provider to VMware NSX Controller</li><li>• <i>none</i>: there is no controller configuration</li></ul>
IP	The Controller IP address.
port	The port number; an integer from 1-65535. Default value: 6640.
vrf	A specified string value which determines the VRF used to connect to the controller; one of: <ul style="list-style-type: none"><li>• <i>management</i> to use management VRF</li><li>• <i>default</i> to use default VRF</li></ul> Default value: <i>management</i> .

## Get HSC Tunnel

Returns the HSC controller.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/hsc/tunnel
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "tunnel-IP": "A.B.C.D" }
-------------------------	----------------------------------

where:

Element	Description
tunnel-IP	The IP address to be used as tunnel IP. "A.B.C.D" sets the tunnel IP to a valid IPv4 address. A null string ("") deletes the configured tunnel IP.

## Get HSC Controller-Connection Information

Returns the HSC OVSDDB-connection information.

### Request

Method Type	GET
Request URI	/nos/api/info/hsc/controller-connection
Request Body (JSON)	

### Response

Response Body (JSON)	[ {"type":"SSL (NSX Controller)", "peer":"<A.B.C.D:port>", "inact":<int>, "backoff":<int>}, {"type":"SSL (NSX Controller)", "peer":"<A.B.C.D:port>", "inact":<int>, "backoff":<int>}, ... ]
-------------------------	---

where:

Element	Description
type	String value for Connection Type. For example: <i>SSL (NSX Controller)</i> .
inact	The inactive probe time in milliseconds. If the value displayed is -1, the inactive probe time is invalid.
backoff	The maximum backoff time in milliseconds. -1 means invalid.

## Get HSC RESTC-Connection Information

Returns the API RESTC-connection information.

### Request

Method Type	GET
Request URI	/nos/api/info/hsc/restc-connection
Request Body (JSON)	

### Response

Response Body (JSON)	[ {"owner": "vtep1", "peer": "<{https http}://A.B.C.D:port>", "vrf": "<vrf-name>", "state": "ready unready"}, {"owner": "vtep2", "peer": "<{https http}://A.B.C.D:port>", "vrf": "<vrf-name>", "state": "ready unready"} ]
-------------------------	---

where:

Element	Description
owner	The owner; one of <i>vtep1</i> , <i>vtep2</i> .
peer	The peer address in the following format: <i>{https http}://a.b.c.d:port</i> .
vrf	A specified string value which determines the VRF used for the HSC - local VTEP connection; one of: <ul style="list-style-type: none"> <li>• <i>management</i> to use management VRF</li> <li>• <i>default</i> to use default VRF</li> </ul>
state	The state; one of: <ul style="list-style-type: none"> <li>• <i>init</i> HSCD is in initiate state</li> <li>• <i>logging</i> connecting to NWVD, HSDC rest client is in logging state</li> <li>• <i>running</i> connection to NWVD has been created, HSDC rest client is running state</li> <li>• <i>unready</i> NWVD is not ready, HSDC is in checking state</li> </ul>

## Get HSC VTEP Basic Information

Returns the HSC VTEP information.

### Request

Method Type	GET
Request URI	/nos/api/info/hsc/vtep
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "status" : "Enabled",   "ha-mode": "vlag",   "device-name" : "&lt;name&gt;",   "tunnel-ip": "A.B.C.D",   "bfd-status": "Enabled",   "physical-port-count":&lt;int&gt;,   "total-mapping-count": &lt;int&gt; }</pre>
-------------------------	--

where:

Element	Description
status	The status; one of <i>enabled</i> , <i>disabled</i> .
ha-mode	The HA- mode; one of <i>vlag</i> , <i>none</i> .
device-name	The HSC device name.
tunnel-IP	The local tunnel IP address for NSXGW.
bfd-status	The BFD status value; one of <i>enabled</i> , <i>disabled</i> .
physical-port	The physical port count.
total-mapping-count	The total mappings count.

## Get HSC VTEP MAC-Address Information

Returns the HSC VTEP MAC-address information.

### *Request*

Method Type	GET
Request URI	/nos/api/info/hsc/mac-address
Request Body (JSON)	

## Response

Response Body (JSON)	<pre>{   "local":   {     "count":&lt;count&gt;,     "mac-table":     [       {"vni":&lt;vni&gt;, "mac": "&lt;mac-address&gt;", "tunnel": "A.B.C.D"},       {"vni":&lt;vni&gt;, "mac": "&lt;mac-address&gt;", "tunnel": "A.B.C.D"},       ...     ]   },   "remote":   {     "count":&lt;count&gt;,     "mac-table":     [       {"vni":&lt;vni&gt;, "mac": "&lt;mac-address&gt;", "tunnel": "A.B.C.D"},       {"vni":&lt;vni&gt;, "mac": "&lt;mac-address&gt;", "tunnel": "A.B.C.D"},       ...     ]   },   "local-mcast":   {     "count":&lt;count&gt;,     "mac-table":     [       {"vni":&lt;vni&gt;, "mac": "&lt;mac-address&gt;", "tunnel": "A.B.C.D"},       {"vni":&lt;vni&gt;, "mac": "&lt;mac-address&gt;", "tunnel": "A.B.C.D"},       ...     ]   },   "remote-mcast":   {     "count":&lt;count&gt;,     "mac-table":     [       {"vni":&lt;vni&gt;, "mac": "&lt;mac-address&gt;", "tunnel": "A.B.C.D"},       {"vni":&lt;vni&gt;, "mac": "&lt;mac-address&gt;", "tunnel": "A.B.C.D"},       ...     ]   } }</pre>
-------------------------	---



where:

<b>Element</b>	<b>Description</b>
local	The unicast MAC address table information of local sites.
remote	The unicast MAC address table information of remote sites.
local-mcast	The multicast MAC table information of local sites.
remote-mcast	The multicast MAC table information of remote sites.
count	The number of the listed MAC-table items.
vni	The VXLAN Network Identifier; an integer from 1-16777214.
mac	The MAC address value string.
tunnel	The tunnel IP address string.

## Get HSC VTEP Tunnel Information

Returns the VTEP tunnel information.

### Request

Method Type	GET
Request URI	/nos/api/info/hsc/tunnel
Request Body (JSON)	

### Response

Response Body (JSON)	[ {"local-ip":"A.B.C.D, "remote-ip":"A.B.C.D", "rmt-bfd-enabled":"<true/false>"}, {"local-ip":"A.B.C.D, "remote-ip":"A.B.C.D", "rmt-bfd-enabled":"<true/false>"}, ... ]
-------------------------	---

where:

Element	Description
local-ip	IP address of local switch. This can be the management IP address of the local switch.
remote-ip	The remote IP address of the tunnel.
rmt-bfd-enabled	The remote BFD status; one of <i>true</i> , <i>false</i> .

## Get HSC VTEP Virtual-Network Information

Returns the VTEP Virtual-Network information.

### *Request*

Method Type	GET
Request URI	/nos/api/info/hsc/virtual-net
Request Body (JSON)	

### *Response*

Response Body (JSON)	[ {"vni":<vni>, "name": "<name>"}, {"vni":<vni>, "name": "<name>"}, ... ]
-------------------------	---

where:

Element	Description
vni	The VXLAN Network Identifier; an integer from 1-16777214.
name	The unique string value name of the virtual network.

## Get HSC VTEP Virtual-Port Information

Returns the VTEP virtual-port information.

### Request

Method Type	GET
Request URI	/nos/api/info/hsc/virtual-port
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {"name": "&lt;port name&gt;", "vlan": &lt;vlanid&gt;,   "vnid": &lt;vnid&gt;},   {"name": "&lt;port name&gt;", "vlan": &lt;vlanid&gt;,   "vnid": &lt;vnid&gt;},   ... ]</pre>
-------------------------	--

where:

Element	Description
name	The virtual port name.
vlan	The Vlan ID.
vnid	The VXLAN Network Identifier; an integer from 1-16777214.

---

## IGMP

The following Internet Group Management Protocol (IGMP) URIs are available:

- /nos/api/cfg/mc\_vlan/groups?vid="<vid>"&if\_name="<if\_name>" GET
- /nos/api/cfg/mc\_vlan/mrouter?vid="<vid>"&if\_name="<if\_name>" GET
- /nos/api/cfg/mc\_vlan/mrouter/<vlan\_id> PUT
- /nos/api/cfg/mc\_vlan/querier/<vlan\_id> GET, PUT
- /nos/api/cfg/igmp/snoop GET, PUT
- /nos/api/cfg/mc\_vlan GET
- /nos/api/cfg/mc\_vlan/<vlan\_id> GET, PUT

The following IGMP commands are available:

- [Get IGMP Groups](#)
- [Get IGMP Mrouter](#)
- [Update IGMP Mrouter Interface for a VLAN](#)
- [Get IGMP Querier](#)
- [Update IGMP Querier on a VLAN](#)
- [Get IGMP Snooping System Properties](#)
- [Update IGMP Snooping System Properties](#)
- [Get IGMP Snooping Properties of All VLANs](#)
- [Get IGMP Snooping VLAN Properties](#)
- [Update IGMP Snooping VLAN Properties](#)

## Get IGMP Groups

Gets all Internet Group Management Protocol (IGMP) snooping groups' membership information for a specific VLAN or interface/port aggregation.

### Notes:

If the specified *vid* is **None**, this request gets a list of IGMP snooping groups' membership information for all VLAN.

If the specified *if\_name* is **None**, this request gets a list of IGMP snooping groups' membership information for all interface/port aggregations.

A value must be provided for either *vid* or *if\_name* in the request.

### Request

Method Type	GET
Request URI	/nos/api/cfg/mc_vlan/groups?vid="<vid>"&if_name="<if_name>"
Request Body (JSON)	

where:

Element	Description
<i>vid</i>	VLAN number; an integer from 1-3999.
<i>if_name</i>	Ethernet interface name or port aggregation name.

## Response

Response Body (JSON)	<pre>[   {     "vid": "&lt;vid&gt;",     "if_name": "&lt;if_name&gt;",     "group_address": "&lt;group_address&gt;",     "source_ip":       {         "include_list" :           [             {               "source_address" : "&lt;source ip address&gt;",               "uptime" : "&lt;uptime&gt;",               "expires" : "&lt;expires&gt;",               "fwd" : "&lt;fwd&gt;",               "flags" : "&lt;flags&gt;"             }           ],         "exclude_list" :           [             {               "source_address" : "&lt;source ip address&gt;",               "uptime" : "&lt;uptime&gt;",               "expires" : "&lt;expires&gt;",               "fwd" : "&lt;fwd&gt;",               "flags" : "&lt;flags&gt;"             }           ]       }     "flags" : "&lt;flags&gt;",     "expires": "&lt;expires&gt;",     "version": "&lt;version&gt;",     "filter_mode": "&lt;filter_mode&gt;",   } ]</pre>
-------------------------	---

where:

Element	Description
vid	VLAN number; an integer from 1-3999.
if_name	Ethernet interface name or port aggregation name.
group_address	The IGMP group IPv4 address.
source_ip	Dictionary of included and excluded source IP details.
include_list	List of included source IP details.
exclude_list	List of excluded source IP details.
source_address	Included or excluded source IPv4 address.
uptime	Time since switch is running in the following format: HH:MM:SS.
expires	Source expiry time interval in the following format: HH:MM:SS.

Element	Description
fwd	Whether to forward traffic for this source IP; one of <i>yes, no</i> .
flags	Source IP flag; one of: <ul style="list-style-type: none"> <li>● D – Dynamic</li> <li>● S – Static</li> <li>● L – Local and Static</li> </ul> <b>Note:</b> This flag is included in <code>include_list</code> and <code>exclude_list</code> .
flags	Group flags; one of <i>Dynamic, Static IGMP group</i> .
expires	Group expiry time interval in the following format: HH:MM:SS.
version	IGMP version number.
filter_mode	IGMP Router-Filter-Mode State; one of <i>include, exclude</i> .



## Get IGMP Mrouter

Gets Internet Group Management Protocol (IGMP) Multicast Router (mrouter) entries for a specific VLAN or interface/port-aggregation.

### Request

Method Type	GET
Request URI	/nos/api/cfg/mc_vlan/mrouter?vid="<vlan_id>"&if_name="<if_name>"
Request Body (JSON)	

where:

Element	Description
<i>vlan_id</i>	VLAN number; an integer from 1-3999.
<i>if_name</i>	Ethernet interface name or port aggregation name.

### Response

Response Body (JSON)	[ { "vid": "<vid>", "if_name": "<if_name>", "mrouter_address": "<mrouter_address>", "mrouter_type": "<mrouter_type>", "expires": "<expires>", } ]
-------------------------	---

where:

Element	Description
<i>vid</i>	VLAN number; an integer from 1-3999.
<i>if_name</i>	Ethernet interface name or port aggregation name.
<i>mrouter_address</i>	The IGMP multicast router IPv4 address.
<i>mrouter_type</i>	Specifies how this entry was learned; one of <i>dynamic</i> , <i>PIM hello</i> , <i>static</i> .
<i>expires</i>	Expiry time interval in the following format: HH:MM:SS.

## Update IGMP Mrouter Interface for a VLAN

Adds a Layer 2 interface as a static multicast router port.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/mc_vlan/mrouter/<vid>
Request Body (JSON)	{ "if_name": "<if_name>", }

where:

Element	Description
<i>vid</i>	VLAN number; an integer from 1-3999.
<i>if_name</i>	Ethernet interface name or port aggregation name.

### Response

Response Body (JSON)	{ "if_name": "<if_name>", }
-------------------------	-----------------------------------

where:

Element	Description
<i>if_name</i>	Ethernet interface name or port aggregation name.

## Get IGMP Querier

Gets IGMP querier information for a VLAN or for all VLANs.

### Request

Method Type	GET
Request URI	/nos/api/cfg/mc_vlan/querier/<vlan_id>
Request Body (JSON)	

where:

Element	Description
<i>vlan_id</i>	VLAN number; an integer from 1-3999.

### Response

Response Body (JSON)	<pre>[   {     "vid": "&lt;vid&gt;",     "address": "&lt;address&gt;",     "state": "&lt;state&gt;",     "version": "&lt;version&gt;",     "expires": "&lt;expires&gt;",   } ]</pre>
-------------------------	--

where:

Element	Description
<i>vid</i>	VLAN number; an integer from 1-3999.
<i>address</i>	Querier IPv4 address.
<i>state</i>	Elected querier state; one of <i>Querier</i> , <i>Non-querier</i> .
<i>version</i>	Snooping querier version.
<i>expires</i>	Expiry time interval in the following format: HH:MM:SS.

## Update IGMP Querier on a VLAN

Enables or disables the Internet Group Management Protocol (IGMP) snooping querier on the specified VLAN.

**Note:** To set the querier address for a VLAN, the VLAN need not be present. After the VLAN is created, the running configuration will show the querier address update.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/mc_vlan/querier/<vid>
Request Body (JSON)	{ "address": "<address>", }

where:

Element	Description
address	The querier IPv4 address.

### Response

Response Body (JSON)	[ { "vid": "<vid>", "address": "<address>", "state": "<state>", "version": "<version>", "expires": "<expires>", } ]
-------------------------	---

where:

Element	Description
vid	VLAN number; an integer from 1-3999.
address	Querier IPv4 address.
state	Elected querier state; one of <i>Querier</i> , <i>Non-querier</i> .
version	Snooping querier version.
expires	Expiry time interval in the following format: HH:MM:SS.

## Get IGMP Snooping System Properties

Gets global IGMP Snooping properties of the system.

### Request

Method Type	GET
Request URI	/nos/api/cfg/igmp/snoop
Request Body (JSON)	

### Response

Response Body (JSON)	{ "ena_igmp_snoop": "<ena_igmp_snoop>" }
-------------------------	--

where:

Element	Description
ena_igmp_snoop	Enables IGMP snooping globally on all VLANs; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .  If disabled globally, IGMP snooping is disabled on all VLANs, regardless of the per-VLAN setting of IGMP snooping. If IGMP snooping is enabled globally, the per-VLAN setting of IGMP snooping takes effect.

## Update IGMP Snooping System Properties

Updates the global IGMP Snooping properties of the system.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/igmp/snoop
Request Body (JSON)	{ "ena_igmp_snoop": "<ena_igmp_snoop>" }

where:

Element	Description
ena_igmp_snoop	Enables IGMP snooping globally on all VLANs; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .  If disabled globally, IGMP snooping is disabled on all VLANs, regardless of the per-VLAN setting of IGMP snooping. If IGMP snooping is enabled globally, the per-VLAN setting of IGMP snooping takes effect.

### Response

Response Body (JSON)	{ "ena_igmp_snoop": "<ena_igmp_snoop>" }
-------------------------	--

## Get IGMP Snooping Properties of All VLANs

Gets the IGMP snooping properties of all VLANs.

### Request

Method Type	GET
Request URI	/nos/api/cfg/mc_vlan
Request Body (JSON)	

### Response

Response Body (JSON)	[ { "vlan_id": "<vlan_id>", "ena_igmp_snoop": "<ena_igmp_snoop>" } ]
-------------------------	---

where:

Element	Description
vlan_id	VLAN number.
ena_igmp_snoop	Enables IGMP snooping on a VLAN; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .

## Get IGMP Snooping VLAN Properties

Gets the IGMP snooping properties of one VLAN.

### Request

Method Type	GET
Request URI	/nos/api/cfg/mc_vlan/<vlan_id>
Request Body (JSON)	

### Response

Response Body (JSON)	[ { "vlan_id": "<vlan_id>", "ena_igmp_snoop": "<ena_igmp_snoop>" } ]
-------------------------	---

where:

Element	Description
vlan_id	VLAN number.
ena_igmp_snoop	Enables IGMP snooping on a VLAN; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .



## Update IGMP Snooping VLAN Properties

Updates the IGMP snooping properties of the specified VLAN.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/mc_vlan/<vlan_id>
Request Body (JSON)	{ "vlan_id": "<vlan_id>", "ena_igmp_snoop": "<ena_igmp_snoop>", "fast_leave": "<fast_leave>", "query_interval": "<query_interval>", "version": "<version>", }

where:

Element	Description
vlan_id	VLAN number. <b>Note:</b> The VLAN must exist.
ena_igmp_snoop	(Optional) Whether to enable IGMP snooping on a VLAN; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
fast_leave	One of <i>yes</i> , <i>no</i> . Default value: <i>no</i> .
query_interval	(Optional) IGMP query interval, in seconds; an integer from 1-18000. Default value: 125.
version	(Optional) IGMP Snooping version number; one of 2, 3. Default value: 3.

### Response

Response Body (JSON)	{ "vlan_id": "<vlan_id>", "ena_igmp_snoop": "<ena_igmp_snoop>", "fast_leave": "<fast_leave>", "query_interval": "<query_interval>", "version": "<version>", }
-------------------------	---

where:

Element	Description
vlan_id	VLAN number. <b>Note:</b> The VLAN must exist.
ena_igmp_snoop	(Optional) Whether to enable IGMP snooping on a VLAN; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .

Element	Description
fast_leave	One of <i>yes, no</i> . Default value: <i>no</i> .
query_interval	(Optional) IGMP query interval, in seconds; an integer from 1-18000. Default value: 125.
version	(Optional) IGMP Snooping version number; one of 2, 3. Default value: 3.

---

## Interface

The following interface URIs are available:

- /nos/api/cfg/interface GET
- /nos/api/cfg/interface/<if\_name> GET, PUT
- /nos/api/cfg/interface/transceiver GET
- /nos/api/cfg/interface/transceiver/<if\_name> GET

The following interface commands are available:

- [Get All Interfaces](#)
- [Get Interface](#)
- [Update Interface](#)
- [Get Transceiver Information for All Interfaces](#)
- [Get Transceiver Information for One Interfaces](#)

## Get All Interfaces

Gets properties of all interfaces.

### Request

Method Type Type	Get
Request URI	/nos/api/cfg/interface
Request Body  (JSON)	

### Response

Response Body  (JSON)	<pre>[ {   "duplex": "full",   "if_name": "Ethernet1/1",   "mtu": 1500,   "admin_state": "down",   "mac_addr": "a897.dc1b.8602",   "ifindex": 410001,   "oper_state": "down",   "speed": "40000" } ]</pre>
--------------------------------	--

where:

Element	Description
if_name	The interface name; a string. <b>Note:</b> The interface must exist.
duplex	The communication method of the interface; one of <i>auto</i> , <i>full</i> , <i>half</i> .
speed	The communication speed of the interface; one of the following: <ul style="list-style-type: none"><li>● <i>auto</i> (<i>auto negotiate</i>)</li><li>● <i>10</i> (<i>10Mb/s</i>)</li><li>● <i>100</i> (<i>100Mb/s</i>)</li><li>● <i>1000</i> (<i>1Gb/s</i>)</li><li>● <i>10000</i> (<i>10Gb/s</i>)</li><li>● <i>25000</i> (<i>10Gb/s</i>)</li><li>● <i>40000</i> (<i>40Gb/s</i>).</li></ul>
mtu	The maximum transmission unit, in bytes; a positive integer from 64-9216.
mac_addr	The MAC address in the following format: xxxx.xxxx.xxxx.

Element	Description
admin_state	The admin status; one of <i>up</i> , <i>down</i> .
oper_state	The operation state; one of <i>up</i> , <i>down</i> .

## Get Interface

Gets properties of one interface.

### Request

Method Type Type	GET
Request URI	/nos/api/cfg/interface/<if_name>
Request Body  (JSON)	

where:

Element	Description
<i>if_name</i>	The interface name; a string. <b>Note:</b> The interface must exist.

### Response

Response Body  (JSON)	<pre>{   "duplex": "full",   "if_name": "Ethernet1/1",   "mtu": 1500,   "admin_state": "down",   "mac_addr": "a897.dc1b.8602",   "ifindex": 410001,   "oper_state": "down",   "speed": "40000" }</pre>
--------------------------------	--

where:

Element	Description
<i>if_name</i>	The interface name; a string. <b>Note:</b> The interface must exist.
<i>duplex</i>	The communication method of the interface; one of <i>auto</i> , <i>full</i> , <i>half</i> .

Element	Description
speed	The communication speed of the interface; one of the following: <ul style="list-style-type: none"> <li>● <i>auto (auto negotiate)</i></li> <li>● <i>10 (10Mb/s)</i></li> <li>● <i>100 (100Mb/s)</i></li> <li>● <i>1000 (1Gb/s)</i></li> <li>● <i>10000 (10Gb/s)</i></li> <li>● <i>25000 (10Gb/s)</i></li> <li>● <i>40000 (40Gb/s)</i>.</li> </ul>
mtu	The maximum transmission unit, in bytes; a positive integer from 64-9216.
mac_addr	The MAC address in the following format: xxxx.xxxx.xxxx.
admin_state	The admin status; one of <i>up, down</i> .
oper_state	The operation state; one of <i>up, down</i> .

## Update Interface

Updates properties of one interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/interface/<if_name>
Request Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "mtu": "&lt;mtu&gt;",   "admin_state": "&lt;admin_state&gt;"   "speed": "&lt;speed&gt;" }</pre>

where

Element	Description
<i>if_name</i>	The interface name (string). <b>Note:</b> The interface must exist.
<i>mtu</i>	The maximum transmission unit, in bytes; a positive integer from 64-9216. Default value: 1500.
<i>admin_state</i>	The admin status; <i>up</i> (default), <i>down</i> .
<i>speed</i>	The communication speed of the interface; one of the following: <ul style="list-style-type: none"><li>● <i>auto</i> (<i>auto negotiate</i>)</li><li>● <i>10</i> (10Mb/s)</li><li>● <i>100</i> (100Mb/s)</li><li>● <i>1000</i> (1Gb/s)</li><li>● <i>10000</i> (10Gb/s)</li><li>● <i>25000</i> (10Gb/s)</li><li>● <i>40000</i> (40Gb/s).</li></ul>

**Note:** If an element is not specified in a PUT request, no update for that element will be performed.



## Response

Response Body (JSON)	<pre>{   "duplex": "full",   "if_name": "Ethernet1/1",   "mtu": 1500,   "admin_state": "down",   "mac_addr": "a897.dc1b.8602",   "ifindex": 410001,   "oper_state": "down",   "speed": "40000" }</pre>
-------------------------	--

where:

Element	Description
if_name	The interface name; a string. <b>Note:</b> The interface must exist.
duplex	The communication method of the interface; one of <i>auto</i> , <i>full</i> , <i>half</i> .
speed	The communication speed of the interface; one of the following: <ul style="list-style-type: none"> <li>• <i>auto</i> (<i>auto negotiate</i>)</li> <li>• <i>10</i> (<i>10Mb/s</i>)</li> <li>• <i>100</i> (<i>100Mb/s</i>)</li> <li>• <i>1000</i> (<i>1Gb/s</i>)</li> <li>• <i>10000</i> (<i>10Gb/s</i>)</li> <li>• <i>25000</i> (<i>10Gb/s</i>)</li> <li>• <i>40000</i> (<i>40Gb/s</i>).</li> </ul>
if_name	The interface name; a string. <b>Note:</b> The interface must exist.
duplex	The communication method of the interface; one of <i>auto</i> , <i>full</i> , <i>half</i> .
speed	The communication speed of the interface; one of the following: <ul style="list-style-type: none"> <li>• <i>auto</i> (<i>auto negotiate</i>)</li> <li>• <i>10</i> (<i>10Mb/s</i>)</li> <li>• <i>100</i> (<i>100Mb/s</i>)</li> <li>• <i>1000</i> (<i>1Gb/s</i>)</li> <li>• <i>10000</i> (<i>10Gb/s</i>)</li> <li>• <i>40000</i> (<i>40Gb/s</i>).</li> </ul>

## Example

Method Type	PUT
Request URI	/nos/api/cfg/interface/Ethernet1%2F5

Request Body (JSON)	<pre>{   "if_name": "Ethernet1/5",   "duplex": "duplex-full",   "speed": "auto",   "mtu": 9216,   "mac_addr": "0001_0200_0005",   "admin_state": "up" }</pre>
---------------------	---

## Get Transceiver Information for All Interfaces

Gets transceiver information for all interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/interface/transceiver
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "status": "Disabled",     "part number": "00D5803-N13692A ",     "vendor": "IBM-Amphenol  ",     "temperature": " 0.0C",     "volts": "0.00V",     "rev": "N/A",     "if_name": "Ethernet1/1",     "installed": "Present",     "serial number": "YK10FY382776  ",     "link": "Down",     "approval": "Approved",     "type": "40Gb Passive DAC 3m"   }, ]</pre>
-------------------------	---

where:

Element	Description
if_name	The IP interface name; a string. <b>Note:</b> The interface must exist.
installed	Whether the transceiver is present; one of <i>present</i> , <i>not present</i> .
status	Interface status; one of <i>enabled</i> , <i>disabled</i> .
type	Type of transceiver; a string.
vendor	Vendor of transceiver; a string.
part_number	Part number of transceiver; a string.
revision	Revision of transceiver; a string or N/A.
serial number	Serial number of transceiver; a string.
volts	Volts of transceiver; a string or N/A.

Element	Description
temperature	Temperature of transceiver; a string or N/A.
approved	Approval status of the transceiver; one of <i>approved</i> , <i>accepted</i> , <i>unapproved</i> , <i>Unsuport</i> , <i>Restrict</i> , <i>No Device</i> .

## Get Transceiver Information for One Interfaces

Gets the transceiver information for a specified interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/interface/transceiver/<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The IP interface name; a string. <b>Note:</b> The interface must exist.

### Response

Response Body (JSON)	<pre>[ {   "status": "Disabled",   "part number": "00D5803-N13692A ",   "vendor": "IBM-Amphenol  ",   "temperature": " 0.0C",   "volts": "0.00V",   "rev": "N/A",   "if_name": "Ethernet1/1",   "installed": "Present",   "serial number": "YK10FY382776  ",   "link": "Down",   "approval": "Approved",   "type": "40Gb Passive DAC 3m" } ]</pre>
-------------------------	--

where:

Element	Description
<i>if_name</i>	The IP interface name; a string. <b>Note:</b> The interface must exist.
<i>installed</i>	Whether the transceiver is present; one of <i>present</i> , <i>not present</i> .
<i>status</i>	Interface status; one of <i>enabled</i> , <i>disabled</i> .
<i>type</i>	Type of transceiver; a string.
<i>vendor</i>	Vendor of transceiver; a string.

Element	Description
part_number	Part number of transceiver; a string.
revision	Revision of transceiver; a string or N/A.
serial number	Serial number of transceiver; a string.
volts	Volts of transceiver; a string or N/A.
temperature	Temperature of transceiver; a string or N/A.
approved	Approval status of the transceiver; one of <i>approved</i> , <i>accepted</i> , <i>unapproved</i> , <i>Unsuport</i> , <i>Restrict</i> , <i>No Device</i> .

---

## IP Interface

The following IP interface URIs are available:

- /nos/api/cfg/ip\_interface GET
- /nos/api/cfg/ip\_interface/<if\_name> GET, PUT

The following IP interface commands are available:

- [Get IP Properties of All Interfaces](#)
- [Get IP Interface Properties](#)
- [Update IP Interface Properties](#)

## Get IP Properties of All Interfaces

Gets IP properties of all interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/ip_interface
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "ipv6_prefix_len": 64,   "ipv6_addr": "5001::1",   "ip_addr": "11.11.11.1",   "bridge_port": "no",   "if_name": "Ethernet1/1",   "mtu": 1500,   "vrf_name": "default",   "admin_state": "down",   "ip_prefix_len": 24 }</pre>
-------------------------	--

where:

Element	Description
ipv6_prefix_len	The IPv6 network prefix.
ipv6_addr	The IPv6 address.
if_name	IP interface name (string). <b>Note:</b> The interface must exist.
bridge_port	Whether or not the port is a bridge port; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
mtu	The maximum transmission unit, in bytes; an integer from 64-9216. Default value: 1500.
ip_addr	IP address for the interface.
ip_prefix_len	IP address mask; a positive integer from 0-128.
vrf_name	The name of the VRF to which the interface belongs. <b>Note:</b> The named VRF must exist.
admin_state	The admin status; one of <i>up</i> , <i>down</i> .



## Get IP Interface Properties

Gets IP properties of one interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/ip_interface/<ip_if_name>
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "ipv6_prefix_len": 64,   "ipv6_addr": "5001::1",   "ip_addr": "11.11.11.1",   "bridge_port": "no",   "if_name": "Ethernet1/1",   "mtu": 1500,   "vrf_name": "default",   "admin_state": "down",   "ip_prefix_len": 24 }</pre>
-------------------------	--

where:

Element	Description
ipv6_prefix_len	The IPv6 network prefix.
ipv6_addr	The IPv6 address.
if_name	IP interface name (string). <b>Note:</b> The interface must exist.
bridge_port	Whether or not the port is a bridge port; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
mtu	The maximum transmission unit, in bytes; an integer from 64-9216. Default value: 1500.
ip_addr	IP address for the interface.
ip_prefix_len	IP address mask; a positive integer from 1-32.
vrf_name	The name of the VRF to which the interface belongs. <b>Note:</b> The named VRF must exist.
admin_state	The admin status; one of <i>up</i> , <i>down</i> .

## Update IP Interface Properties

Updates the IP properties of one interface.

**Note:** If an element is not specified in a PUT request, no update for that element will be performed.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ip_interface/<ip_if_name>
Request Body (JSON)	<pre>{   "ipv6_prefix_len": 64,   "ipv6_addr": "4001::1",   "ip_addr": "12.11.11.1",   "bridge_port": "no",   "if_name": "Ethernet1/1",   "mtu": 1500,   "vrf_name": "default",   "admin_state": "down",   "ip_prefix_len": 24 }</pre>

where:

Element	Description
ipv6_prefix_len	The IPv6 network prefix.
ipv6_addr	The IPv6 address.
if_name	IP interface name (string). The interface must exist.
bridge_port	Whether or not the port is a bridge port; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
mtu	The maximum transmission unit, in bytes; an integer from 64-9216. Default value: 1500.
ip_addr	IP address for the interface.
ip_prefix_len	IP address mask; a positive integer from 1-32.
vrf_name	The name of the VRF to which the interface belongs. <b>Note:</b> The named VRF must exist.
admin_state	The admin status; one of <i>up</i> , <i>down</i> .

## Response

Response Body (JSON)	<pre>{   "ipv6_prefix_len": 64,   "ipv6_addr": "4001::1",   "ip_addr": "12.11.11.1",   "bridge_port": "no",   "if_name": "Ethernet1/1",   "mtu": 1500,   "vrf_name": "default",   "admin_state": "down",   "ip_prefix_len": 24 }</pre>
----------------------------	--



---

## LACP

The following LACP URI is available:

- [/nos/api/cfg/lacp](#) GET, PUT

The following LACP commands are available:

- [Get LACP System Properties](#)
- [Update LACP System Properties](#)

## Get LACP System Properties

Gets the LACP properties of the system.

### Request

Method Type	GET
Request URI	/nos/api/cfg/lacp
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "sys_prio": "&lt;sys_prio&gt;",   "max_bundle": "&lt;max_bundle&gt;",   "interfaces": [     {       "if_name": "&lt;if_name&gt;",       "lag_mode": "&lt;lag_mode&gt;",       "lacp_prio": "&lt;lacp_prio&gt;",       "lacp_timeout": "&lt;lacp_timeout&gt;"     }   ] }</pre>
-------------------------	---

where:

Element	Description
sys_prio	LACP system priority.; a positive integer from 1-65535. Default value: 32768.
max_bundle	The supported maximum number of links per LAG; a positive integer.
if_name	Ethernet interface name (string). <b>Note:</b> The interface must exist.
lag_mode	LAG mode; one of <i>lacp_active</i> , <i>lacp_passive</i> , <i>no_lacp</i> .
lacp_prio	LACP priority for the physical port; a positive integer from 1-65535. Default value: 32768.
lacp_timeout	LACP timeout for the physical port; one of <i>short</i> , <i>long</i> . Default value: <i>long</i> .

## Update LACP System Properties

Updates the LACP properties of the system.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/lacp
Request Body (JSON)	{ "sys_prio": "<sys_prio>", }

where:

Element	Description
sys_prio	LACP system priority; a positive integer from 1-65535. Default value: 32768.

### Response

Response Body (JSON)	{ "sys_prio": "<sys_prio>", }
-------------------------	-------------------------------------

where:

Element	Description
sys_prio	LACP system priority; a positive integer from 1-65535. Default value: 32768.





---

## LAG

The following LAG-related URIs are available:

- /nos/api/cfg/lag GET, POST
- /nos/api/cfg/lag/<lag\_id> GET, PUT, DELETE
- /nos/api/cfg/lag/load\_balance> GET, PUT

The following LAG commands are available:

- [Get All LAGs](#)
- [Create LAG](#)
- [Get LAG Properties](#)
- [Update LAG](#)
- [Get LAG Load Balance Settings](#)
- [Update LAG Load Balance Settings](#)
- [Delete LAG](#)

## Get All LAGs

Gets properties of all LAGs.

### Request

Method Type	GET
Request URI	/nos/api/cfg/lag
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "lag_name": "&lt;lag_name&gt;",     "lag_id": "&lt;lag_id&gt;",     "interfaces": [       {         "if_name": "&lt;if_name&gt;",         "lag_mode": "&lt;lag_mode&gt;",         "lACP_prio": "&lt;lACP_prio&gt;",         "lACP_timeout": "&lt;lACP_timeout&gt;"       }     ],     "suspend_individual": "&lt;status&gt;",     "min_links": "&lt;min_links&gt;",   } ]</pre>
-------------------------	--

where:

Element	Description
lag_name	The name of the LAG (string).
lag_id	LAG identifier; an integer from 1-65535.
interfaces	Physical interface members of the LAG; an integer from 1-32.
if_name	Ethernet interface name. <b>Note:</b> The interface must exist.
lag_mode	LAG mode; one of <i>lACP_active</i> , <i>lACP_passive</i> , <i>no_lACP</i> .
lACP_prio	LACP priority for the physical port; an integer from 1-65535. Default value: 32768.
lACP_timeout	LACP timeout for the physical port; one of <i>short</i> , <i>long</i> . Default value: <i>long</i> .

Element	Description
suspend_individual	<p>If the LAG does not get the LACP BPUD from peer ports the port aggregation, the result is one of the following:</p> <ul style="list-style-type: none"> <li>● <i>suspended</i>: LACP on the ports is suspended rather than put into individual state</li> <li>● <i>individual</i>: LAG on the ports is put into individual state</li> </ul> <p>Default value: <i>suspended</i>.</p>
min_links	<p>LACP minimum links number; an integer from 1-32. Default value: 1.</p>

## Create LAG

Creates a LAG.

### Request

Method Type	POST
Request URI	/nos/api/cfg/lag
Request Body (JSON)	<pre>{   "lag_id": "&lt;lag_id&gt;",   "interfaces": [     {       "if_name": "&lt;if_name&gt;",       "lag_mode": "&lt;lag_mode&gt;",       "lacp_prio": "&lt;lacp_prio&gt;",       "lacp_timeout": "&lt;lacp_timeout&gt;"     }   ] }</pre>

where:

Element	Description
lag_id	LAG identifier; a positive integer from 1-65535.
interfaces	Physical interface members of the LAG. Up to 32 interfaces can be added.
if_name	Ethernet interface name (string). <b>Note:</b> The interface must exist.
lag_mode	LAG mode; one of <i>lacp_active</i> , <i>lacp_passive</i> , <i>no_lacp</i> .
lacp_prio	(Optional) LACP priority for the physical port; a positive integer from 1-65535. Default value: 32768.
lacp_timeout	(Optional) LACP timeout for the physical port; one of <i>short</i> , <i>long</i> . Default value: <i>long</i> .

## Response

Response Body (JSON)	<pre>{   "lag_id": "&lt;lag_id&gt;",   "lag_name": "&lt;lag_name&gt;",   "interfaces": [     {       "if_name": "&lt;if_name&gt;",       "lag_mode": "&lt;lag_mode&gt;",       "lACP_prio": "&lt;lACP_prio&gt;",       "lACP_timeout": "&lt;lACP_timeout&gt;"     }   ] }</pre>
----------------------	---

where:

Element	Description
lag_id	LAG identifier; a positive integer from 1-65535.
interfaces	Physical interface members of the LAG. Up to 32 interfaces can be added.
if_name	Ethernet interface name (string). <b>Note:</b> The interface must exist.
lag_mode	LAG mode; one of <i>lACP_active</i> , <i>lACP_passive</i> , <i>no_lACP</i> .
lACP_prio	(Optional) LACP priority for the physical port; a positive integer from 1-65535. Default value: 32768.
lACP_timeout	(Optional) LACP timeout for the physical port; one of <i>short</i> , <i>long</i> . Default value: <i>long</i> .
lag_id	LAG identifier; a positive integer from 1-65535.

## Get LAG Properties

Gets properties of the specified LAG.

### Request

Method Type	GET
Request URI	/nos/api/cfg/lag/<lag_id>
Request Body (JSON)	

where:

Element	Description
lag_id	LAG identifier; an integer from 1-65535.

### Response

Response Body (JSON)	<pre>[   {     "lag_name": "&lt;lag_name&gt;",     "lag_id": "&lt;lag_id&gt;",     "interfaces": [       {         "if_name": "&lt;if_name&gt;",         "lag_mode": "&lt;lag_mode&gt;",         "lACP_prio": "&lt;lACP_prio&gt;",         "lACP_timeout": "&lt;lACP_timeout&gt;"       }     ],     "suspend_individual": "&lt;status&gt;",     "min_links": "&lt;min_links&gt;",   } ]</pre>
-------------------------	--

where:

Element	Description
lag_name	The name of the LAG (string).
lag_id	LAG identifier; an integer from 1-65535.
interfaces	Physical interface members of the LAG; an integer from 1-32.
if_name	Ethernet interface name. <b>Note:</b> The interface must exist.
lag_mode	LAG mode; one of <i>lACP_active</i> , <i>lACP_passive</i> , <i>no_lACP</i> .

Element	Description
lacp_prio	LACP priority for the physical port; an integer from 1-65535. Default value: 32768.
lacp_timeout	LACP timeout for the physical port; one of <i>short</i> , <i>long</i> . Default value: <i>long</i> .
suspend_individual	<p>If the LAG does not get the LACP BPUD from peer ports the port aggregation, the result is one of the following:</p> <ul style="list-style-type: none"> <li>● <i>suspended</i>: LACP on the ports is suspended rather than put into individual state</li> <li>● <i>individual</i>: LAG on the ports is put into individual state</li> </ul> <p>Default value: <i>suspended</i>.</p>
min_links	LACP minimum links number; an integer from 1-32. Default value: 1.

## Update LAG

**Note:** If an element is not specified in a PUT request, no update for that element will be performed.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/lag/<lag_id>
Request Body (JSON)	<pre>[   {     "lag_id": "&lt;lag_id&gt;",     "interfaces": [       {         "if_name": "&lt;if_name&gt;",         "lag_mode": "&lt;lag_mode&gt;",         "lACP_prio": "&lt;lACP_prio&gt;",         "lACP_timeout": "&lt;lACP_timeout&gt;"       }     ],     "suspend_individual": "&lt;status&gt;",     "min_links": "&lt;min_links&gt;",   } ]</pre>

where:

Element	Description
lag_id	LAG identifier; an integer from 1-65535.
interfaces	(Optional) Physical interface members of the LAG; an integer from 1-32.
if_name	Ethernet interface name. <b>Note:</b> The interface must exist.
lag_mode	LAG mode; one of <i>lACP_active</i> , <i>lACP_passive</i> , <i>no_lACP</i> .
lACP_prio	(Optional) LACP priority for the physical port; an integer from 1-65535. Default value: 32768.
lACP_timeout	(Optional) LACP timeout for the physical port; one of <i>short</i> , <i>long</i> . Default value: <i>long</i> .
suspend_individual	If the LAG does not get the LACP BPUD from peer ports the port aggregation, the result is one of the following: <ul style="list-style-type: none"> <li><i>suspended</i>: LACP on the ports is suspended rather than put into individual state</li> <li><i>individual</i>: LAG on the ports is put into individual state</li> </ul> Default value: <i>suspended</i> .
min_links	LACP minimum links number; an integer from 1-32. Default value: 1.



## Response

Response Body (JSON)	<pre>[   {     "lag_id": "&lt;lag_id&gt;",     "lag_name": "&lt;lag_name&gt;",     "interfaces": [       {         "if_name": "&lt;if_name&gt;",         "lag_mode": "&lt;lag_mode&gt;",         "lacp_prio": "&lt;lacp_prio&gt;",         "lacp_timeout": "&lt;lacp_timeout&gt;"       }     ],     "suspend_individual": "&lt;status&gt;",     "min_links": "&lt;min_links&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
lag_id	LAG identifier; an integer from 1-65535.
interfaces	(Optional) Physical interface members of the LAG; an integer from 1-32.
if_name	Ethernet interface name. <b>Note:</b> The interface must exist.
lag_mode	LAG mode; one of <i>lacp_active</i> , <i>lacp_passive</i> , <i>no_lacp</i> .
lacp_prio	(Optional) LACP priority for the physical port; an integer from 1-65535. Default value: 32768.
lacp_timeout	(Optional) LACP timeout for the physical port; one of <i>short</i> , <i>long</i> . Default value: <i>long</i> .
suspend_individual	If the LAG does not get the LACP BPUD from peer ports the port aggregation, the result is one of the following: <ul style="list-style-type: none"> <li>● <i>suspended</i>: LACP on the ports is suspended rather than put into individual state</li> <li>● <i>individual</i>: LAG on the ports is put into individual state</li> </ul> Default value: <i>suspended</i> .
min_links	LACP minimum links number; an integer from 1-32. Default value: 1.
lag_id	LAG identifier; an integer from 1-65535.

## Get LAG Load Balance Settings

Gets the load balance properties for port aggregations.

### Request

Method Type	GET
Request URI	/nos/api/cfg/lag/load_balance
Request Body (JSON)	

### Response

Response Body (JSON)	{ "destination-ip" : "<destination-ip>" "destination-mac" : "<destination-mac>" "destination-port" : "<destination-port>" "source-dest-ip" : "<source-dest-ip>" "source-dest-mac" : "<source-dest-mac>" "source-dest-port" : "<source-dest-port>" "source-interface" : "<source-interface>" "source-ip" : "<source-ip>" "source-mac" : "<source-mac>" "source-port" : "<source-port>" }
-------------------------	--

where:

Element	Description
destination-ip	Load distribution on the destination IP address.
destination-mac	Load distribution on the destination MAC address.
destination-port	Load distribution on the destination TCP/UDP port.
source-dest-ip	Load distribution on the source and destination IP address.
source-dest-mac	Load distribution on the source and destination MAC address.
source-dest-port	Load distribution on the source and destination TCP/UDP port.
source-interface	Load distribution on the source ethernet interface.
source-ip	Load distribution on the source IP address.

<b>Element</b>	<b>Description</b>
source-mac	Load distribution on the source MAC address.
source-port	Load distribution on the source TCP/UDP port.

## Update LAG Load Balance Settings

Updates the load balance properties for port aggregations.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/lag/load_balance
Request Body (JSON)	{ "destination-ip" : "<destination-ip>" "destination-mac" : "<destination-mac>" "destination-port" : "<destination-port>" "source-dest-ip" : "<source-dest-ip>" "source-dest-mac" : "<source-dest-mac>" "source-dest-port" : "<source-dest-port>" "source-interface" : "<source-interface>" "source-ip" : "<source-ip>" "source-mac" : "<source-mac>" "source-port" : "<source-port>" }

where:

Element	Description
destination-ip	Load distribution on the destination IP address.
destination-mac	Load distribution on the destination MAC address.
destination-port	Load distribution on the destination TCP/UDP port.
source-dest-ip	Load distribution on the source and destination IP address.
source-dest-mac	Load distribution on the source and destination MAC address.
source-dest-port	Load distribution on the source and destination TCP/UDP port.
source-interface	Load distribution on the source ethernet interface.
source-ip	Load distribution on the source IP address.
source-mac	Load distribution on the source MAC address.
source-port	Load distribution on the source TCP/UDP port.

## Response

Response Body (JSON)	<pre>{   "destination-port": "no",   "source-dest-port": "yes",   "source-ip": "no",   "source-dest-ip": "no",   "destination-mac": "no",   "source-mac": "no",   "destination-ip": "no",   "source-interface": "no",   "source-port": "no",   "source-dest-mac": "no" }</pre>
-------------------------	--

where:

Element	Description
destination-ip	Load distribution on the destination IP address.
destination-mac	Load distribution on the destination MAC address.
destination-port	Load distribution on the destination TCP/UDP port.
source-dest-ip	Load distribution on the source and destination IP address.
source-dest-mac	Load distribution on the source and destination MAC address.
source-dest-port	Load distribution on the source and destination TCP/UDP port.
source-interface	Load distribution on the source ethernet interface.
source-ip	Load distribution on the source IP address.
source-mac	Load distribution on the source MAC address.
source-port	Load distribution on the source TCP/UDP port.

## Delete LAG

Deletes a LAG.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/lag/<lag_id>
Request Body (JSON)	

where:

Element	Description
<i>lag_id</i>	LAG identifier; a positive integer from 1-65535.

**Note:** If there is no *lag\_id* (*lag\_id*=None or specified *lag\_id*=All), all user-created LAGs will be deleted.

---

## LDAP

The following Lightweight Directory Access Protocol (LDAP) URIs are available:

- /nos/api/cfg/ldap GET, PUT
- /nos/api/cfg/ldap/profiles GET, POST, DELETE
- /nos/api/cfg/ldap/groups GET, POST, DELETE

The following LDAP commands are available:

- [Get LDAP Configuration](#)
- [Update LDAP Configuration](#)
- [Get LDAP Profile Configuration](#)
- [Add LDAP Profile](#)
- [Delete LDAP Profile](#)
- [Get LDAP Server Group Information](#)
- [Add LDAP Server Group](#)
- [Delete LDAP Server Group](#)

## Get LDAP Configuration

Gets the current LDAP configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/ldap
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "status": {enable disable},   "global_pki": {pki_name},   "global_authorization": {bitmap rbac},   "global_retransmit": {retransmit},   "global_timeout": {timeout} }</pre>
----------------------	--

where:

Element	Description
status	The global status of the LDAP service on the switch; one of <i>enable</i> , <i>disable</i> .
global_pki	The name of the PKI profile used by LDAP (string).
global_authorization	The global LDAP authentication method; one of: <ul style="list-style-type: none"><li>• <i>bitmap</i> for 8-byte permission bitmaps</li><li>• <i>rbac</i> for Role-Based Access Control (RBAC)</li></ul>
global_retransmit	The global LDAP server retransmit count; an integer from 1-5.
global_timeout	The global LDAP server timeout, in seconds; an integer from 1-60.



## Update LDAP Configuration

Updates the LDAP configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ldap
Request Body (JSON)	{ "status":{enable disable}, "global_pki":{pki_name}, "global_authorization":{bitmap rbac}, "global_retransmit":{retransmit}, "global_timeout":{timeout} }

where:

Element	Description
status	The global status of the LDAP service on the switch; one of <i>enable</i> , <i>disable</i> .
global_pki	The name of the PKI profile used by LDAP (string).
global_authorization	The global LDAP authentication method; one of: <ul style="list-style-type: none"><li>• <i>bitmap</i> for 8-byte permission bitmaps</li><li>• <i>rbac</i> for Role-Based Access Control (RBAC)</li></ul>
global_retransmit	The global LDAP server retransmit count; an integer from 1-5.
global_timeout	The global LDAP server timeout, in seconds; an integer from 1-60.

### Response

Response Body (JSON)	{ "status":{enable disable}, "global_pki":{pki_name}, "global_authorization":{bitmap rbac}, "global_retransmit":{retransmit}, "global_timeout":{timeout} }
----------------------	--

where:

Element	Description
status	The global status of the LDAP service on the switch; one of <i>enable</i> , <i>disable</i> .
global_pki	The name of the PKI profile used by LDAP (string).

Element	Description
global_ authorization	The global LDAP authentication method; one of: <ul style="list-style-type: none"> <li>● <i>bitmap</i> for 8-byte permission bitmaps</li> <li>● <i>rbac</i> for Role-Based Access Control (RBAC)</li> </ul>
global_ retransmit	The global LDAP server retransmit count; an integer from 1-5.
global_ timeout	The global LDAP server timeout, in seconds; an integer from 1-60.

## Get LDAP Profile Configuration

Gets the configuration of a specific LDAP profile.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/ldap/profiles/<profile_name>
Request Body (JSON)	

where:

Element	Description
<i>profile_name</i>	The name of the LDAP profile (string).

## Response

Response Body (JSON)	<pre>[   {     "profile_name": {profile_name},     "host": {ip_address},     "port": {port},     "base_dn": {base_dn},     "bind_mode": {prompted predefined},     "security": {ldaps (ignore) startTLS (ignore) clear},     "retransmit": {retransmit},     "timeout": {timeout},     "authorization": {bitmap rbac},     "attribute_group": {attribute_group},     "attribute_permission_name": {attribute_permission_name},     "attribute_permission_admin_bitmap":       {attribute_permission_admin_bitmap},     "attribute_permission_oper_bitmap":       {attribute_permission_oper_bitmap},     "attribute_permission_deny_bitmap":       {attribute_permission_deny_bitmap},     "attribute_permission_admin_role":       {attribute_permission_admin_role},     "attribute_permission_oper_role":       {attribute_permission_oper_role},     "attribute_permission_deny_role":       {attribute_permission_deny_role},     "attribute_username": {attribute_username},     "predefined_credential_dn": {predefined_credential_dn},     "predefined_credential_key": {predefined_credential_key},     "credential_key_form": {0 7},     "group_filter": {group_filter},     "pki_name": {pki_name}   } ]</pre>
----------------------	---

where:

Element	Description
profile_name	The name of the LDAP profile (string).
host	The IP address of the LDAP server.
port	The TCP port for sending messages to the LDAP server; an integer from 1-65535.
base_dn	The LDAP based Domain Name (DN); a string.
bind_mode	The LDAP binding method; one of <i>prompted</i> , <i>predefined</i> .
security	The LDAP transmit mode and security option; one of: <ul style="list-style-type: none"> <li>● <i>LDAPS (ignore)</i></li> <li>● <i>startTLS (ignore)</i></li> <li>● <i>clear</i></li> </ul>
retransmit	The LDAP retransmit count; an integer from 1-5.

Element	Description
timeout	The LDAP server connection timeout period, in seconds; an integer from 1-60.
authorization	The LDAP authorization method; one of: <ul style="list-style-type: none"> <li>• <i>bitmap</i> for 8-byte permission bitmaps</li> <li>• <i>rbac</i> for Role-Based Access Control (RBAC)</li> </ul>
attribute_group	The name of the custom LDAP attribute group (string).
attribute_permission_name	The custom LDAP attribute permission name (string).
attribute_permission_admin_bitmap	The custom LDAP attribute permission administrative bitmap (string).
predefined_credential_dn	The Domain Name for binding with the LDAP server (string).
attribute_permission_admin_role	The custom LDAP attribute permission administrator role (string).
attribute_permission_oper_bitmap	The custom LDAP attribute permission operative bitmap (string).
attribute_permission_deny_bitmap	The custom LDAP attribute permission denial bitmap (string).
credential_key_form	The LDAP authentication key encryption method; one of: <ul style="list-style-type: none"> <li>• 0 - clear text</li> <li>• 7 - encrypted</li> </ul>
predefined_credential_key	The password for the Domain Name (string).
attribute_username	The custom LDAP attribute username (string).
attribute_permission_oper_role	The custom LDAP attribute permission operator role (string).
attribute_permission_deny_role	The custom LDAP attribute deny operator role.
group_filter	The filter when performing group searches (string).
pki_name	The name of the PKI profile used by LDAP (string).

## Add LDAP Profile

Configures a new LDAP profile.

### Request

Method Type	POST
Request URI	/nos/api/cfg/ldap/profiles
Request Body (JSON)	<pre>{   "profile_name": {profile_name},   "host": {ip_address},   "port": {port},   "base_dn": {base_dn},   "bind_mode": {prompted predefined},   "security": {ldaps (ignore) startTLS (ignore) clear},   "retransmit": {retransmit},   "timeout": {timeout},   "authorization": {bitmap rbac},   "attribute_group": {attribute_group},   "attribute_permission_name": {attribute_permission_name},   "attribute_permission_admin_bitmap":     {attribute_permission_admin_bitmap},   "attribute_permission_oper_bitmap":     {attribute_permission_oper_bitmap},   "attribute_permission_deny_bitmap":     {attribute_permission_deny_bitmap},   "attribute_permission_admin_role":     {attribute_permission_admin_role},   "attribute_permission_oper_role":     {attribute_permission_oper_role},   "attribute_permission_deny_role":     {attribute_permission_deny_role},   "attribute_username": {attribute_username},   "predefined_credential_dn": {predefined_credential_dn},   "predefined_credential_key": {predefined_credential_key},   "credential_key_form": {0 7},   "group_filter": {group_filter},   "pki_name": {pki_name} }</pre>

where:

Element	Description
profile_name	The name of the LDAP profile (string).
host	The IP address of the LDAP server.
port	The TCP port for sending messages to the LDAP server; a string from 1-65535.
base_dn	The LDAP based Domain Name (DN) (string).
bind_mode	The LDAP binding method; one of: <i>prompted</i> , <i>predefined</i> .

Element	Description
security	The LDAP transmit mode and security option; one of: <ul style="list-style-type: none"> <li>● <i>LDAPS (ignore)</i></li> <li>● <i>startTLS (ignore)</i></li> <li>● <i>clear</i></li> </ul>
retransmit	The LDAP retransmit count; an integer from 1-5.
timeout	The LDAP server connection timeout period, in seconds; an integer from 1-60.
authorization	The LDAP authorization method; one of: <ul style="list-style-type: none"> <li>● <i>bitmap</i> for 8-byte permission bitmaps</li> <li>● <i>rbac</i> for Role-Based Access Control (RBAC)</li> </ul>
attribute_group	The name of the custom LDAP attribute group (string).
attribute_permission_name	The custom LDAP attribute permission name (string).
attribute_permission_admin_bitmap	The custom LDAP attribute permission administrative bitmap (string).
predefined_credential_dn	The Domain Name for binding with the LDAP server (string).
attribute_permission_admin_role	The custom LDAP attribute permission administrator role (string).
attribute_permission_oper_bitmap	The custom LDAP attribute permission operative bitmap (string).
attribute_permission_deny_bitmap	The custom LDAP attribute permission denial bitmap (string).
credential_key_form	The LDAP authentication key encryption method; one of: <ul style="list-style-type: none"> <li>● 0 - clear text</li> <li>● 7 - encrypted</li> </ul>
predefined_credential_key	The password for the Domain Name (string).
attribute_username	The custom LDAP attribute username (string).
attribute_permission_oper_role	The custom LDAP attribute permission operator role (string).

Element	Description
attribute_permission_deny_role	The custom LDAP attribute deny operator role.
group_filter	The filter when performing group searches (string).
pki_name	The name of the PKI profile used by LDAP (string).

## Response

Response Body (JSON)	<pre>{   "profile_name": {profile_name},   "host": {ip_address},   "port": {port},   "base_dn": {base_dn},   "bind_mode": {prompted predefined},   "security": {ldaps (ignore) startTLS (ignore) clear},   "retransmit": {retransmit},   "timeout": {timeout},   "authorization": {bitmap rbac},   "attribute_group": {attribute_group},   "attribute_permission_name": {attribute_permission_name},   "attribute_permission_admin_bitmap":     {attribute_permission_admin_bitmap},   "attribute_permission_oper_bitmap":     {attribute_permission_oper_bitmap},   "attribute_permission_deny_bitmap":     {attribute_permission_deny_bitmap},   "attribute_permission_admin_role":     {attribute_permission_admin_role},   "attribute_permission_oper_role":     {attribute_permission_oper_role},   "attribute_permission_deny_role":     {attribute_permission_deny_role},   "attribute_username": {attribute_username},   "predefined_credential_dn": {predefined_credential_dn},   "predefined_credential_key": {predefined_credential_key},   "credential_key_form": {0 7},   "group_filter": {group_filter},   "pki_name": {pki_name} }</pre>
----------------------	---

where:

Element	Description
profile_name	The name of the LDAP profile (string).
host	The IP address of the LDAP server.
port	The TCP port for sending messages to the LDAP server; an integer from 1-65535.
base_dn	The LDAP based Domain Name (DN) (string).



Element	Description
bind_mode	The LDAP binding method; one of <i>prompted</i> , <i>predefined</i> .
security	The LDAP transmit mode and security option; one of: <ul style="list-style-type: none"> <li>• <i>LDAPS (ignore)</i></li> <li>• <i>startTLS (ignore)</i></li> <li>• <i>clear</i></li> </ul>
retransmit	The LDAP retransmit count; an integer from 1-5.
timeout	The LDAP server connection timeout period, in seconds; an integer from 1-60.
authorization	The LDAP authorization method; one of: <ul style="list-style-type: none"> <li>• <i>bitmap</i> for 8-byte permission bitmaps</li> <li>• <i>rbac</i> for Role-Based Access Control (RBAC)</li> </ul>
attribute_group	The name of the custom LDAP attribute group (string).
attribute_permission_name	The custom LDAP attribute permission name (string).
attribute_permission_admin_bitmap	The custom LDAP attribute permission administrative bitmap (string).
predefined_credential_dn	The Domain Name for binding with the LDAP server (string).
attribute_permission_admin_role	The custom LDAP attribute permission administrator role (string).
attribute_permission_oper_bitmap	The custom LDAP attribute permission operative bitmap (string).
attribute_permission_deny_bitmap	The custom LDAP attribute permission denial bitmap (string).
credential_key_form	The LDAP authentication key encryption method; one of: <ul style="list-style-type: none"> <li>• 0 - clear text</li> <li>• 7 - encrypted</li> </ul>
predefined_credential_key	The password for the Domain Name (string).
attribute_username	The custom LDAP attribute username (string).
attribute_permission_oper_role	The custom LDAP attribute permission operator role (string).

<b>Element</b>	<b>Description</b>
attribute_permission_deny_role	The custom LDAP attribute deny operator role.
group_filter	The filter when performing group searches (string).
pki_name	The name of the PKI profile used by LDAP (string).

## Delete LDAP Profile

Deletes a configured LDAP profile.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/ldap/profiles/<profile_name>
Request Body (JSON)	

where:

Element	Description
<i>profile_name</i>	The name of the LDAP profile (string).

## Get LDAP Server Group Information

Gets LDAP group information.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/ldap/groups/<group_name>
Request Body (JSON)	

where:

Element	Description
<i>group_name</i>	The name of the LDAP server group (string). <b>Note:</b> If this variable is not provided, then the command returns information about all configured LDAP server groups.

## Response

Response Body (JSON)	<pre>[   {     "group_name": "{group_name}",     "vrf_name": "{vrf_name}",     "profiles":       [         {           "profile_name": {profile_name},           "host": {ip_address},           "port": {port},           "base_dn": {base_dn},           "bind_mode": {prompted predefined},           "security": {ldaps (ignore) startTLS (ignore) clear},           "retransmit": {retransmit},           "timeout": {timeout},           "authorization": {bitmap rbac},           "attribute_group": {attribute_group},           "attribute_permission_name": {attribute_permission_name},           "attribute_permission_admin_bitmap":             {attribute_permission_admin_bitmap},           "attribute_permission_oper_bitmap":             {attribute_permission_oper_bitmap},           "attribute_permission_deny_bitmap":             {attribute_permission_deny_bitmap},           "attribute_permission_admin_role":             {attribute_permission_admin_role},           "attribute_permission_oper_role":             {attribute_permission_oper_role},           "attribute_permission_deny_role":             {attribute_permission_deny_role},           "attribute_username": {attribute_username},           "predefined_credential_dn": {predefined_credential_dn},           "predefined_credential_key": {predefined_credential_key},           "credential_key_form": {0 7},           "group_filter": {group_filter},           "pki_name": {pki_name}         }       ]   } ]</pre>
----------------------	---

where:

Element	Description
group_name	The name of the LDAP server group (string).
vrf_name	The VRF instance for the LDAP server group.
profiles	The list of LDAP profiles.
profile_name	The name of the LDAP profile (string).
host	The IP address of the LDAP server.
port	The TCP port for sending messages to the LDAP server; an integer from 1-65535.
base_dn	The LDAP based Domain Name (DN) (string).

Element	Description
bind_mode	The LDAP binding method; one of: <i>prompted</i> , <i>predefined</i> .
security	The LDAP transmit mode and security option; one of: <ul style="list-style-type: none"> <li>• <i>LDAPS (ignore)</i></li> <li>• <i>startTLS (ignore)</i></li> <li>• <i>clear</i></li> </ul>
retransmit	The LDAP retransmit count; an integer from 1-5.
timeout	The LDAP server connection timeout period, in seconds; an integer from 1-60.
authorization	The LDAP authorization method; one of: <ul style="list-style-type: none"> <li>• <i>bitmap</i> for 8-byte permission bitmaps</li> <li>• <i>rbac</i> for Role-Based Access Control (RBAC)</li> </ul>
attribute_group	The name of the custom LDAP attribute group (string).
attribute_permission_name	The custom LDAP attribute permission name (string).
attribute_permission_admin_bitmap	The custom LDAP attribute permission administrative bitmap (string).
predefined_credential_dn	The Domain Name for binding with the LDAP server (string).
attribute_permission_admin_role	The custom LDAP attribute permission administrator role (string).
attribute_permission_oper_bitmap	The custom LDAP attribute permission operative bitmap (string).
attribute_permission_deny_bitmap	The custom LDAP attribute permission denial bitmap (string).
credential_key_form	The LDAP authentication key encryption method; one of: <ul style="list-style-type: none"> <li>• 0 - clear text</li> <li>• 7 - encrypted</li> </ul>
predefined_credential_key	The password for the Domain Name (string).
attribute_username	The custom LDAP attribute username (string).

Element	Description
attribute_ permission_oper_ role	The custom LDAP attribute permission operator role (string).
attribute_ permission_deny_ role	The custom LDAP attribute deny operator role (string).
group_filter	The filter when performing group searches (string).
pki_name	The name of the PKI profile used by LDAP (string).

## Add LDAP Server Group

Configures a new LDAP server group.

### Request

Method Type	POST
Request URI	/nos/api/cfg/ldap/groups
Request Body (JSON)	<pre>{   "group_name": "{group_name}",   "vrf_name": "{vrf_name}",   "profiles":   [     "profile_name": "{profile_name}"   ] }</pre>

where:

Element	Description
group_name	The name of the LDAP server group (string).
vrf_name	The VRF instance for the LDAP server group. Valid value: the VRF instance name.
profiles	The list of LDAP profiles.
profile_name	The name of the LDAP profile (string).



## Response

Response Body (JSON)	<pre>[   {     "group_name": "{group_name}",     "vrf_name": "{vrf_name}",     "profiles":       [         {           "profile_name": {profile_name},           "host": {ip_address},           "port": {port},           "base_dn": {base_dn},           "bind_mode": {prompted predefined},           "security": {ldaps (ignore) startTLS (ignore) clear},           "retransmit": {retransmit},           "timeout": {timeout},           "authorization": {bitmap rbac},           "attribute_group": {attribute_group},           "attribute_permission_name": {attribute_permission_name},           "attribute_permission_admin_bitmap":             {attribute_permission_admin_bitmap},           "attribute_permission_oper_bitmap":             {attribute_permission_oper_bitmap},           "attribute_permission_deny_bitmap":             {attribute_permission_deny_bitmap},           "attribute_permission_admin_role":             {attribute_permission_admin_role},           "attribute_permission_oper_role":             {attribute_permission_oper_role},           "attribute_permission_deny_role":             {attribute_permission_deny_role},           "attribute_username": {attribute_username},           "predefined_credential_dn": {predefined_credential_dn},           "predefined_credential_key": {predefined_credential_key},           "credential_key_form": {0 7},           "group_filter": {group_filter},           "pki_name": {pki_name}         }       ]     }   ] ]</pre>
----------------------	---

where:

Element	Description
group_name	The name of the LDAP server group (string).
vrf_name	The VRF instance for the LDAP server group. Valid value: the VRF instance name.
profiles	The list of LDAP profiles.
profile_name	The name of the LDAP profile (string).
host	The IP address of the LDAP server.
port	The TCP port for sending messages to the LDAP server; an integer from 1-65535.

Element	Description
base_dn	The LDAP based Domain Name (DN) (string).
bind_mode	The LDAP binding method; one of <i>prompted</i> , <i>predefined</i> .
security	The LDAP transmit mode and security option; one of: <ul style="list-style-type: none"> <li>• <i>LDAPS (ignore)</i></li> <li>• <i>startTLS (ignore)</i></li> <li>• <i>clear</i></li> </ul>
retransmit	The LDAP retransmit count; an integer from 1-5.
timeout	The LDAP server connection timeout period, in seconds; an integer from 1-60.
authorization	The LDAP authorization method; one of: <ul style="list-style-type: none"> <li>• <i>bitmap</i> for 8-byte permission bitmaps</li> <li>• <i>rbac</i> for Role-Based Access Control (RBAC)</li> </ul>
attribute_group	The name of the custom LDAP attribute group (string).
attribute_permission_name	The custom LDAP attribute permission name (string).
attribute_permission_admin_bitmap	The custom LDAP attribute permission administrative bitmap (string).
predefined_credential_dn	The Domain Name for binding with the LDAP server (string).
attribute_permission_admin_role	The custom LDAP attribute permission administrator role (string).
attribute_permission_oper_bitmap	The custom LDAP attribute permission operative bitmap (string).
attribute_permission_deny_bitmap	The custom LDAP attribute permission denial bitmap (string).
credential_key_form	The LDAP authentication key encryption method; one of: <ul style="list-style-type: none"> <li>• 0 - clear text</li> <li>• 7 - encrypted</li> </ul>
predefined_credential_key	The password for the Domain Name (string).
attribute_username	The custom LDAP attribute username (string).
attribute_permission_oper_role	The custom LDAP attribute permission operator role (string).

<b>Element</b>	<b>Description</b>
attribute_permission_deny_role	The custom LDAP attribute deny operator role.
group_filter	The filter when performing group searches (string).
pki_name	The name of the PKI profile used by LDAP (string).

## Delete LDAP Server Group

Deletes a configured LDAP server group.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/ldap/groups/<group_name>
Request Body (JSON)	

where:

Element	Description
<i>group_name</i>	The name of the LDAP server group (string).

---

## LLDP

The following LLDP URIs are available:

- /nos/api/cfg/lldp GET, PUT
- /nos/api/cfg/lldp/lldp\_interface GET
- /nos/api/cfg/lldp/lldp\_interface/<eth\_if\_name> GET, PUT
- /nos/api/cfg/lldp/lldp\_interface/statistics/<eth\_if\_name> GET
- /nos/api/cfg/lldp/lldp\_interface/neighbor/<eth\_if\_name> GET
- /nos/api/cfg/lldp/lldp\_interface/neighbor GET

The following LLDP commands are available:

- [Get LLDP System Properties](#)
- [Update LLDP System Properties](#)
- [Get LLDP Properties for All Interfaces](#)
- [Get LLDP Interface Properties](#)
- [Update LLDP Interface Properties](#)
- [Get LLDP Interface Statistics](#)
- [Get LLDP Interface Neighbor Information](#)
- [Get LLDP Neighbor Information for All Interfaces](#)

## Get LLDP System Properties

Gets global LLDP properties of the system.

### Request

Method Type	GET
Request URI	/nos/api/cfg/lldp
Request Body (JSON)	

### Response

Response Body (JSON)	{ "reinit delay": "<reinit delay>", "transit interval": "<transmit interval>", "transmit delay": "<transmit delay>" }
-------------------------	---

where:

Element	Description
reinit delay	The number of seconds until LLDP re-initialization is attempted on an interface; an integer from 1-10. Default value: 2 seconds.
transmit interval	The time interval, in seconds, between transmissions of LLDP messages; an integer from 5-32768. Default value: 30 seconds.
transmit delay	The number of seconds for transmission delay; an integer from 1-8192. Default value: 2 seconds.

## Update LLDP System Properties

Updates the global LLDP properties of the system.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/lldp
Request Body (JSON)	{ "reinit delay": "<reinit delay>", "transit interval": "<transmit interval>", "transmit delay": "<transmit delay>" }

where:

Element	Description
reinit delay	The number of seconds until LLDP re-initialization is attempted on an interface; an integer from 1-10. Default value: 2 seconds.
transmit interval	The time interval, in seconds, between transmissions of LLDP messages; an integer from 5-32768. Default value: 30 seconds.
transmit delay	The number of seconds for transmission delay; an integer from 1-8192. Default value: 2 seconds.

### Response

Response Body (JSON)	{ "reinit delay": "<reinit delay>", "transit interval": "<transmit interval>", "transmit delay": "<transmit delay>" }
-------------------------	---

## Get LLDP Properties for All Interfaces

Gets LLDP properties of all interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/lldp/lldp_interface
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "if_name": "&lt;if_name&gt;",     "ena_lldp_rx": "&lt;ena_lldp_rx&gt;",     "ena_lldp_tx": "&lt;ena_lldp_tx&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
if_name	Ethernet interface name (string). <b>Note:</b> The Ethernet interface must exist.
ena_lldp_rx	Enables or disables LLDP frame reception on a physical interface; one of <i>yes, no</i> . Default value: <i>yes</i> .
ena_lldp_tx	Enables or disable sLLDP frame transmission on a physical interface; one of <i>yes, no</i> . Default value: <i>yes</i> .



## Get LLDP Interface Properties

Gets LLDP properties of one interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/lldp/lldp_interface/<eth_if_name>
Request Body (JSON)	

### Response

Response Body (JSON)	{ "if_name": "<if_name>", "ena_lldp_rx": "<ena_lldp_rx>", "ena_lldp_tx": "<ena_lldp_tx>" }
-------------------------	--

where:

Element	Description
if_name	Ethernet interface name (string). <b>Note:</b> The Ethernet interface must exist.
ena_lldp_rx	Enables or disables LLDP frame reception on a physical interface; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
ena_lldp_tx	Enables or disable sLLDP frame transmission on a physical interface; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .

## Update LLDP Interface Properties

Updates the LLDP properties of one interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/lldp/lldp_interface/<eth_if_name>
Request Body (JSON)	{ "if_name": "<if_name>", "ena_lldp_rx": "<ena_lldp_rx>", "ena_lldp_tx": "<ena_lldp_tx>" }

where:

Element	Description
if_name	Ethernet interface name (string). <b>Note:</b> The Ethernet interface must exist.
ena_lldp_rx	Enables or disables LLDP frame reception on a physical interface; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
ena_lldp_tx	Enables or disable sLLDP frame transmission on a physical interface; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .

### Response

Response Body (JSON)	{ "if_name": "<if_name>", "ena_lldp_rx": "<ena_lldp_rx>", "ena_lldp_tx": "<ena_lldp_tx>" }
-------------------------	--

## Get LLDP Interface Statistics

Gets LLDP interface statistics per interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/lldp/lldp_interface/statistics/<eth_if_name>
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "total frames": "&lt;total_frames&gt;",   "total tlvs discarded": "&lt;total_tlvs_discarded&gt;",   "total frames transmitted": "&lt;total_frames_transmitted&gt;",   "total errored frames": "&lt;total_errored_frames&gt;",   "total frames discarded": "&lt;total_frames_discarded&gt;",   "total entries aged": "&lt;total_entries_aged&gt;",   "total tlvs unrecognized": "&lt;total_tlvs_unrecognized&gt;" }</pre>
-------------------------	---

where:

Element	Description
total frames	The total number of LLDP frames received.
total tlvs discarded	The total number of LLDP TLVs discarded.
total frames transmitted	The total number of LLDP frames transmitted.
total errored frames	The total number of frames received with errors.
total frames discarded	The total number of discarded frames.
total entries aged	The total number of entries aged out.
total tlvs unrecognized	The total number of unrecognized LLDP TLVs.

## Get LLDP Interface Neighbor Information

Gets LLDP interface neighbor information

### Request

Method Type	GET
Request URI	/nos/api/cfg/lldp/lldp_interface/neighbor/<eth_if_name>
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "capability": "&lt;capability&gt;",   "rx ttl": "&lt;rx ttl&gt;",   "system name": "&lt;system name&gt;",   "system description": "&lt;system description&gt;"   "system_mac": "&lt;system mac&gt;" }</pre>
-------------------------	--

where:

Element	Description
if_name	Ethernet interface name (string). <b>Note:</b> The Ethernet interface must exist.
capability	Remote switch capability; one of (B) – Bridge, (R) – Router.
rx ttl	The TTL.
system name	Remote system name.
system description	Remote system description.
system_mac	Unique system MAC.

## Get LLDP Neighbor Information for All Interfaces

Gets LLDP neighbor information for all interfaces

### Request

Method Type	GET
Request URI	/nos/api/cfg/lldp/lldp_interface/neighbor
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "if_name": "&lt;if_name&gt;",     "capability": "&lt;capability&gt;",     "rx ttl": "&lt;rx ttl&gt;",     "system name": "&lt;system name&gt;",     "system description": "&lt;system description&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
if_name	Ethernet interface name (string). <b>Note:</b> The Ethernet interface must exist.
capability	Remote switch capability; one of (B) – Bridge, (R) – Router.
rx ttl	The TTL.
system name	Remote system name.
system description	Remote system description.



---

## MSTP

The following MSTP URIs are available:

- /nos/api/cfg/mstp GET, PUT
- /nos/api/cfg/mstp\_instance GET, POST
- /nos/api/cfg/mstp\_instance/<instance\_number> GET, PUT, DELETE
- /nos/api/cfg/mstp\_interface/<instance\_number>/<if\_name> GET, PUT

The following MSTP commands are available:

- [Get MSTP System Properties](#)
- [Update MSTP System Properties](#)
- [Get Properties of All MSTP Instances](#)
- [Create MSTP Instance](#)
- [Get MSTP Instance](#)
- [Update MSTP Instance](#)
- [Delete MSTP Instance](#)
- [Get Interface Properties of an MSTP Instance](#)
- [Update Interface Properties of an MSTP Instance](#)

## Get MSTP System Properties

Updates global MSTP properties of the system.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/mstp
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "region_name": "<region_name>" "revision": "<revision>" }
-------------------------	--

where:

Element	Description
region_name	Region name; a string up to 32 characters long.
revision	Revision number; an integer from 0-65535.



## Update MSTP System Properties

Updates global MSTP properties of the system.

**Note:** If an element is not specified in a PUT request, no update for that element will be performed.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/mstp
Request Body (JSON)	{ "region_name": "<region_name>" "revision": "<revision>" }

where:

Element	Description
region_name	Region name; a string up to 32 characters long.
revision	Revision number; an integer from 0-65535.

### Response

Response Body (JSON)	{ "region_name": "<region_name>" "revision": "<revision>" }
-------------------------	--

## Get Properties of All MSTP Instances

Gets properties of all MSTP instances.

### Request

Method Type	GET
Request URI	/nos/api/cfg/mstp_instance
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "instance_id": "&lt;instance_id&gt;",     "instance_prio": "&lt;instance_prio&gt;",     "vlans": [       {         "vlan_id": "&lt;vlan_id&gt;"       }     ]   } ]</pre>
-------------------------	--

where:

Element	Description
instance_id	MST instance ID; an integer from 0-64. Instance 0 refers to the CIST.
instance_prio	Sets the instance bridge priority; an integer from 0-61440. Default value: 32768.
vlans	Maps a range of VLANs to a multiple spanning tree instance (MSTI); an integer from 1-4094.

## Create MSTP Instance

Creates an MSTP instance.

### Request

Method Type	POST
Request URI	/nos/api/cfg/mstp_instance
Request Body (JSON)	<pre>{   "instance_id": "&lt;instance_id&gt;",   "instance_prio": "&lt;instance_prio&gt;",   "vlans": [     {       "vlan_id": "&lt;vlan_id&gt;"     }   ] }</pre>

where:

Element	Description
instance_id	MST instance ID; an integer from 0-64. Instance 0 refers to the CIST.
instance_prio	Sets the instance bridge priority; an integer from 0-61440. Default value: 32768.
vlans	Maps a range of VLANs to a multiple spanning tree instance (MSTI); an integer from 1-4094.

### Response

Response Body (JSON)	<pre>{   "instance_id": "&lt;instance_id&gt;",   "instance_prio": "&lt;instance_prio&gt;",   "vlans": [     {       "vlan_id": "&lt;vlan_id&gt;"     }   ] }</pre>
-------------------------	--

## Get MSTP Instance

Gets properties of an MSTP instance.

### Request

Method Type	GET
Request URI	/nos/api/cfg/mstp_instance/<instance_id>
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "instance_id": "&lt;instance_id&gt;",   "instance_prio": "&lt;instance_prio&gt;",   "vlans": [     {       "vlan_id": "&lt;vlan_id&gt;"     }   ] }</pre>
-------------------------	--

## Update MSTP Instance

Updates the properties of an MSTP instance.

**Note:** If an element is not specified in a PUT request, no update for that element will be performed.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/mstp_instance/<instance_id>
Request Body (JSON)	<pre>{   "instance_id": "&lt;instance_id&gt;",   "instance_prio": "&lt;instance_prio&gt;",   "vlans": [     {       "vlan_id": "&lt;vlan_id&gt;"     }   ] }</pre>

where:

Element	Description
instance_id	MST instance ID; an integer from 0-64. Instance 0 refers to the CIST.
instance_prio	Sets the instance bridge priority; an integer from 0-61440. Default value: 32768.
vlans	Maps a range of VLANs to a multiple spanning tree instance (MSTI); an integer from 1-4094.

### Response

Response Body (JSON)	<pre>{   "instance_id": "&lt;instance_id&gt;",   "instance_prio": "&lt;instance_prio&gt;",   "vlans": [     {       "vlan_id": "&lt;vlan_id&gt;"     }   ] }</pre>
-------------------------	--

## Delete MSTP Instance

Deletes an MSTP instance.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/mstp_instance/<instance_id>
Request Body (JSON)	

where:

Element	Description
instance_id	MST instance ID; an integer from 0-64. Instance 0 refers to the CIST.

## Get Interface Properties of an MSTP Instance

Gets properties of one interface in an MSTP instance.

### Request

Method Type	GET
Request URI	/nos/api/cfg/mstp_interface/<instance_id>/<if_name>
Request Body (JSON)	

### Response

Response Body (JSON)	{ "if_name": "<if_name>", "path_cost": "<path_cost>", "port_prio": "<port_prio>" }
-------------------------	--

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
path_cost	The port path-cost value on the specified MST instance; either an integer from 1-200000000 or <i>auto</i> (default) to base the path-cost on port speed.
port_prio	The port priority, in increments of 32, on the specified MST instance; a multiple of 32 from 0-224. Default value: 128.

## Update Interface Properties of an MSTP Instance

Updates the properties of one interface in an MSTP instance.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/mstp_interface/{instance_id}/<if_name>
Request Body (JSON)	{ "if_name": "<if_name>", "path_cost": "<path_cost>", "port_prio": "<port_prio>" }

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
path_cost	The port path-cost value on the specified MST instance; either an integer from 1-200000000 or <i>auto</i> (default) to base the path-cost on port speed.
port_prio	The port priority, in increments of 32, on the specified MST instance; a multiple of 32 from 0-224. Default value: 128.

### Response

Response Body (JSON)	{ "if_name": "<if_name>", "path_cost": "<path_cost>", "port_prio": "<port_prio>" }
-------------------------	--



---

## Nexthophealth

The following nexthophealth URI is available:

- /nos/api/cfg/nhophealth POST

The following nextophealth command is available:

- [Nexthop Health Check](#)

## Nexthop Health Check

Enables or disables the nexthop health check feature by setting the health checking interval value.

### *Request*

Method Type Type	POST
Request URI	/nos/api/cfg/nhophealth
Request Body (JSON)	{ "healthcheck_interval": <5-60> }

where:

Element	Description
healthcheck_ interval	(Mandatory) The global nexthop health check interval, in seconds; an integer from 5-60. Default value: 0 (disabled).

### *Response*

True if the operation succeeded; otherwise False.

---

## NOS Copy

The following NOS copy URIs are available:

- /nos/api/saveneeded GET
- /nos/api/save/config GET
- /nos/api/reset GET
- /nos/api/download/image POST
- /nos/api/download/config POST
- /nos/api/upload/config POST
- /nos/api/upload/tech\_support POST
- /nos/api/download/status/<content> GET
- /nos/api/upload/status/<content> GET

The following NOS Copy commands are available:

- [Determine Whether the Running Configuration Needs to be Saved](#)
- [Reset Switch](#)
- [Save Configuration](#)
- [Download Image to Switch](#)
- [Download Configuration to Switch](#)
- [Upload Configuration to Server](#)
- [Upload Tech Support to Server](#)
- [Get Download Transfer Status](#)
- [Get Upload Transfer Status](#)

**Note:** The requests in this section are required for XClarity support.

## Determine Whether the Running Configuration Needs to be Saved

Gets whether the running configuration needs to be saved by checking if there is a difference between the configuration that is running versus what is in flash.

### *Request*

Method Type	GET
Request URI	/nos/api/saveneeded
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "saveneeded" : "<flag>" }
-------------------------	-----------------------------------

where:

Element	Description
saveneeded	Whether the running configuration matches what is in flash memory; one of <i>yes</i> , <i>no</i> .

## Reset Switch

Resets the switch.

### *Request*

Method Type	GET
Request URI	/nos/api/reset
Request Body (JSON)	

### *Response*

True if the operation succeeded; otherwise False.

## Save Configuration

Saves the running configuration to flash memory.

### *Request*

Method Type	GET
Request URI	/nos/api/save/config
Request Body (JSON)	

### *Response*

True if the operation succeeded; otherwise False.

## Download Image to Switch

Downloads a boot image to the switch.

### Request

Method Type	POST
Request URI	/nos/api/download/image
Request Body (JSON)	{ "protocol": "<protocol>", "serverip": "<serverip>", "srcfile": "<srcfile>", "imgtype": "<imgtype>", "username": "<username>", "passwd": "<passwd>", "vrf_name": "<vrf_name>" }

where:

Element	Description
protocol	Protocol name; one of <i>tftp</i> , <i>sftp</i> .
serverip	Server IP address.
srcfile	Source file; up to 256 characters long.
imgtype	System image type; one of <i>all</i> , <i>boot</i> , <i>onie</i> , <i>os</i> .
username	Username for the server. Not required for TFTP.
passwd	Password for the server username. Not required for TFTP.
vrf_name	(Optional) VRF name; an alphabetic string up to 64 characters long.

### Response

Response Body (JSON)	{ "status": "<status>", }
-------------------------	---------------------------------

where:

Element	Description
status	Transfer status; one of <i>transferring</i> , <i>installing</i> , <i>successful</i> , <i>failed</i> .

## Download Configuration to Switch

Downloads a configuration to the switch.

### Request

Method Type	POST
Request URI	/nos/api/download/config
Request Body (JSON)	<pre>{   "protocol": "&lt;protocol&gt;",   "serverip": "&lt;serverip&gt;",   "srcfile": "&lt;srcfile&gt;",   "dstfile": "&lt;dstfile&gt;",   "username": "&lt;username&gt;",   "passwd": "&lt;passwd&gt;",   "vrf_name": "&lt;vrf_name&gt;" }</pre>

where:

Element	Description
protocol	Protocol name; one of <i>tftp</i> , <i>sftp</i> .
serverip	Server IP address.
srcfile	Source file; up to 256 characters long.
dstfile	Destination file; one of <i>running_config</i> , <i>startup_config</i> .
username	(Optional) Username for the server.
passwd	(Optional) Password for the server username.
vrf_name	(Optional) VRF name; an alphabetic string up to 64 characters long.



## Response

Response Body (JSON)	{ "status": "<status>", "details": "<details>", "filename": "<filename>" }
-------------------------	--

where:

Element	Description
status	Transfer status; one of <i>transferring</i> , <i>installing</i> , <i>successful</i> , <i>failed</i> .
details	Detailed description of the status; one of: <ul style="list-style-type: none"><li>● <i>Transferring running-config</i></li><li>● <i>Transferring startup-config</i></li><li>● <i>Installing image</i></li><li>● <i>image installation succeeded</i></li><li>● <i>Copy success</i></li><li>● <i>VRF vrf_name doesn't exist</i></li><li>● <i>Another image installation is in progress</i></li><li>● <i>Host serverip is unreachable</i></li><li>● <i>ONIE feature is not enabled on this switch</i></li><li>● <i>File not found</i></li><li>● <i>SFTP authentication failure</i></li><li>● <i>image installation failed</i></li><li>● <i>Copy failed</i></li></ul>
filename	Configuration filename.

## Upload Configuration to Server

Uploads a configuration from the switch to a server.

### Request

Method Type	POST
Request URI	/nos/api/upload/config
Request Body (JSON)	<pre>{   "protocol": "&lt;protocol&gt;",   "serverip": "&lt;serverip&gt;",   "srcfile": "&lt;srcfile&gt;",   "dstfile": "&lt;dstfile&gt;",   "username": "&lt;username&gt;",   "passwd": "&lt;passwd&gt;",   "vrf_name": "&lt;vrf_name&gt;" }</pre>

where:

Element	Description
protocol	Protocol name; one of <i>tftp</i> , <i>sftp</i> .
serverip	Server IP address.
srcfile	Source file; up to 256 characters long.
dstfile	Destination file; one of <i>running_config</i> , <i>startup_config</i> .
username	(Optional) Username for the server.
passwd	(Optional) Password for the server username.
vrf_name	(Optional) VRF name; an alphabetic string up to 64 characters long.

## Response

Response Body (JSON)	<pre>{   "status": "&lt;status&gt;",   "details": "&lt;details&gt;",   "filename": "&lt;filename&gt;" }</pre>
----------------------	---

where:

Element	Description
status	Transfer status; one of <i>transferring</i> , <i>installing</i> , <i>successful</i> , <i>failed</i> .
details	Detailed description of the status; one of: <ul style="list-style-type: none"><li>• <i>Transferring running-config</i></li><li>• <i>Transferring startup-config</i></li><li>• <i>Installing image</i></li><li>• <i>image installation succeeded</i></li><li>• <i>Copy success</i></li><li>• <i>VRF vrf_name doesn't exist</i></li><li>• <i>Another image installation is in progress</i></li><li>• <i>Host serverip is unreachable</i></li><li>• <i>ONIE feature is not enabled on this switch</i></li><li>• <i>File not found</i></li><li>• <i>SFTP authentication failure</i></li><li>• <i>image installation failed</i></li><li>• <i>Copy failed</i></li></ul>
filename	Configuration filename.

## Upload Tech Support to Server

Uploads technical support information from the switch to the server.

### Request

Method Type	POST
Request URI	/nos/api/upload/tech_support
Request Body (JSON)	{ "protocol": "<protocol>", "serverip": "<serverip>", "dstfile": "<dstfile>", "username": "<username>", "passwd": "<passwd>", "vrf_name": "<vrf_name>" }

where:

Element	Description
protocol	Protocol name; one of <i>tftp</i> , <i>sftp</i> .
serverip	Server IP address.
dstfile	Destination file; one of <i>running_config</i> , <i>startup_config</i> .
username	(Optional) Username for the server.
passwd	(Optional) Password for the server username.
vrf_name	(Optional) VRF name; an alphabetic string up to 64 characters long.

### Response

Response Body (JSON)	{ "status": "<status>", }
-------------------------	---------------------------------

where:

Element	Description
status	Transfer status; one of <i>transferring</i> , <i>installing</i> , <i>successful</i> , <i>failed</i> .

## Get Download Transfer Status

Gets the status of a downloading transfer.

### Request

Method Type	GET
Request URI	/nos/api/download/status/<content>
Request Body (JSON)	

where:

Element	Description
<i>content</i>	One of <i>image</i> , <i>running_config</i> , <i>startup_config</i> .

### Response

Response Body (JSON)	<pre>{   "status": "&lt;status&gt;",   "details": "&lt;details&gt;",   "filename": "&lt;filename&gt;" }</pre>
-------------------------	---

where:

Element	Description
<i>status</i>	Transfer status; one of <i>transferring</i> , <i>installing</i> , <i>successful</i> , <i>failed</i> .
<i>details</i>	Detailed description of the status; one of: <ul style="list-style-type: none"><li>● <i>Transferring running-config</i></li><li>● <i>Transferring startup-config</i></li><li>● <i>Installing image</i></li><li>● <i>image installation succeeded</i></li><li>● <i>Copy success</i></li><li>● <i>VRF vrf_name doesn't exist</i></li><li>● <i>Another image installation is in progress</i></li><li>● <i>Host serverip is unreachable</i></li><li>● <i>ONIE feature is not enabled on this switch</i></li><li>● <i>File not found</i></li><li>● <i>SFTP authentication failure</i></li><li>● <i>image installation failed</i></li><li>● <i>Copy failed</i></li></ul>
<i>filename</i>	Name of file being downloaded; up to 256 characters long.

## Get Upload Transfer Status

Gets the status of an uploading transfer.

### Request

Method Type	GET
Request URI	/nos/api/upload/status/<content>
Request Body (JSON)	

where:

Element	Description
<i>content</i>	One of <i>image</i> , <i>running_config</i> , <i>startup_config</i> .

### Response

Response Body (JSON)	{ "status": "<status>", "details": "<details>", "filename": "<filename>" }
-------------------------	--

where:

Element	Description
<i>status</i>	Transfer status; one of <i>transferring</i> , <i>installing</i> , <i>successful</i> , <i>failed</i> .

Element	Description
details	Detailed description of the status; one of: <ul style="list-style-type: none"> <li>● <i>Transferring running-config</i></li> <li>● <i>Transferring startup-config</i></li> <li>● <i>Transferring tech-support</i></li> <li>● <i>Copy success</i></li> <li>● <i>VRF vrf_name doesn't exist</i></li> <li>● <i>Another image installation is in progress</i></li> <li>● <i>Host serverip is unreachable</i></li> <li>● <i>ONIE feature in not enabled on this switch</i></li> <li>● <i>File not found</i></li> <li>● <i>SFTP authentication failure</i></li> <li>● <i>Copy failed</i></li> </ul>
filename	Name of file being saved on the server; up to 256 characters long.





---

## NPA

The following Network Policy Agent (NPA) URIs are available:

- /nos/api/info/npa/vm/nutanix GET
- /nos/api/info/npa/vm/nutanix?uuid="*<uuid>*" GET
- /nos/api/info/npa/vm/nutanix?name="*<name>*" GET
- /nos/api/info/npa/vm/nutanix?if\_name="*<if\_name>*" GET
- /nos/api/info/npa/vnetwork/nutanix GET
- /nos/api/info/npa/vnetwork/nutanix?uuid="*<uuid>*" GET
- /nos/api/info/npa/stats/vnic/nutanix GET
- /nos/api/info/npa/stats/vnic/nutanix?uuid="*<vm\_uuid>*" GET
- /nos/api/info/npa/stats/vnic/nutanix?name="*<vm\_name>*" GET
- /nos/api/info/npa/stats/vnic/nutanix?if\_name="*<if\_name>*" GET
- /nos/api/info/npa/vm/vmware GET
- /nos/api/info/npa/vm/vmware?uuid="*<uuid>*" GET
- /nos/api/info/npa/vm/vmware?name="*<name>*" GET
- /nos/api/info/npa/vm/vmware?if\_name="*<if\_name>*" GET
- /nos/api/info/npa/vnetwork/vmware GET
- /nos/api/info/npa/vnetwork/vmware/dvswitch GET
- /nos/api/info/npa/stats/vnic/vmware GET
- /nos/api/info/npa/stats/vnic/vmware?uuid="*<vm\_uuid>*" GET
- /nos/api/info/npa/stats/vnic/vmware?name="*<vm\_name>*" GET
- /nos/api/info/npa/stats/vnic/vmware?if\_name="*<if\_name>*" GET

The following NPA commands are available (Nutanix):

- [Get VM Information](#)
- [Get VM Information by VM UUID](#)
- [Get VM Information by VM Name](#)
- [Get VM Interface Information](#)
- [Get VM Information for Specific Interface](#)
- [Get Virtual Network Information](#)
- [Get Virtual Network Information by UUID](#)
- [Get VNIC Statistics](#)
- [Get VNIC Statistics for Specific VM by VM UUID](#)
- [Get VNIC Statistics for Specific VM by VM Name](#)

- [Get VNIC Interface Statistics](#)
- [Get VNIC Statistics for Specific Interface](#)

The following NPA commands are available (VMware):

- [Get All VM Information](#)
- [Get Specific VM Information by VM UUID](#)
- [Get Specific VM Information by VM Name](#)
- [Get VM Interface Information](#)
- [Get VM Information for Specific Interface](#)
- [Get Virtual Network Information](#)
- [Get DVSwitch Information](#)
- [Get VNIC Statistics](#)
- [Get VNIC Statistics for Specific VM by VM UUID](#)
- [Get VNIC Statistics for Specific VM by VM Name](#)
- [Get VNIC Interface Statistics](#)
- [Get VNIC Statistics for Specific Interface](#)

## Get VM Information

Gets information about configured virtual machines (VMs).

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vm/nutanix
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     nic_list:       [         {           mac: &lt;value&gt;,           uuid: &lt;value&gt;         }       ]     uuid: &lt;value&gt;,     num_cores_per_vcpu: &lt;value&gt;,     hypervisor_type: &lt;value&gt;,     memory_size_mib: &lt;value&gt;,     num_vcpus: &lt;value&gt;,     power_state: {on off},     host_uuid: &lt;value&gt;,     name: &lt;value&gt;   } ]</pre>
----------------------	---

where:

Element	Description
nic_list	List of dictionary containing VNIC information.
mac	The MAC address of the VM. Valid value: MAC address in the following format: XX:XX:XX:XX:XX:XX.
uuid	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.
num_cores_per_vcpu	The number of cores for each virtual CPU (integer).
hypervisor_type	The type of hypervisor (string).
memory_size_mib	The size of the allocated memory in MBs (integer).
num_vcpus	The number of virtual CPUs (integer).

<b>Element</b>	<b>Description</b>
power_ state	The power state of the VM; one of <i>on</i> , <i>off</i> .
host_uuid	The Universal Unique Identifier (UUID) of the host; a string up to 36 characters long.
name	The name of the VM (string).

## Get VM Information by VM UUID

Gets information about a specific virtual machine (VM) by its Universal Unique Identifier (UUID).

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vm/nutanix?uuid=<uuid>
Request Body (JSON)	

where:

Element	Description
<i>uuid</i>	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.

### Response

Response Body (JSON)	<pre>[   {     nic_list:       [         {           mac: &lt;value&gt;,           uuid: &lt;value&gt;         }       ]     uuid: &lt;value&gt;,     num_cores_per_vcpu: &lt;value&gt;,     hypervisor_type: &lt;value&gt;,     memory_size_mib: &lt;value&gt;,     num_vcpus: &lt;value&gt;,     power_state: {on off},     host_uuid: &lt;value&gt;,     name: &lt;value&gt;   } ]</pre>
----------------------	---

where:

Element	Description
<i>nic_list</i>	List of dictionary containing VNIC information.
<i>mac</i>	The MAC address of the VM. Valid value: the MAC address in the following format: XX:XX:XX:XX:XX:XX.
<i>uuid</i>	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.

Element	Description
num_cores_per_vcpu	The number of cores for each virtual CPU (integer).
hypervisor_type	The type of hypervisor (string).
memory_size_mib	The size of the allocated memory in MBs (integer).
num_vcpus	The number of virtual CPUs (integer).
power_state	The power state of the VM; one of <i>on</i> , <i>off</i> .
host_uuid	The Universal Unique Identifier (UUID) of the host; a string up to 36 characters long.
name	The name of the VM (string).

## Get VM Information by VM Name

Gets information about a specific virtual machine (VM) by its name.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vm/nutanix?name=<name>
Request Body (JSON)	

where:

Element	Description
<i>name</i>	The name of the VM (string).

### Response

Response Body (JSON)	<pre>[   {     nic_list:       [         {           mac: &lt;value&gt;,           uuid: &lt;value&gt;         }       ]     uuid: &lt;value&gt;,     num_cores_per_vcpu: &lt;value&gt;,     hypervisor_type: &lt;value&gt;,     memory_size_mib: &lt;value&gt;,     num_vcpus: &lt;value&gt;,     power_state: {on off},     host_uuid: &lt;value&gt;,     name: &lt;value&gt;   } ]</pre>
----------------------	---

where:

Element	Description
<i>nic_list</i>	List of dictionary containing VNIC information.
<i>mac</i>	The MAC address of the VM. Valid value: the MAC address in the following format: XX:XX:XX:XX:XX:XX.
<i>uuid</i>	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.
<i>num_cores_per_vcpu</i>	The number of cores for each virtual CPU (integer).

Element	Description
hypervisor_type	The type of hypervisor (string).
memory_size_mib	The size of the allocated memory in MBs (integer).
num_vcpus	The number of virtual CPUs (integer).
power_state	The power state of the VM; one of <i>on</i> , <i>off</i> .
host_uuid	The Universal Unique Identifier (UUID) of the host; a string up to 36 characters long.
name	The name of the VM (string).



## Get VM Interface Information

Gets information about virtual machines (VMs) for all switch interfaces.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vm/nutanix?if_name= or /nos/api/info/npa/vm/nutanix?if_name=all
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   if_name: &lt;value&gt;   [     {       nic_list:         [           {             mac: &lt;value&gt;,             uuid: &lt;value&gt;           }         ]       uuid: &lt;value&gt;,       num_cores_per_vcpu: &lt;value&gt;,       hypervisor_type: &lt;value&gt;,       memory_size_mib: &lt;value&gt;,       num_vcpus: &lt;value&gt;,       power_state: {on off},       host_uuid: &lt;value&gt;,       name: &lt;value&gt;     }   ] }</pre>
----------------------	--

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
nic_list	List of dictionary containing VNIC information.
mac	The MAC address of the VM. Valid value: the MAC address in the following format: XX:XX:XX:XX:XX:XX.
uuid	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.
num_cores_per_vcpu	The number of cores for each virtual CPU (integer).

Element	Description
hypervisor_type	The type of hypervisor (string).
memory_size_mib	The size of the allocated memory in MBs (integer).
num_vcpus	The number of virtual CPUs (integer).
power_state	The power state of the VM; one of <i>on</i> , <i>off</i> .
host_uuid	The Universal Unique Identifier (UUID) of the host; a string up to 36 characters long.
name	The name of the VM (string).

## Get VM Information for Specific Interface

Gets information about virtual machines (VMs) for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vm/nutanix?if_name=<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example: <i>Ethernet1/12</i> .

### Response

Response Body (JSON)	<pre>{   if_name: &lt;value&gt;   [     {       nic_list:         [           {             mac: &lt;value&gt;,             uuid: &lt;value&gt;           }         ]       uuid: &lt;value&gt;,       num_cores_per_vcpu: &lt;value&gt;,       hypervisor_type: &lt;value&gt;,       memory_size_mib: &lt;value&gt;,       num_vcpus: &lt;value&gt;,       power_state: {on off},       host_uuid: &lt;value&gt;,       name: &lt;value&gt;     }   ] }</pre>
----------------------	--

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example: <i>Ethernet1/12</i> .
<i>nic_list</i>	List of dictionary containing VNIC information.
<i>mac</i>	The MAC address of the VM. Valid value: the MAC address in the following format: XX:XX:XX:XX:XX:XX.

Element	Description
uuid	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.
num_cores_per_vcpu	The number of cores for each virtual CPU (integer).
hypervisor_type	The type of hypervisor (string).
memory_size_mib	The size of the allocated memory in MBs (integer).
num_vcpus	The number of virtual CPUs (integer).
power_state	The power state of the VM; one of <i>on</i> , <i>off</i> .
host_uuid	The Universal Unique Identifier (UUID) of the host; a string up to 36 characters long.
name	The name of the VM (string).

## Get Virtual Network Information

Gets information about all virtual networks.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vnetwork/nutanix
Request Body (JSON)	

### Response

Response Body (JSON)	[ { uuid: <value>, default_gateway: <value>, network_address: <value>, prefix_length: <value>, vlan_id: <value>, name: <value> } ]
----------------------	---

where:

Element	Description
uuid	The Universal Unique Identifier (UUID) of the virtual network; a string up to 36 characters long.
default_gateway	The virtual network default gateway. Valid value: the IP address.
network_address	The virtual network IP address. Valid value: the IP address.
prefix_length	The virtual network prefix length; an integer from 0-32.
vlan_id	The VLAN ID for the virtual network; an integer from 0-3999.
name	The name of the virtual network (string).

## Get Virtual Network Information by UUID

Gets information about a specific virtual networks by its network Universal Unique Identifier (UUID).

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vnetwork/nutanix?uuid=<uuid>
Request Body (JSON)	

where:

Element	Description
<i>uuid</i>	The Universal Unique Identifier (UUID) of the virtual network; a string up to 36 characters long.

### Response

Response Body (JSON)	<pre>[   {     uuid: &lt;value&gt;,     default_gateway: &lt;value&gt;,     network_address: &lt;value&gt;,     prefix_length: &lt;value&gt;,     vlan_id: &lt;value&gt;,     name: &lt;value&gt;   } ]</pre>
----------------------	---

where:

Element	Description
<i>uuid</i>	The Universal Unique Identifier (UUID) of the virtual network; a string up to 36 characters long.
<i>default_gateway</i>	The virtual network default gateway. Valid value: the IP address.
<i>network_address</i>	The virtual network IP address.
<i>prefix_length</i>	The virtual network prefix length; an integer from 0-32.
<i>vlan_id</i>	The VLAN ID for the virtual network; an integer from 0-3999.
<i>name</i>	The name of the virtual network (string).

## Get vNIC Statistics

Gets all virtualized Network Interface Card (vNIC) statistics.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/stats/vnic/nutanix
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     vm_uuid: &lt;value&gt;,     vnic_uuid: &lt;value&gt;,     time_stamp: &lt;value&gt;,     bytes_rx: &lt;value&gt;,     bytes_tx: &lt;value&gt;,     pkts_rx: &lt;value&gt;,     pkts_tx: &lt;value&gt;,     mcast_pkts_rx: &lt;value&gt;,     mcast_pkts_tx: &lt;value&gt;,     bcast_pkts_rx: &lt;value&gt;,     bcast_pkts_tx: &lt;value&gt;,     dropped_pkts_rx: &lt;value&gt;,     dropped_pkts_tx: &lt;value&gt;,     error_pkts_rx: &lt;value&gt;,     error_pkts_tx: &lt;value&gt;,     rate_kbps_rx: &lt;value&gt;,     rate_kbps_tx: &lt;value&gt;,     unsupported_prot_pkts_rx: &lt;value&gt;,     rate_usage_kbps: &lt;value&gt;   } ]</pre>
----------------------	---

where:

Element	Description
vm_uuid	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.
vnic_uuid	The UUID of the vNIC; a string up to 36 characters long.
time_stamp	The time when the vNIC statistics were collected. Valid value: the <i>timestamp</i> in the following format: YYYY/MM/DD HH:MM:SS.
bytes_rx	The number of received bytes (integer).
bytes_tx	The number of transmitted bytes (integer).
pkts_rx	The number of received packets (integer).

Element	Description
pkts_tx	The number of transmitted packets (integer).
mcast_pkts_rx	The number of received multicast packets (integer).
mcast_pkts_tx	The number of transmitted multicast packets (integer).
bcast_pkts_rx	The number of received broadcast packets (integer).
bcast_pkts_tx	The number of transmitted broadcast packets (integer).
dropped_pkts_rx	The number of received dropped packets (integer).
dropped_pkts_tx	The number of transmitted dropped packets (integer).
error_pkts_rx	The number of received error packets (integer).
error_pkts_tx	The number of transmitted error packets (integer).
rate_kbps_rx	The rate of received data, in kbps (integer).
rate_kbps_tx	The rate of transmitted data, in kbps (integer).
unsupported_prot_pkts_rx	The number of received unsupported protocol packets (integer).
rate_usage_kbps	The usage rate, in kbps (integer).



## Get vNIC Statistics for Specific VM by VM UUID

Gets virtualized Network Interface Card (vNIC) statistics for a specific virtual machine (VM) by its Universal Unique Identifier (UUID).

### Request

Method Type	GET
Request URI	/nos/api/info/npa/stats/vnic/nutanix?uuid=<vm_uuid>
Request Body (JSON)	

where:

Element	Description
<i>vm_uuid</i>	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.

### Response

Response Body (JSON)	<pre>[   {     vm_uuid: &lt;value&gt;,     vnic_uuid: &lt;value&gt;,     time_stamp: &lt;value&gt;,     bytes_rx: &lt;value&gt;,     bytes_tx: &lt;value&gt;,     pkts_rx: &lt;value&gt;,     pkts_tx: &lt;value&gt;,     mcast_pkts_rx: &lt;value&gt;,     mcast_pkts_tx: &lt;value&gt;,     bcast_pkts_rx: &lt;value&gt;,     bcast_pkts_tx: &lt;value&gt;,     dropped_pkts_rx: &lt;value&gt;,     dropped_pkts_tx: &lt;value&gt;,     error_pkts_rx: &lt;value&gt;,     error_pkts_tx: &lt;value&gt;,     rate_kbps_rx: &lt;value&gt;,     rate_kbps_tx: &lt;value&gt;,     unsupported_prot_pkts_rx: &lt;value&gt;,     rate_usage_kbps: &lt;value&gt;   } ]</pre>
----------------------	---

where:

Element	Description
vm_uuid	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.
vnic_uuid	The UUID of the vNIC; a string up to 36 characters long.
time_stamp	The time when the vNIC statistics were collected. Valid value: the timestamp in the following format: <i>YYYY/MM/DD HH:MM:SS</i> .
bytes_rx	The number of received bytes (integer).
bytes_tx	The number of transmitted bytes (integer).
pkts_rx	The number of received packets (integer).
pkts_tx	The number of transmitted packets (integer).
mcast_pkts_rx	The number of received multicast packets (integer).
mcast_pkts_tx	The number of transmitted multicast packets (integer).
bcast_pkts_rx	The number of received broadcast packets (integer).
bcast_pkts_tx	The number of transmitted broadcast packets (integer).
dropped_pkts_rx	The number of received dropped packets (integer).
dropped_pkts_tx	The number of transmitted dropped packets (integer).
error_pkts_rx	The number of received error packets (integer).
error_pkts_tx	The number of transmitted error packets (integer).
rate_kbps_rx	The rate of received data, in kbps (integer).
rate_kbps_tx	The rate of transmitted data, in kbps (integer).
unsupported_prot_pkts_rx	The number of received unsupported protocol packets (integer).
rate_usage_kbps	The usage rate, in kbps (integer).

## Get vNIC Statistics for Specific VM by VM Name

Gets virtualized Network Interface Card (vNIC) statistics for a specific virtual machine (VM) by its name.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/stats/vnic/nutanix?name=<vm_name>
Request Body (JSON)	

where:

Element	Description
name	The name of the VM (string).

### Response

Response Body (JSON)	<pre>[   {     vm_uuid: &lt;value&gt;,     vnic_uuid: &lt;value&gt;,     time_stamp: &lt;value&gt;,     bytes_rx: &lt;value&gt;,     bytes_tx: &lt;value&gt;,     pkts_rx: &lt;value&gt;,     pkts_tx: &lt;value&gt;,     mcast_pkts_rx: &lt;value&gt;,     mcast_pkts_tx: &lt;value&gt;,     bcast_pkts_rx: &lt;value&gt;,     bcast_pkts_tx: &lt;value&gt;,     dropped_pkts_rx: &lt;value&gt;,     dropped_pkts_tx: &lt;value&gt;,     error_pkts_rx: &lt;value&gt;,     error_pkts_tx: &lt;value&gt;,     rate_kbps_rx: &lt;value&gt;,     rate_kbps_tx: &lt;value&gt;,     unsupported_prot_pkts_rx: &lt;value&gt;,     rate_usage_kbps: &lt;value&gt;   } ]</pre>
----------------------	---

where:

Element	Description
vm_uuid	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.
vnic_uuid	The UUID of the vNIC; a string up to 36 characters long.
time_stamp	The time when the vNIC statistics were collected. Valid value: the <i>timestamp</i> in the following format: YYYY/MM/DD HH:MM:SS.
bytes_rx	The number of received bytes (integer).
bytes_tx	The number of transmitted bytes (integer).
pkts_rx	The number of received packets (integer).
pkts_tx	The number of transmitted packets (integer).
mcast_pkts_rx	The number of received multicast packets (integer).
mcast_pkts_tx	The number of transmitted multicast packets (integer).
bcast_pkts_rx	The number of received broadcast packets (integer).
bcast_pkts_tx	The number of transmitted broadcast packets (integer).
dropped_pkts_rx	The number of received dropped packets (integer).
dropped_pkts_tx	The number of transmitted dropped packets (integer).
error_pkts_rx	The number of received error packets (integer).
error_pkts_tx	The number of transmitted error packets (integer).
rate_kbps_rx	The rate of received data, in kbps (integer).
rate_kbps_tx	The rate of transmitted data, in kbps (integer).
unsupported_prot_pkts_rx	The number of received unsupported protocol packets (integer).
rate_usage_kbps	The usage rate, in kbps (integer).

## Get vNIC Interface Statistics

Gets virtualized Network Interface Card (vNIC) statistics for all switch interfaces.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/stats/vnic/nutanix?if_name= or /nos/api/info/npa/stats/vnic/nutanix?if_name=all
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   if_name: &lt;value&gt;,   [     {       vm_uuid: &lt;value&gt;,       vnic_uuid: &lt;value&gt;,       time_stamp: &lt;value&gt;,       bytes_rx: &lt;value&gt;,       bytes_tx: &lt;value&gt;,       pkts_rx: &lt;value&gt;,       pkts_tx: &lt;value&gt;,       mcast_pkts_rx: &lt;value&gt;,       mcast_pkts_tx: &lt;value&gt;,       bcast_pkts_rx: &lt;value&gt;,       bcast_pkts_tx: &lt;value&gt;,       dropped_pkts_rx: &lt;value&gt;,       dropped_pkts_tx: &lt;value&gt;,       error_pkts_rx: &lt;value&gt;,       error_pkts_tx: &lt;value&gt;,       rate_kbps_rx: &lt;value&gt;,       rate_kbps_tx: &lt;value&gt;,       unsupported_prot_pkts_rx: &lt;value&gt;,       rate_usage_kbps: &lt;value&gt;     }   ] }</pre>
----------------------	---

where:

Element	Description
if_name	The name of the switch interface. For example <i>Ethernet1/12</i> .
vm_uuid	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.
vnic_uuid	The UUID of the vNIC; a string up to 36 characters long.
time_stamp	The time when the vNIC statistics were collected. Valid value: the <i>timestamp</i> in the following format: <i>YYYY/MM/DD HH:MM:SS</i> .
bytes_rx	The number of received bytes (integer).
bytes_tx	The number of transmitted bytes (integer).
pkts_rx	The number of received packets (integer).
pkts_tx	The number of transmitted packets (integer).
mcast_pkts_rx	The number of received multicast packets (integer).
mcast_pkts_tx	The number of transmitted multicast packets (integer).
bcast_pkts_rx	The number of received broadcast packets (integer).
bcast_pkts_tx	The number of transmitted broadcast packets (integer).
dropped_pkts_rx	The number of received dropped packets (integer).
dropped_pkts_tx	The number of transmitted dropped packets (integer).
error_pkts_rx	The number of received error packets (integer).
error_pkts_tx	The number of transmitted error packets (integer).
rate_kbps_rx	The rate of received data, in kbps (integer).
rate_kbps_tx	The rate of transmitted data, in kbps (integer).
unsupported_prot_pkts_rx	The number of received unsupported protocol packets (integer).
rate_usage_kbps	The usage rate, in kbps (integer).

## Get vNIC Statistics for Specific Interface

Gets virtualized Network Interface Card (vNIC) statistics for a specific switch interfaces.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/stats/vnic/nutanix?if_name=<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example: <i>Ethernet1/12</i> .

### Response

Response Body (JSON)	<pre>{   if_name: &lt;value&gt;,   [     {       vm_uuid: &lt;value&gt;,       vnic_uuid: &lt;value&gt;,       time_stamp: &lt;value&gt;,       bytes_rx: &lt;value&gt;,       bytes_tx: &lt;value&gt;,       pkts_rx: &lt;value&gt;,       pkts_tx: &lt;value&gt;,       mcast_pkts_rx: &lt;value&gt;,       mcast_pkts_tx: &lt;value&gt;,       bcast_pkts_rx: &lt;value&gt;,       bcast_pkts_tx: &lt;value&gt;,       dropped_pkts_rx: &lt;value&gt;,       dropped_pkts_tx: &lt;value&gt;,       error_pkts_rx: &lt;value&gt;,       error_pkts_tx: &lt;value&gt;,       rate_kbps_rx: &lt;value&gt;,       rate_kbps_tx: &lt;value&gt;,       unsupported_prot_pkts_rx: &lt;value&gt;,       rate_usage_kbps: &lt;value&gt;     }   ] }</pre>
----------------------	---

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
vm_uuid	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.
vnic_uuid	The UUID of the vNIC; a string up to 36 characters long.
time_stamp	The time when the vNIC statistics were collected. Valid value: the <i>timestamp</i> in the following format: <i>YYYY/MM/DD HH:MM:SS</i> .
bytes_rx	The number of received bytes (integer).
bytes_tx	The number of transmitted bytes (integer).
pkts_rx	The number of received packets (integer).
pkts_tx	The number of transmitted packets (integer).
mcast_pkts_rx	The number of received multicast packets (integer).
mcast_pkts_tx	The number of transmitted multicast packets (integer).
bcast_pkts_rx	The number of received broadcast packets (integer).
bcast_pkts_tx	The number of transmitted broadcast packets (integer).
dropped_pkts_rx	The number of received dropped packets (integer).
dropped_pkts_tx	The number of transmitted dropped packets (integer).
error_pkts_rx	The number of received error packets (integer).
error_pkts_tx	The number of transmitted error packets (integer).
rate_kbps_rx	The rate of received data, in kbps (integer).
rate_kbps_tx	The rate of transmitted data, in kbps (integer).
unsupported_prot_pkts_rx	The number of received unsupported protocol packets (integer).
rate_usage_kbps	The usage rate, in kbps (integer).



## Get All VM Information

Gets information about configured virtual machines (VMs).

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vm/vmware
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[{   nic_list: [{     connected_state: {connected disconnected},     nic_type: &lt;value&gt;,     mac: &lt;value&gt;,     network_name: &lt;value&gt;   }],   uuid: &lt;value&gt;,   num_cores_per_vcpu: &lt;value&gt;,   memory_size_mb: &lt;value&gt;,   num_vcpus: &lt;value&gt;,   power_state: &lt;poweredOff poweredOn&gt;,   host_uuid: &lt;value&gt;,   name: &lt;value&gt; }]</pre>
----------------------	---

where:

Element	Description
nic_list	List of dictionary containing VNIC information.
connected_state	Whether the VNIC is connected or disconnected (string).
nic_type	The type of VMware VNIC (string).
mac	The MAC address of the VM. Valid value: the MAC address in the following format: XX:XX:XX:XX:XX:XX.
network_name	The name of the network (string).
uuid	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.
num_cores_per_vcpu	The number of cores for each virtual CPU (integer).
memory-size	The size of the allocated memory in MBs (integer).
num_vcpus	The number of virtual CPUs, an integer.
power_state	The power state of the VM; one of <i>poweredOff</i> , <i>poweredOn</i> .

Element	Description
host_uuid	The Universal Unique Identifier (UUID) of the host; a string up to 36 characters long.
name	The name of the VM (string).

## Get Specific VM Information by VM UUID

Gets information about a specific virtual machine (VM) by its Universal Unique Identifier (UUID).

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vm/vmware?uuid=<uuid>
Request Body (JSON)	

where:

Element	Description
<i>vm_uuid</i>	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.

### Response

Response Body (JSON)	<pre>[{   nic_list: [{     connected_state: {connected disconnected},     nic_type: &lt;value&gt;,     mac: &lt;value&gt;,     network_name: &lt;value&gt;   }],   uuid: &lt;value&gt;,   num_cores_per_vcpu: &lt;value&gt;,   memory_size_mb: &lt;value&gt;,   num_vcpus: &lt;value&gt;,   power_state: &lt;poweredOff poweredOn&gt;,   host_uuid: &lt;value&gt;,   name: &lt;value&gt; }]</pre>
----------------------	---

where:

Element	Description
<i>nic_list</i>	List of dictionary containing VNIC information.
<i>connected_state</i>	Whether the VNIC is connected or disconnected (string).
<i>nic_type</i>	The type of VMware VNIC (string).
<i>mac</i>	The MAC address of the VM. Valid value: the MAC address in the following format: XX:XX:XX:XX:XX:XX.
<i>network_name</i>	The name of the network (string).
<i>uuid</i>	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.

Element	Description
num_cores_per_vcpu	The number of cores for each virtual CPU (integer).
memory-size	The size of the allocated memory in MBs (integer).
num_vcpus	The number of virtual CPUs, an integer.
power_state	The power state of the VM; one of <i>poweredOff</i> , <i>poweredOn</i> .
host_uuid	The Universal Unique Identifier (UUID) of the host; a string up to 36 characters long.
name	The name of the VM (string).

## Get Specific VM Information by VM Name

Gets information about a specific virtual machine (VM) by its name.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vm/vmware?name=<name>
Request Body (JSON)	

where:

Element	Description
<i>vm_name</i>	The name of the VM; a string.

### Response

Response Body (JSON)	<pre>[{   nic_list: [{     connected_state: {connected disconnected},     nic_type: &lt;value&gt;,     mac: &lt;value&gt;,     network_name: &lt;value&gt;   }],   uuid: &lt;value&gt;,   num_cores_per_vcpu: &lt;value&gt;,   memory_size_mb: &lt;value&gt;,   num_vcpus: &lt;value&gt;,   power_state: &lt;poweredOff poweredOn&gt;,   host_uuid: &lt;value&gt;,   name: &lt;value&gt; }]</pre>
----------------------	---

where:

Element	Description
<i>nic_list</i>	List of dictionary containing VNIC information.
<i>connected_state</i>	Whether the VNIC is connected or disconnected (string).
<i>nic_type</i>	The type of VMware VNIC (string).
<i>mac</i>	The MAC address of the VM. Valid value: the MAC address in the following format: XX:XX:XX:XX:XX:XX.
<i>network_name</i>	The name of the network (string).
<i>uuid</i>	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.

Element	Description
num_cores_per_vcpu	The number of cores for each virtual CPU (integer).
memory_size_mib	The size of the allocated memory in MBs (integer).
num_vcpus	The number of virtual CPUs (integer).
power_state	The power state of the VM; one of <i>poweredOff</i> , <i>poweredOn</i> .
host_uuid	The Universal Unique Identifier (UUID) of the host; a string up to 36 characters long.
name	The name of the VM (string).

## Get VM Interface Information

Gets information about virtual machines (VMs) for all switch interfaces.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vm/vmware?if_name= or /nos/api/info/npa/vm/vmware?if_name=all
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   if_name: [{     nic_list: [{       connected_state: &lt;connected disconnect&gt;,       nic_type: &lt;value&gt;,       mac: &lt;value&gt;,       network_name: &lt;value&gt;     }],     uuid: &lt;value&gt;,     num_cores_per_vcpu: &lt;value&gt;,     memory_size_mb: &lt;value&gt;,     num_vcpus: &lt;value&gt;,     power_state: &lt;poweredOn poweredOff&gt;,     host_uuid: &lt;value&gt;,     name: &lt;value&gt;   }] }</pre>
----------------------	--

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
nic_list	List of dictionary containing VNIC information.
connected_state	Whether the VNIC is connected or disconnected (string).
nic_type	The type of VMware VNIC (string).
mac	The MAC address of the VM. Valid value: the MAC address in the following format: <i>XX:XX:XX:XX:XX:XX</i> .
network_name	The name of the network (string).
uuid	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.
num_cores_per_vcpu	The number of cores for each virtual CPU (integer).

Element	Description
memory_size_mib	The size of the allocated memory in MBs (integer).
num_vcpus	The number of virtual CPUs (integer).
power_state	The power state of the VM; one of <i>poweredOff</i> , <i>poweredOn</i> .
host_uuid	The Universal Unique Identifier (UUID) of the host; a string up to 36 characters long.
name	The name of the VM (string).



## Get VM Information for Specific Interface

Gets information about virtual machines (VMs) for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vm/vmware?if_name=<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example: <i>Ethernet1/12</i> .

### Response

Response Body (JSON)	<pre>{   if_name: [{     nic_list: [{       connected_state: &lt;connected disconnect&gt;,       nic_type: &lt;value&gt;,       mac: &lt;value&gt;,       network_name: &lt;value&gt;     }],     uuid: &lt;value&gt;,     num_cores_per_vcpu: &lt;value&gt;,     memory_size_mb: &lt;value&gt;,     num_vcpus: &lt;value&gt;,     power_state: &lt;poweredOn poweredOff&gt;,     host_uuid: &lt;value&gt;,     name: &lt;value&gt;   }] }</pre>
----------------------	--

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example: <i>Ethernet1/12</i> .
<i>nic_list</i>	List of dictionary containing VNIC information.
<i>connected_state</i>	Whether the VNIC is connected or disconnected (string).
<i>nic_type</i>	The type of VMware VNIC (string).
<i>mac</i>	The MAC address of the VM. Valid value: the MAC address in the following format: XX:XX:XX:XX:XX:XX.
<i>network_name</i>	The name of the network (string).

Element	Description
uuid	The Universal Unique Identifier (UUID) of the VM; a string up to 36 characters long.
num_cores_per_vcpu	The number of cores for each virtual CPU (integer).
memory_size_mib	The size of the allocated memory in MBs (integer).
num_vcpus	The number of virtual CPUs (integer).
power_state	The power state of the VM; one of <i>poweredOff</i> , <i>poweredOn</i> .
host_uuid	The Universal Unique Identifier (UUID) of the host; a string up to 36 characters long.
name	The name of the VM (string).

## Get Virtual Network Information

Gets information about all virtual networks.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vnetwork/vmware
Request Body (JSON)	

### Response

Response Body (JSON)	[ { vswitch_name: <value>, uuid: <value>, vlan_id: <value>, name: <value> } ]
----------------------	--

where:

Element	Description
vswitch_name	The name of the Vswitch (string).
uuid	The Universal Unique Identifier (UUID) of the host; a string up to 36 characters long.
vlan_id	The VLAN ID for the virtual network; an integer from 0-3999.
name	The name of the virtual network (string).

## Get DVSwitch Information

Gets the distributed virtual switch information.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/vnetwork/vmware/dvswitch
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[{   "name": &lt;value&gt;,   "vlans": &lt;value&gt;,   "vlan_mode": &lt;value&gt;,   "vlan_id": &lt;value&gt;,   "dvswitch_name": &lt;value&gt; }, {   "name": &lt;value&gt;,   "vlans": &lt;value&gt;,   "vlan_mode": &lt;value&gt;,   "vlan_id": 0,   "dvswitch_name": &lt;value&gt; }]</pre>
----------------------	---

where:

Element	Description
name	The name of the virtual network (string).
vlans	The VLANs that the switch port is a member of; one of all, none, 1 - 3999.
vlan_mode	The VLAN mode.
vlan_id	The VLAN ID for the virtual network; an integer from 0-3999.
dvswitch_name	The name of the DVswitch (string).

## Get vNIC Statistics

Gets all virtualized Network Interface Card (vNIC) statistics.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/stats/vnic/vmware
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[{   pkts_tx: &lt;value&gt;,   bcast_pkts_rx: &lt;value&gt;,   dropped_pkts_tx: &lt;value&gt;,   bcast_pkts_tx: &lt;value&gt;,   pkts_rx: &lt;value&gt;,   bytes_rx: &lt;value&gt;,   rate_usage_kbps: &lt;value&gt;,   mcast_pkts_tx: &lt;value&gt;,   rate_kbps_tx: &lt;value&gt;,   rate_kbps_rx: &lt;value&gt;,   vm_uuid: &lt;value&gt;,   dropped_pkts_rx: &lt;value&gt;,   bytes_tx: &lt;value&gt;,   time_stamp: &lt;value&gt;,   vnic_mac: &lt;value&gt;,   mcast_pkts_rx: &lt;value&gt; }]</pre>
----------------------	---

where:

Element	Description
vm_uuid	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.
vnic_mac	The vNIC MAC address in the following format: XX:XX:XX:XX:XX:XX.
time_stamp	The time when the vNIC statistics were collected in the following format: YYYY/MM/DD HH:MM:SS.
bytes_rx	The number of received bytes (integer).
bytes_tx	The number of transmitted bytes (integer).
pkts_rx	The number of received packets (integer).
pkts_tx	The number of transmitted packets (integer).
mcast_pkts_rx	The number of received multicast packets (integer).

<b>Element</b>	<b>Description</b>
mcast_pkts_tx	The number of transmitted multicast packets (integer).
bcast_pkts_rx	The number of received broadcast packets (integer).
bcast_pkts_tx	The number of transmitted broadcast packets (integer).
dropped_pkts_rx	The number of received dropped packets (integer).
dropped_pkts_tx	The number of transmitted dropped packets (integer).
rate_kbps_rx	The rate of received data, in kbps (integer).
rate_kbps_tx	The rate of transmitted data, in kbps (integer).
rate_usage_kbps	The usage rate, in kbps (integer).

## Get vNIC Statistics for Specific VM by VM UUID

Gets virtualized Network Interface Card (vNIC) statistics for a specific virtual machine (VM) by its Universal Unique Identifier (UUID).

### Request

Method Type	GET
Request URI	/nos/api/info/npa/stats/vnic/vmware?uuid=<vm_uuid>
Request Body (JSON)	

where:

Element	Description
<i>vm_uuid</i>	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.

### Response

Response Body (JSON)	<pre>[{   pkts_tx: &lt;value&gt;,   bcast_pkts_rx: &lt;value&gt;,   dropped_pkts_tx: &lt;value&gt;,   bcast_pkts_tx: &lt;value&gt;,   pkts_rx: &lt;value&gt;,   bytes_rx: &lt;value&gt;,   rate_usage_kbps: &lt;value&gt;,   mcast_pkts_tx: &lt;value&gt;,   rate_kbps_tx: &lt;value&gt;,   rate_kbps_rx: &lt;value&gt;,   vm_uuid: &lt;value&gt;,   dropped_pkts_rx: &lt;value&gt;,   bytes_tx: &lt;value&gt;,   time_stamp: &lt;value&gt;,   vnic_mac: &lt;value&gt;,   mcast_pkts_rx: &lt;value&gt; }]</pre>
----------------------	---

where:

Element	Description
vm_uuid	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.
vnic_mac	The vNIC MAC address in the following format: <code>xx:xx:xx:xx:xx:xx</code> .
time_stamp	The time when the vNIC statistics were collected. Valid value: the <i>timestamp</i> in the following format: <code>YYYY/MM/DD HH:MM:SS</code> .
bytes_rx	The number of received bytes (integer).
bytes_tx	The number of transmitted bytes (integer).
pkts_rx	The number of received packets (integer).
pkts_tx	The number of transmitted packets (integer).
mcast_pkts_rx	The number of received multicast packets (integer).
mcast_pkts_tx	The number of transmitted multicast packets (integer).
bcast_pkts_rx	The number of received broadcast packets (integer).
bcast_pkts_tx	The number of transmitted broadcast packets (integer).
dropped_pkts_rx	The number of received dropped packets (integer).
dropped_pkts_tx	The number of transmitted dropped packets (integer).
rate_kbps_rx	The rate of received data, in kbps (integer).
rate_kbps_tx	The rate of transmitted data, in kbps (integer).
rate_usage_kbps	The usage rate, in kbps (integer).



## Get vNIC Statistics for Specific VM by VM Name

Gets virtualized Network Interface Card (vNIC) statistics for a specific virtual machine (VM) by its name.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/stats/vnic/vmware?name=<vm_name>
Request Body (JSON)	

where:

Element	Description
<i>vm_name</i>	The name of the VM (string).

### Response

Response Body (JSON)	<pre>[{   pkts_tx: &lt;value&gt;,   bcast_pkts_rx: &lt;value&gt;,   dropped_pkts_tx: &lt;value&gt;,   bcast_pkts_tx: &lt;value&gt;,   pkts_rx: &lt;value&gt;,   bytes_rx: &lt;value&gt;,   rate_usage_kbps: &lt;value&gt;,   mcast_pkts_tx: &lt;value&gt;,   rate_kbps_tx: &lt;value&gt;,   rate_kbps_rx: &lt;value&gt;,   vm_uuid: &lt;value&gt;,   dropped_pkts_rx: &lt;value&gt;,   bytes_tx: &lt;value&gt;,   time_stamp: &lt;value&gt;,   vnic_mac: &lt;value&gt;,   mcast_pkts_rx: &lt;value&gt; }]</pre>
----------------------	---

where:

Element	Description
vm_uuid	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.
vnic_mac	The vNIC MAC address in the following format: <code>xx:xx:xx:xx:xx:xx</code> .
time_stamp	The time when the vNIC statistics were collected. Valid value: the <i>timestamp</i> in the following format: <code>YYYY/MM/DD HH:MM:SS</code> .
bytes_rx	The number of received bytes (integer).
bytes_tx	The number of transmitted bytes (integer).
pkts_rx	The number of received packets (integer).
pkts_tx	The number of transmitted packets (integer).
mcast_pkts_rx	The number of received multicast packets (integer).
mcast_pkts_tx	The number of transmitted multicast packets (integer).
bcast_pkts_rx	The number of received broadcast packets (integer).
bcast_pkts_tx	The number of transmitted broadcast packets (integer).
dropped_pkts_rx	The number of received dropped packets (integer).
dropped_pkts_tx	The number of transmitted dropped packets (integer).
rate_kbps_rx	The rate of received data, in kbps (integer).
rate_kbps_tx	The rate of transmitted data, in kbps (integer).
rate_usage_kbps	The usage rate, in kbps (integer).

## Get vNIC Interface Statistics

Gets virtualized Network Interface Card (vNIC) statistics for all switch interfaces.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/stats/vnic/vmware?if_name= or /nos/api/info/npa/stats/vnic/vmware?if_name=all
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>if_name :[{   pkts_tx: &lt;value&gt;,   bcast_pkts_rx: &lt;value&gt;,   dropped_pkts_tx: &lt;value&gt;,   bcast_pkts_tx: &lt;value&gt;,   pkts_rx: &lt;value&gt;,   bytes_rx: &lt;value&gt;,   rate_usage_kbps: &lt;value&gt;,   mcast_pkts_tx: &lt;value&gt;,   rate_kbps_tx: &lt;value&gt;,   rate_kbps_rx: &lt;value&gt;,   vm_uuid: &lt;value&gt;,   dropped_pkts_rx: &lt;value&gt;,   bytes_tx: &lt;value&gt;,   time_stamp: &lt;value&gt;,   vnic_mac: &lt;value&gt;,   mcast_pkts_rx: &lt;value&gt; }]</pre>
----------------------	--

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
vm_uuid	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.
vnic_mac	The vNIC MAC address in the following format: xx:xx:xx:xx:xx:xx.
time_stamp	The time when the vNIC statistics were collected. Valid value: the <i>timestamp</i> in the following format: YYYY/MM/DD HH:MM:SS.
bytes_rx	The number of received bytes (integer).
bytes_tx	The number of transmitted bytes (integer).
pkts_rx	The number of received packets (integer).
pkts_tx	The number of transmitted packets (integer).
mcast_pkts_rx	The number of received multicast packets (integer).
mcast_pkts_tx	The number of transmitted multicast packets (integer).
bcast_pkts_rx	The number of received broadcast packets (integer).
bcast_pkts_tx	The number of transmitted broadcast packets (integer).
dropped_pkts_rx	The number of received dropped packets (integer).
dropped_pkts_tx	The number of transmitted dropped packets (integer).
rate_kbps_rx	The rate of received data, in kbps (integer).
rate_kbps_tx	The rate of transmitted data, in kbps (integer).
rate_usage_kbps	The usage rate, in kbps (integer).

## Get vNIC Statistics for Specific Interface

Gets virtualized Network Interface Card (vNIC) statistics for a specific switch interfaces.

### Request

Method Type	GET
Request URI	/nos/api/info/npa/stats/vnic/vmware?if_name=<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example: <i>Ethernet1/12</i> .

### Response

Response Body (JSON)	<pre>if_name :[{   pkts_tx: &lt;value&gt;,   bcast_pkts_rx: &lt;value&gt;,   dropped_pkts_tx: &lt;value&gt;,   bcast_pkts_tx: &lt;value&gt;,   pkts_rx: &lt;value&gt;,   bytes_rx: &lt;value&gt;,   rate_usage_kbps: &lt;value&gt;,   mcast_pkts_tx: &lt;value&gt;,   rate_kbps_tx: &lt;value&gt;,   rate_kbps_rx: &lt;value&gt;,   vm_uuid: &lt;value&gt;,   dropped_pkts_rx: &lt;value&gt;,   bytes_tx: &lt;value&gt;,   time_stamp: &lt;value&gt;,   vnic_mac: &lt;value&gt;,   mcast_pkts_rx: &lt;value&gt; }]</pre>
----------------------	--

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
vm_uuid	The Universal Unique Identifier (UUID) of the virtual machine (VM); a string up to 36 characters long.
vnic_mac	The vNIC MAC address in the following format: xx:xx:xx:xx:xx:xx.
time_stamp	The time when the vNIC statistics were collected. Valid value: the <i>timestamp</i> in the following format: YYYY/MM/DD HH:MM:SS.
bytes_rx	The number of received bytes (integer).
bytes_tx	The number of transmitted bytes (integer).
pkts_rx	The number of received packets (integer).
pkts_tx	The number of transmitted packets (integer).
mcast_pkts_rx	The number of received multicast packets (integer).
mcast_pkts_tx	The number of transmitted multicast packets (integer).
bcast_pkts_rx	The number of received broadcast packets (integer).
bcast_pkts_tx	The number of transmitted broadcast packets (integer).
dropped_pkts_rx	The number of received dropped packets (integer).
dropped_pkts_tx	The number of transmitted dropped packets (integer).
rate_kbps_rx	The rate of received data, in kbps (integer).
rate_kbps_tx	The rate of transmitted data, in kbps (integer).
rate_usage_kbps	The usage rate, in kbps (integer).

---

## NTP

The following NTP URIs are available:

- [/nos/api/cfg/ntp/peers](#) GET, POST, DELETE
- [/nos/api/cfg/ntp/authentication-keys](#) GET, POST, DELETE

The following NTP commands are available:

- [Get NTP Properties](#)
- [Update NTP Servers and Peers](#)
- [Delete NTP Servers and Peers](#)
- [Get NTP Authentication Keys](#)
- [Set NTP Authentication Keys](#)
- [Delete NTP Authentication Keys](#)

## Get NTP Properties

Gets the configured NTP servers and peers.

**Note:** This is required for XClarity support.

### Request

Method Type	GET
Request URI	/nos/api/cfg/ntp/peers
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "maxpoll": 6,   "name": "1.33.2.2",   "server_type": "static",   "minpoll": 4,   "prefer": "no",   "type": "peer" }</pre>
-------------------------	--

where:

Element	Description
maxpoll	Maximum poll value (integer).
name	IP address of peer/server.
server_ type	Static or dynamic (server or peer).
minpoll	Minimum poll value (integer).
prefer	One of: <i>Yes, No</i> .
type	Configured server or peer.



## Update NTP Servers and Peers

Updates the configured NTP servers and peers.

**Note:** This is required for XClarity support.

### Request

Method Type	POST
Request URI	/nos/api/cfg/ntp/peers
Request Body (JSON)	<pre>{   "maxpoll": 15,   "minpoll": 4,   "type": "server",   "prefer": "no",   "name": "1.1.1.1" }</pre>

where:

Element	Description
maxpoll	(Optional) Maximum poll value (integer).
minpoll	(Optional) Minimum poll value (integer).
type	Configured server or peer.
prefer	(Optional) One of: <i>Yes, No</i> .
name	IP address of peer/server.

### Response

Response Body (JSON)	<pre>[   {     "maxpoll": 15,     "minpoll": 4,     "type": "server",     "prefer": "no",     "name": "1.1.1.1"   } ]</pre>
-------------------------	---

where:

Element	Description
maxpoll	(Optional) Maximum poll value (integer).
minpoll	(Optional) Minimum poll value (integer).
type	Configured server or peer.
prefer	(Optional) One of: <i>Yes, No</i> .
name	IP address of peer/server.

## Delete NTP Servers and Peers

Deletes the configured NTP servers and peers.

**Note:** This is required for XClarity support.

### Request

Method Type	DELETE
Request URI	/nos/api/cfg/ntp/peers/<ip>/<server or peer>
Request Body (JSON)	

where:

Element	Description
<ip>/<server or peer>	IP address of peer/server.

### Response

Response Body (JSON)	
-------------------------	--

## Get NTP Authentication Keys

Gets NTP authentication keys.

### Request

Method Type	GET
Request URI	/nos/api/cfg/ntp/authentication-keys
Request Body (JSON)	

### Response

Response Body (JSON)	[ { "key_num": "<number>", "md5": "<string>" or "sha1": "<string>" } ]
-------------------------	--

where:

Element	Description
key	The number of the trusted key (integer).
md5, sha1	(Mandatory) The MD5 or SHA1 authentication string.

## Set NTP Authentication Keys

Sets NTP authentication keys.

### Request

Method Type	POST
Request URI	/nos/api/cfg/ntp/authentication-keys
Request Body (JSON)	{ "key_num" : "<number>" , "md5" : "<md5_string>"or "sha1": "<sha1_string>" }

where:

Element	Description
key	The number of the trusted key (integer).

### Response

Response Body (JSON)	[ { "key_num": "<number>", "md5": "<string>"or "sha1": "<string>" } ]
-------------------------	---

where:

Element	Description
key	The number of the trusted key (integer).
md5, sha1	(Mandatory) The MD5 or SHA1 authentication string.

## Delete NTP Authentication Keys

Deletes the specified NTP authentication keys.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/ntp/authentication-keys/<key_number>
Request Body (JSON)	

where:

Element	Description
<i>key_number</i>	The number of the trusted key (integer).

### *Response*

True if the operation succeeded; otherwise False.



---

## OSPF

The following OSPF URIs are available:

- /nos/api/info/ospf/stats GET
- /nos/api/info/ospf/traffic-stats GET
- /nos/api/info/ospf/neighbor GET
- /nos/api/info/ospf/route GET
- /nos/api/info/ospf/database GET
- /nos/api/info/ospf/border-router GET
- /nos/api/info/ospf/summary-address GET
- /nos/api/cfg/ospf/interface GET, PUT
- /nos/api/cfg/ospf/virtual-link GET, PUT
- /nos/api/info/ospf/process GET
- /nos/api/info/ospf/multiarea-neighbors GET
- /nos/api/info/ospf/ribcounter\_info GET
- /nos/api/cfg/ospf/process PUT
- /nos/api/cfg/ospf/redistribute GET, PUT
- /nos/api/cfg/ospf/nssa GET, PUT
- /nos/api/cfg/ospf/area\_def\_cost PUT
- /nos/api/cfg/ospf/area\_auth PUT
- /nos/api/cfg/ospf/summary\_addr PUT
- /nos/api/cfg/ospf/range PUT
- /nos/api/cfg/ospf/overflow\_db PUT
- /nos/api/cfg/ospf/autocost\_refbw PUT
- /nos/api/cfg/ospf/stub PUT
- /nos/api/cfg/ospf/clear PUT

The following OSPF interface property commands are available:

- [Get OSPF Global Statistics](#)
- [Get OSPF Traffic Statistics](#)
- [Get OSPF Neighbors](#)
- [Get OSPF Routes](#)
- [Get OSPF Database](#)
- [Get OSPF Border Routers](#)
- [Get OSPF Summary Address](#)

- [Get OSPF Interface](#)
- [Set OSPF Interface](#)
- [Get OSPF Virtual Links](#)
- [Set OSPF Virtual Links](#)
- [Get OSPF Process](#)
- [Get OSPF Multi-Area Neighbor](#)
- [Get OSPF RIB Counters](#)
- [Set OSPF Process](#)
- [Get OSPF Redistribute](#)
- [Set OSPF Redistribute](#)
- [Get OSPF NSSA area](#)
- [Set OSPF NSSA area](#)
- [Set OSPF default cost](#)
- [Set Area Authentication](#)
- [Set OSPF Summary Address](#)
- [Set OSPF Area Range](#)
- [Set OSPF Overflow Database](#)
- [Set OSPF Auto-cost Reference Bandwidth](#)
- [Set OSPF Stub Configuration](#)
- [Set OSPF Remove Configuration](#)



## Get OSPF Global Statistics

Gets the global OSPF statistics.

### *Request*

Method Type	GET
Request URI	/nos/api/info/ospf/stats/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.

## Response

Response Body (JSON)	<pre>[   {     "stats":       {         "ospf_id": "&lt;ospf_id&gt;"         "clr_timer_str": "{ &lt;clr_timer_str&gt;",         "router_id_changes": "&lt;router_id_changes&gt;",         "dr_election_counter": "&lt;dr_election_counter&gt;",         "older_lsas_counter": "&lt;older_lsas_counter&gt;",         "nbr_state_change_counter": "&lt;nbr_state_change_counter&gt;",         "nbr_bad_lsreqs_counter": "&lt;nbr_bad_lsreqs_counter&gt;",         "nbr_interval_expired_counter": "&lt;nbr_interval_expired_counter&gt;",         "nbr_seq_number_mismatch": "&lt;nbr_seq_number_mismatch&gt;",         "spf_full": "&lt;spf_full&gt;",         "spf_summary": "&lt;spf_summary&gt;",         "spf_external": "&lt;spf_external&gt;",         "recv_buf": "&lt;recv_buf&gt;",         "send_buf": "&lt;send_buf&gt;",         "lsa_buf": "&lt;lsa_buf&gt;",         "packet_unuse": "&lt;packet_unuse&gt;",         "packet_max": "&lt;packet_max&gt;",         "lsa_unuse": "&lt;lsa_unuse&gt;",         "lsa_max": "&lt;lsa_max&gt;",         "routerLsa_generated": "&lt;routerLsa_generated&gt;",         "routerLsa_refreshed": "&lt;routerLsa_refreshed&gt;",         "routerLsa_flushed": "&lt;routerLsa_flushed&gt;",         "routerLsa_agedOut": "&lt;routerLsa_agedOut&gt;",         "networkLsa_generated": "&lt;networkLsa_generated&gt;",         "networkLsa_refreshed": "&lt;networkLsa_refreshed&gt;",         "networkLsa_flushed": "&lt;networkLsa_flushed&gt;",         "networkLsa_agedOut": "&lt;networkLsa_agedOut&gt;",         "summaryLsa_generated": "&lt;summaryLsa_generated&gt;",         "summaryLsa_refreshed": "&lt;summaryLsa_refreshed&gt;",         "summaryLsa_flushed": "&lt;summaryLsa_flushed&gt;",         "summaryLsa_agedOut": "&lt;summaryLsa_agedOut&gt;",         "asbrSummaryLsa_generated": "&lt;asbrSummaryLsa_generated&gt;",         "asbrSummaryLsa_refreshed": "&lt;asbrSummaryLsa_refreshed&gt;",         "asbrSummaryLsa_flushed": "&lt;asbrSummaryLsa_flushed&gt;",         "asbrSummaryLsa_agedOut": "&lt;asbrSummaryLsa_agedOut&gt;",         "asExternalLsa_generated": "&lt;asExternalLsa_generated&gt;",</pre>
-------------------------	--

Response Body (JSON)	<pre> "asExternalLsa_refreshed": "&lt;asExternalLsa_refreshed&gt;", "asExternalLsa_flushed": "&lt;asExternalLsa_flushed&gt;", "asExternalLsa_agedOut": "&lt;asExternalLsa_agedOut&gt;", "asNssaLsa_generated": "&lt;asNssaLsa_generated&gt;", "asNssaLsa_refreshed": "&lt;asNssaLsa_refreshed&gt;", "asNssaLsa_flushed": "&lt;asNssaLsa_flushed&gt;", "asNssaLsa_agedOut": "&lt;asNssaLsa_agedOut&gt;", "type8Lsa_generated": "&lt;type8Lsa_generated&gt;", "type8Lsa_refreshed": "&lt;type8Lsa_refreshed&gt;", "type8Lsa_flushed": "&lt;type8Lsa_flushed&gt;", "type8Lsa_agedOut": "&lt;type8Lsa_agedOut&gt;", "linkOpaqueLsa_generated": "&lt;linkOpaqueLsa_generated&gt;", "linkOpaqueLsa_refreshed": "&lt;linkOpaqueLsa_refreshed&gt;", "linkOpaqueLsa_flushed": "&lt;linkOpaqueLsa_flushed&gt;", "linkOpaqueLsa_agedOut": "&lt;linkOpaqueLsa_agedOut&gt;", "areaOpaqueLsa_generated": "&lt;areaOpaqueLsa_generated&gt;", "areaOpaqueLsa_refreshed": "&lt;areaOpaqueLsa_refreshed&gt;", "areaOpaqueLsa_flushed": "&lt;areaOpaqueLsa_flushed&gt;", "areaOpaqueLsa_agedOut": "&lt;areaOpaqueLsa_agedOut&gt;", "asOpaqueLsa_generated": "&lt;asOpaqueLsa_generated&gt;", "asOpaqueLsa_refreshed": "&lt;asOpaqueLsa_refreshed&gt;", "asOpaqueLsa_flushed": "&lt;asOpaqueLsa_flushed&gt;", "asOpaqueLsa_agedOut": "&lt;asOpaqueLsa_agedOut&gt;"     },     "vrf_name": "&lt;vrf_name&gt;"   } ] </pre>
-------------------------	---

where:

Element	Description
ospf_id	OSPF identifier. Default value: 0.
clr_timer_str	Time since last OSPF process clear in the following format: HH:MM:SS.
router_id_changes	Router-ID changes counter; a positive integer.
dr_election_counter	DR elections counter; a positive integer.
older_lsas_counter	Older received LSAs counter; a positive integer.
nbr_state_change_counter	Neighbor state changes counter; a positive integer.
nbr_bad_lsreqs_counter	Neighbor bad LS received requests counter; a positive integer.
nbr_interval_expired_counter	Neighbor dead-interval expirations counter; a positive integer.
nbr_seq_number_mismatch	Neighbor sequence number mismatches counter; a positive integer.
spf_full	Full SPF Computations counter; a positive integer.

Element	Description
spf_summary	Summary SPF Computations counter; a positive integer.
spf_external	External SPF Computations counter; a positive integer.
recv_buf	Received packet buffer; a positive integer.
send_buf	Sent packet buffer; a positive integer.
lsa_buf	LSA buffer; a positive integer.
packet_unuse	Unused packets number; a positive integer.
packet_max	Maximum packets number; a positive integer.
lsa_unuse	Unused LSAs number; a positive integer.
lsa_max	Maximum LSAs number; a positive integer.
router_lsa_type	Router LSA type name; a positive integer.
routerLsa_generated	Number of generated router LSAs; a positive integer.
routerLsa_refreshed	Number of refreshed router LSAs; a positive integer.
routerLsa_flushed	Number of flushed router LSAs; a positive integer.
routerLsa_agedOut	Number of aged out router LSAs; a positive integer.
networkLsa_generated	Number of generated network LSAs; a positive integer.
networkLsa_refreshed	Number of refreshed network LSAs; a positive integer.
networkLsa_flushed	Number of flushed network LSAs; a positive integer.
networkLsa_agedOut	Number of aged out network LSAs; a positive integer.
summaryLsa_generated	Number of generated summary LSAs; a positive integer.
summaryLsa_refreshed	Number of refreshed summary LSAs; a positive integer.
summaryLsa_flushed	Number of flushed summary LSAs; a positive integer.
summaryLsa_agedOut	Number of aged out summary LSAs; a positive integer.
asbrSummaryLsa_generated	Number of generated ASBR summary LSAs; a positive integer.
asbrSummaryLsa_refreshed	Number of refreshed ASBR summary LSAs; a positive integer.

<b>Element</b>	<b>Description</b>
asbrSummaryLsa_flushed	Number of flushed ASBR summary LSAs; a positive integer.
asbrSummaryLsa_agedOut	Number of aged out ASBR summary LSAs; a positive integer.
asExternalLsa_generated	Number of generated AS-External LSAs; a positive integer.
asExternalLsa_refreshed	Number of refreshed AS-External LSAs; a positive integer.
asExternalLsa_flushed	Number of flushed AS-External LSAs; a positive integer.
asExternalLsa_agedOut	Number of aged out AS-External LSAs; a positive integer.
asNssaLsa_generated	Number of generated AS-NSSA LSAs; a positive integer.
asNssaLsa_refreshed	Number of refreshed AS-NSSA LSAs; a positive integer.
asNssaLsa_flushed	Number of flushed AS-NSSA LSAs; a positive integer.
asNssaLsa_agedOut	Number of aged out AS-NSSA LSAs; a positive integer.
type8Lsa_generated	Number of generated type-8 LSAs; a positive integer.
type8Lsa_refreshed	Number of refreshed type-8 LSAs; a positive integer.
type8Lsa_flushed	Number of flushed type-8 LSAs; a positive integer.
type8Lsa_agedOut	Number of aged out type-8 LSAs; a positive integer.
linkOpaqueLsa_generated	Number of generated Link Opaque LSAs; a positive integer.
linkOpaqueLsa_refreshed	Number of refreshed Link Opaque LSAs; a positive integer.
linkOpaqueLsa_flushed	Number of flushed Link Opaque LSAs; a positive integer.
linkOpaqueLsa_agedOut	Number of aged out Link Opaque LSAs; a positive integer.
areaOpaque_lsa_type	Area Opaque LSA type name; a positive integer.
areaOpaqueLsa_generated	Number of generated Area Opaque LSAs; a positive integer.
areaOpaqueLsa_refreshed	Number of refreshed Area Opaque LSAs; a positive integer.

Element	Description
areaOpaqueLsa_ flushed	Number of flushed Area Opaque LSAs; a positive integer.
areaOpaqueLsa_ agedOut	Number of aged out Area Opaque LSAs; a positive integer.
asOpaque_lsa_type	AS Opaque LSA type name; a positive integer.
asOpaqueLsa_ generated	Number of generated AS External Opaque LSAs; a positive integer.
asOpaqueLsa_ refreshed	Number of refreshed AS External Opaque LSAs; a positive integer.
asOpaqueLsa_ flushed	Number of flushed AS External Opaque LSAs; a positive integer.
asOpaqueLsa_ agedOut	Number of aged out AS External Opaque LSAs; a positive integer.
vrf_name	Default VRF name. Default value: <i>default</i> .

## Get OSPF Traffic Statistics

Gets the OSPF traffic statistics.

### *Request*

Method Type	GET
Request URI	/nos/api/info/ospf/traffic-stats/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.

## Response

Response Body (JSON)	<pre>[   {     "traffic-stats":     {       "ospf_id": "&lt;ospf_id&gt;",       "timer_str": "&lt;timer_str&gt;",       "total_pkt_in": "&lt;total_pkt_in&gt;",       "total_pkt_out": "&lt;total_pkt_out&gt;",       "hello_in": "&lt;hello_in&gt;",       "hello_out": "&lt;hello_out&gt;",       "db_desc_in": "&lt;db_desc_in&gt;",       "db_desc_out": "&lt;db_desc_out&gt;",       "ls_req_in": "&lt;ls_req_in&gt;",       "ls_req_out": "&lt;ls_req_out&gt;",       "ls_upd_in": "&lt;ls_upd_in&gt;",       "ls_upd_out": "&lt;ls_upd_out&gt;",       "ls_ack_in": "&lt;ls_ack_in&gt;",       "ls_ack_out": "&lt;ls_ack_out&gt;",       "error_drops_in": "&lt;error_drops_in&gt;",       "error_drops_out": "&lt;error_drops_out&gt;",       "error_hellosin": "&lt;error_hellosin&gt;",       "error_dbsin": "&lt;error_dbsin&gt;",       "error_lsreqin": "&lt;error_lsreqin&gt;",       "error_lsuin": "&lt;error_lsuin&gt;",       "error_lsackin": "&lt;error_lsackin&gt;",       "error_unknown_in": "&lt;error_unknown_in&gt;",       "error_unknown_out": "&lt;error_unknown_out&gt;",       "error_badcrc": "&lt;error_badcrc&gt;",       "error_wrong_area": "&lt;error_wrong_area&gt;",       "error_bad_version": "&lt;error_bad_version&gt;",       "error_bad_auth": "&lt;error_bad_auth&gt;",       "error_passive": "&lt;error_passive&gt;",       "error_nonbr": "&lt;error_nonbr&gt;",       "error_invalid_src": "&lt;error_invalid_src&gt;",       "error_invalid_dst": "&lt;error_invalid_dst&gt;",       "error_pktlength": "&lt;error_pktlength&gt;"     },     "vrf_name": "&lt;vrf_name&gt;"   } ]</pre>
-------------------------	--

where:

Element	Description
ospf_id	OSPF identifier. Default value: 0.
timer_str	Time since last OSPF process clear in the following format: HH:MM:SS.
total_pkt_in	Number of total packets in; a positive integer.
total_pkt_out	Number of total packets out; a positive integer.
hello_in	Number of hello packets in; a positive integer.
hello_out	Number of hello packets out; a positive integer.
db_desc_in	Number of DB descriptor packets in; a positive integer.



<b>Element</b>	<b>Description</b>
db_desc_out	Number of DB descriptor packets out; a positive integer.
ls_req_in	Number of LS Request packets in; a positive integer.
ls_req_out	Number of LS Request packets out; a positive integer.
ls_upd_in	Number of LS Update packets in; a positive integer.
ls_upd_out	Number of LS Update packets out; a positive integer.
ls_ack_in	Number of LS ACK packets in; a positive integer.
ls_ack_out	Number of LS ACK packets out; a positive integer.
error_drops_in	Number of errors related to drops in; a positive integer.
error_drops_out	Number of errors related to drops out; a positive integer.
error_hellosin	Number of errors related to hellos in; a positive integer.
error_dbsin	Number of errors related to DB Descriptors; a positive integer.
error_lsreqin	Number of errors related to LS Requests; a positive integer.
error_lsuin	Number of errors related to LS Updates; a positive integer.
error_lsackin	Number of errors related to LS ACKs; a positive integer.
error_unknown_in	Number of errors related to unknown in; a positive integer.
error_unknown_out	Number of errors related to unknown out; a positive integer.
error_badcrc	Number of errors related to Bad CRC; a positive integer.
error_wrong_area	Number of errors related to Wrong Area; a positive integer.
error_bad_version	Number of errors related to Bad Version; a positive integer.
error_bad_auth	Number of errors related to Bad Authentication; a positive integer.
error_passive	Number of errors related to Passive; a positive integer.
error_nonbr	Number of errors related to No Neighbor; a positive integer.
error_invalid_src	Number of errors related to Invalid Source; a positive integer.
error_invalid_dst	Number of errors related to Invalid Destination; a positive integer.

Element	Description
error_pktlength	Number of errors related to Packet Length; a positive integer.
vrf_name	Default VRF name. Default value: <i>default</i> .

## Get OSPF Neighbors

Gets the OSPF neighbors list.

### Request

Method Type	GET
Request URI	/nos/api/info/ospf/neighbor/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.

### Response

Response Body (JSON)	[ { "vrf_name": "<vrf_name>", "nbr_router_id": "<nbr_router_id>", "priority": "<priority>", "nbr_state": "<nbr_state>", "dead_timer": "<dead_timer>", "nbr_addr": "<nbr_addr>", "ifp_name": "<ifp_name>" } ]
-------------------------	--

where:

Element	Description
<i>vrf_name</i>	Default VRF name. Default value: <i>default</i> .
<i>nbr_router_id</i>	Neighbor router ID identifier; a valid IPv4 or IPv6 address.
<i>priority</i>	The neighbor priority; an integer from 0-255.
<i>dead_timer</i>	The time left for dead interval expiry in the following format: HH:MM:SS.
<i>nbr_addr</i>	Neighbor IP address; a valid IPv4 or IPv6 address.
<i>ifp_name</i>	Ethernet interface name.

## Get OSPF Routes

Gets the OSPF routes list.

### Request

Method Type	GET
Request URI	/nos/api/info/ospf/route/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.

### Response

Response Body (JSON)	<pre>[   {     "Network": "&lt;Network&gt;",     "pathcode": "&lt;pathcode&gt;",     "pathCount": "&lt;pathCount&gt;",     "route_path_cost": "&lt;route_path_cost&gt;",     "route_type2path_cost": "&lt;route_type2path_cost&gt;",     "next_hop_info":       [         {           "interface": "&lt;interface&gt;",           "area_id": "&lt;area_id&gt;",           "neighbor_addr": "&lt;neighbor_addr&gt;"         }       ]   } ]</pre>
-------------------------	--

where:

Element	Description
network	Network name; a string in the following format: "AA:BB:CC:DD/MM".
pathcode	Path type; one of: <ul style="list-style-type: none"> <li>● <i>connected</i></li> <li>● <i>Discard</i></li> <li>● <i>OSPF</i></li> <li>● <i>OSPF inter area</i></li> <li>● <i>OSPF NSSA external type 1</i></li> <li>● <i>OSPF NSSA external type 2</i></li> <li>● <i>OSPF external type 1</i></li> <li>● <i>OSPF external type 2</i></li> </ul>
pathCount	Number of ecmp paths; a positive integer.
route_path_cost	Route-path cost; a positive integer.
route_type2path_cost	Route-type 2 path cost; a positive integer.
next_hop_info	Next-hop information; a list of dictionaries. Depending on the configuration, each dictionary may contain the following values: <ul style="list-style-type: none"> <li>● <i>interface</i>: Neighbor IP address; a valid IPv4 or IPv6 address.</li> <li>● <i>area_id</i>: Neighbor area-ID; a valid IPv4 or IPv6 address.</li> <li>● <i>neighbor_addr</i>: Neighbor IP address; a valid IPv4 or IPv6 address.</li> </ul>

## Get OSPF Database

Gets the OSPF database.

### Request

Method Type	GET
Request URI	/nos/api/info/ospf/database/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.

### Response

Response Body (JSON)	[ { "link_state_id": "<link_state_id>", "adv_router": "<adv_router>", "lsa_type": "<lsa_type>", "lsa_age": "<lsa_age>", "ls_seqnum_str": "<ls_seqnum_str>", "checksum": "<checksum>", "link count": "<link count>", "area_id": "<area_id>" } ]
-------------------------	---

where:

Element	Description
<i>link_state_id</i>	VRF name; a valid IPv4 or IPv6 address.
<i>adv_router</i>	Advertising router ID; a valid IPv4 or IPv6 address.
<i>lsa_type</i>	LSA type; one of: <ul style="list-style-type: none"><li>● Router-LSA</li><li>● Network-LSA</li><li>● Summary-LSA</li><li>● ASBR-summary-LSA</li><li>● AS-external-LSA</li><li>● AS-NSSA-LSA</li></ul>
<i>lsa_age</i>	LSA age; a positive integer.

<b>Element</b>	<b>Description</b>
ls_seqnum_str	LS sequence number in hexadecimal format.
checksum	LSA checksum in hexadecimal format.
link_count	Links number; a positive integer.
area_id	The area-ID of the LSDB; a valid IPv4 or IPv6 address.

## Get OSPF Border Routers

Gets the OSPF border routers.

### Request

Method Type	GET
Request URI	/nos/api/info/ospf/border-router/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.

### Response

Response Body (JSON)	<pre>[   {     "abr_id": "&lt;abr_id&gt;",     "abr_route_type": "&lt;abr_route_type&gt;",     "abr_route_metric": "&lt;abr_route_metric&gt;",     "asbr_id": "&lt;asbr_id &gt;",     "asbr_route_type": "&lt;asbr_route_type&gt;",     "asbr_route_metric": "&lt;asbr_route_metric&gt;",     "type_border_router": "&lt;type_border_router&gt;",     "abr_via": "&lt;abr_via&gt;",     "asbr_via": "&lt;asbr_via&gt;",     "abr_transit_area": "&lt;abr_transit_area&gt;",     "asbr_transit_area": "&lt;asbr_transit_area&gt;",     "abr_area_ifname": "&lt;abr_area_ifname&gt;",     "asbr_area_ifname": "&lt;asbr_area_ifname&gt;"   } ]</pre>
-------------------------	--

where:

Element	Description
<i>abr_id</i>	The ABR ID (string); shows the type, router ID or cost.
<i>abr_route_type</i>	Type of router related to ABR (string).
<i>abr_route_metric</i>	Metric of router related to ABR (string).
<i>asbr_id</i>	The ASBR ID (string); shows the type, router ID or cost.
<i>asbr_route_type</i>	Type of router related to ASBR (string).
<i>asbr_route_metric</i>	Metric of router related to ASBR (string).



Element	Description
type_border_router	The border router type (string); one of ABR or ASBR.
abr_via	The next-hop IP for ABR (string); a valid IP address.
asbr_via	The next-hop IP for ABSBR (string); a valid IP address.
abr_transit_area	The transit area-ID for ABR (string); a valid IP address.
asbr_transit_area	The transit area-ID for ASBR (string); a valid IP address.
abr_area_ifname	The OSPF interface for ABR (string). For example: <i>Ethernet1/X</i> or <i>VLAN interface</i> .
asbr_area_ifname	The OSPF interface for ABSR (string). For example: <i>Ethernet1/X</i> or <i>VLAN interface</i> .

## Get OSPF Summary Address

Gets the OSPF summary address.

### Request

Method Type	GET
Request URI	/nos/api/info/ospf/summary-address/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: <code>default</code> .

### Response

Response Body (JSON)	<pre>[   {     "router_id": "&lt;router_id&gt;",     "ospf_id": "&lt;ospf_id&gt;",     "vrf_name": "&lt;vrf_name&gt;",     "prefix": "&lt;prefix&gt;",     "metric": "&lt;metric&gt;",     "tag": "&lt;tag&gt;",     "summary_address_state": "&lt;summary_address_state&gt;"   } ]</pre>
-------------------------	---

where::

Element	Description
<code>router_id</code>	Router-ID in IP address format (string); a valid IP address.
<code>ospf_id</code>	OSPF identifier (integer). Default value: <code>0</code> .
<code>vrf_name</code>	Default VRF name (string). Default value: <code>default</code> .
<code>prefix</code>	The IP prefix (string), in the following format: <code>XX.XX.XX.XX/XX</code> .
<code>metric</code>	The metric value; an integer from <code>0-16777214</code> .
<code>tag</code>	External/NSSA LSAs tag; a positive integer from <code>0-4294967295</code> .
<code>summary_address_state</code>	The summary address status (string); one of <code>Active</code> , <code>Pending</code> .

## Get OSPF Interface

Displays the OSPF interface information.

### *Request*

Method Type	GET
Request URI	nos/api/cfg/ospf/interface/<if_name>/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The interface name.
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.

## Response

Response Body (JSON)	<pre> {   "if_name": "&lt;ip_name&gt;",   "vrf_name": "&lt;vrf_name&gt;",   "ospf_id": "&lt;ospf_id&gt;",   "ospf_status": "&lt;ospf_status&gt;",   "if_addr": "&lt;if_addr&gt;",   "if_area_id": "&lt;if_area_id&gt;",   "if_mtu": "&lt;if_mtu&gt;",   "router_id": "&lt;router_id&gt;",   "if_network_type": "&lt;if_network_type&gt;",   "if_output_cost": "&lt;if_output_cost&gt;",   "if_transmit_delay": "&lt;if_transmit_delay&gt;",   "priority": "&lt;priority&gt;",   "if_state": "&lt;if_state&gt;",   "designated_router": "&lt;designated_router&gt;",   "designated_router_addr": "&lt;designated_router_addr&gt;",   "backup_designated_router": "&lt;backup_designated_router&gt;",   "backup_designated_router_addr": "&lt;backup_designated_router_addr&gt;",   "hello_interval": "&lt;hello_interval&gt;",   "dead_interval": "&lt;dead_interval&gt;",   "retransmit_interval": "&lt;retransmit_interval&gt;",   "if_hello_timer": "&lt;if_hello_timer&gt;",   "neighbor_count": "&lt;neighbor_count&gt;",   "adj_neighbor_count": "&lt;adj_neighbor_count&gt;",   "hello_in": "&lt;hello_in&gt;",   "hello_out": "&lt;hello_out&gt;",   "ls_req_in": "&lt;ls_req_in&gt;",   "ls_req_out": "&lt;ls_req_out&gt;",   "ls_upd_in": "&lt;ls_upd_in&gt;",   "ls_upd_out": "&lt;ls_upd_out&gt;",   "ls_ack_in": "&lt;ls_ack_in&gt;",   "ls_ack_out": "&lt;ls_ack_out&gt;",   "db_desc_in": "&lt;db_desc_in&gt;",   "db_desc_out": "&lt;db_desc_out&gt;",   "discarded": "&lt;discarded&gt;",   "if_mtu_ignore": "&lt;if_mtu_ignore&gt;",   "passive_interface": "&lt;passive_interface&gt;",   "if_bfd": "&lt;if_bfd&gt;",   "db_filter_all_out": "&lt;db_filter_all_out&gt;",   "auth_type": "&lt;auth_type&gt;",   "key_id": "&lt;key_id&gt;" } </pre>
-------------------------	---

where:

Element	Description
if_name	The interface name (string). For example: <i>Ethernet1/X</i> or <i>VLAN interface</i> .
vrf_name	Default VRF name (string). Default value: <code>default</code> .
ospf_id	OSPF process identifier (integer). Default value: <code>0</code> .
ospf_status	The status of the OSPF protocol (string); one of <code>Up</code> , <code>Down</code> .
if_addr	The IP address or mask (string); a valid IP address or mask.

Element	Description
if_area_id	The area-ID (string); a valid IP address.
if_mtu	The maximum transmission unit; a positive integer from 576-65535.
router_id	The router-ID in IP address format (string); a valid IP address.
if_network_type	The network type (string); one of <i>Broadcast</i> , <i>Point-to-Point</i> .
if_output_cost	Interface output cost; a positive integer from 1-65535.
if_transmit_delay	The interface transmit delay, in seconds; an integer from 1-3600.
priority	The router priority; an integer from 0-255.
if_state	The operation state of the interface (string); one of <i>DR</i> , <i>Backup</i> , <i>DROther</i> .
designated_router	Designated Router-ID (string); a valid IP address.
designated_router_addr	The IP address for the designated router (string).
backup_designated_router	The backup Router-ID for the designated router (string); a valid IP address.
backup_designated_router_addr	The backup Router-ID for the designated router. (string).
hello_interval	The hello interval, in seconds; an integer from 1-65535.
dead_interval	The dead interval, in seconds; an integer from 1-65535.
retransmit_interval	The retransmit interval, in seconds; an integer from 1-65535.
if_hello_timer	The hello interval timer expiration time (string).
neighbor_count	The neighbor count (integer); a positive integer.
adj_neighbor_count	The adjacent neighbors count (integer); a positive integer.
hello_in	Number of total hello packets in; a positive integer.
hello_out	Number of total hello packets out; a positive integer.
ls_req_in	Number of total LS Request packets in; a positive integer.
ls_req_out	Number of total LS Request packets out; a positive integer.

Element	Description
ls_upd_in	Number of total LS Update packets in; a positive integer.
ls_upd_out	Number of total LS Update packets out; a positive integer.
ls_ack_in	Number of total LS ACK packets in; a positive integer.
ls_ack_out	Number of total LS ACK packets out; a positive integer.
db_desc_in	Number of total DB Descriptors packets in; a positive integer.
db_desc_out	Number of total DB Descriptors packets out; a positive integer.
discarded	Number of total discarded packets; a positive integer.
auth_type	The type of authentication; one of <i>Message-Digest</i> , <i>Simple</i> , <i>Null</i> .
key_id	The Key-ID, if the authentication type is MD5/SHA256; an integer from 1-255.
if_mtu_ignore	The maximum transmission unit status; one of <i>Enable</i> , <i>Disable</i> .
passive_interface	The passive interface status; one of <i>Enable</i> , <i>Disable</i> .
if_bfd	The BDF status; one of <i>Enable</i> , <i>Disable</i> .
db_filter_all_out	Database filter all out; one of <i>Enable</i> , <i>Disable</i> .

## Set OSPF Interface

Sets the OSPF interface.

### Request

Method Type	PUT
Request URI	nos/api/cfg/ospf/interface/<ifname>/<vrf_name>
Request Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "ospf_status": "&lt;ospf_status&gt;",   "if_area_id": "&lt;if_area_id&gt;",   "if_mtu": &lt;if_mtu&gt;,   "if_network_type": "&lt;if_network_type&gt;",   "if_output_cost": "&lt;if_output_cost&gt;",   "if_transmit_delay": "&lt;if_transmit_delay&gt;",   "priority": "&lt;priority&gt;",   "hello_interval": "&lt;hello_interval&gt;",   "dead_interval": "&lt;dead_interval&gt;",   "retransmit_interval": "&lt;retransmit_interval&gt;",   "if_mtu_ignore": "&lt;if_mtu_ignore&gt;",   "passive_interface": "&lt;passive_interface&gt;",   "if_bfd": "&lt;if_bfd&gt;",   "db_filter_all_out": "&lt;db_filter_all_out&gt;",   "auth_type": "&lt;auth_type&gt;",   "auth_key": "&lt;auth_key&gt;",   "key_id": "&lt;key_id&gt;",   "md5 ": "&lt;md5_password&gt;", or "sha256": "&lt;sha256_password&gt;",   "set_to_default": [set_to_default],   "key_remove_with_key_id": "&lt;key_remove_with_key_id&gt;" }</pre>

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.
<i>if_name</i>	The interface name (string). For example: <i>Ethernet1/X</i> or <i>VLAN interface</i> .
<i>ospf_status</i>	The status of the OSPF protocol (string); one of <i>Up</i> , <i>Down</i> .
<i>if_area_id</i>	The area-ID (string); a valid IP address.
<i>if_mtu</i>	The MTU size, from 576-65535.
<i>if_network_type</i>	The network type (string); one of <i>Broadcast</i> , <i>Point-to-Point</i> .
<i>if_output_cost</i>	Interface output cost; a positive integer from 1-65535.
<i>if_transmit_delay</i>	The interface transmit delay, in seconds; an integer from 1-3600.
<i>priority</i>	The router priority; an integer from 0-255.

Element	Description
hello_interval	The hello interval, in seconds; an integer from 1-65535.
dead_interval	The dead interval, in seconds; an integer from 1-65535.
retransmit_interval	The retransmit interval, in seconds; an integer from 1-65535.
auth_type	The type of authentication; one of <i>Message-Digest</i> , <i>Simple</i> , <i>Null</i> .
auth_key	The key of authentication.
key_id	The Key-ID, if the authentication type is MD5/SHA256; an integer from 1-255.
if_mtu_ignore	The maximum transmission unit status; one of <i>Enable</i> , <i>Disable</i> .
passive_interface	The passive interface status; one of <i>Enable</i> , <i>Disable</i> .
if_bfd	The BDF status; one of <i>Enable</i> , <i>Disable</i> .
db_filter_all_out	Database filter all out; one of <i>Enable</i> , <i>Disable</i> .
md5/sha256	The password.
set_to_default	The list of keys for which the configuration is set to the default settings: <ul style="list-style-type: none"> <li>● <i>auth_key</i></li> <li>● <i>auth_type</i></li> <li>● <i>hello_interval</i></li> <li>● <i>dead_interval</i></li> <li>● <i>if_transmit_delay</i></li> <li>● <i>retransmit_interval</i></li> <li>● <i>if_output_cost, priority</i></li> <li>● <i>if_mtu</i></li> </ul>
key_remove_with_key_id	The MD5 or SHA Key ID to be removed, from 1-256.



## Response

Response Body (JSON)	<pre> {   "if_name": "&lt;ip_name&gt;",   "vrf_name": "&lt;vrf_name&gt;",   "ospf_id": "&lt;ospf_id&gt;",   "ospf_status": "&lt;ospf_status&gt;",   "if_addr": "&lt;if_addr&gt;",   "if_area_id": "&lt;if_area_id&gt;",   "if_mtu": "&lt;if_mtu&gt;",   "router_id": "&lt;router_id&gt;",   "if_network_type": "&lt;if_network_type&gt;",   "if_output_cost": "&lt;if_output_cost&gt;",   "if_transmit_delay": "&lt;if_transmit_delay&gt;",   "priority": "&lt;priority&gt;",   "if_state": "&lt;if_state&gt;",   "designated_router": "&lt;designated_router&gt;",   "designated_router_addr": "&lt;designated_router_addr&gt;",   "backup_designated_router": "&lt;backup_designated_router&gt;",   "backup_designated_router_addr": "&lt;backup_designated_router_addr&gt;",   "hello_interval": "&lt;hello_interval&gt;",   "dead_interval": "&lt;dead_interval&gt;",   "retransmit_interval": "&lt;retransmit_interval&gt;",   "if_hello_timer": "&lt;if_hello_timer&gt;",   "neighbor_count": "&lt;neighbor_count&gt;",   "adj_neighbor_count": "&lt;adj_neighbor_count&gt;",   "hello_in": "&lt;hello_in&gt;",   "hello_out": "&lt;hello_out&gt;",   "ls_req_in": "&lt;ls_req_in&gt;",   "ls_req_out": "&lt;ls_req_out&gt;",   "ls_upd_in": "&lt;ls_upd_in&gt;",   "ls_upd_out": "&lt;ls_upd_out&gt;",   "ls_ack_in": "&lt;ls_ack_in&gt;",   "ls_ack_out": "&lt;ls_ack_out&gt;",   "db_desc_in": "&lt;db_desc_in&gt;",   "db_desc_out": "&lt;db_desc_out&gt;",   "discarded": "&lt;discarded&gt;",   "if_mtu_ignore": "&lt;if_mtu_ignore&gt;",   "passive_interface": "&lt;passive_interface&gt;",   "if_bfd": "&lt;if_bfd&gt;",   "db_filter_all_out": "&lt;db_filter_all_out&gt;",   "auth_type": "&lt;auth_type&gt;",   "key_id": "&lt;key_id&gt;" } </pre>
-------------------------	---

where:

Element	Description
if_name	The interface name (string). For example: <i>Ethernet1/X</i> or <i>VLAN interface</i> .
vrf_name	Default VRF name (string). Default value: default.
ospf_id	OSPF process identifier (integer). Default value: 0.
ospf_status	The status of the OSPF protocol (string); one of Up, Down.

Element	Description
if_addr	The IP address or mask (string); a valid IP address or mask.
if_area_id	The area-ID (string); a valid IP address.
if_mtu	The maximum transmission unit; a positive integer from 576-65535.
router_id	The router-ID in IP address format (string); a valid IP address.
if_network_type	The network type (string); one of <i>Broadcast</i> , <i>Point-to-Point</i> .
if_output_cost	Interface output cost; a positive integer from 1-65535.
if_transmit_delay	The interface transmit delay, in seconds; an integer from 1-3600.
priority	The router priority; an integer from 0-255.
if_state	The operation state of the interface (string); one of <i>DR</i> , <i>Backup</i> , <i>DRother</i> .
designated_router	Designated Router-ID (string); a valid IP address.
designated_router_addr	The IP address for the designated router (string).
backup_designated_router	The backup Router-ID for the designated router (string); a valid IP address.
backup_designated_router_addr	The backup Router-ID for the designated router. (string).
hello_interval	The hello interval, in seconds; an integer from 1-65535.
dead_interval	The dead interval, in seconds; an integer from 1-65535.
retransmit_interval	The retransmit interval, in seconds; an integer from 1-65535.
if_hello_timer	The hello interval timer expiration time (string).
neighbor_count	The neighbor count (integer); a positive integer.
adj_neighbor_count	The adjacent neighbors count (integer); a positive integer.
hello_in	Number of total hello packets in; a positive integer.
hello_out	Number of total hello packets out; a positive integer.
ls_req_in	Number of total LS Request packets in; a positive integer.

Element	Description
ls_req_out	Number of total LS Request packets out; a positive integer.
ls_upd_in	Number of total LS Update packets in; a positive integer.
ls_upd_out	Number of total LS Update packets out; a positive integer.
ls_ack_in	Number of total LS ACK packets in; a positive integer.
ls_ack_out	Number of total LS ACK packets out; a positive integer.
db_desc_in	Number of total DB Descriptors packets in; a positive integer.
db_desc_out	Number of total DB Descriptors packets out; a positive integer.
discarded	Number of total discarded packets; a positive integer.
auth_type	The type of authentication; one of <i>Message-Digest</i> , <i>Simple</i> , <i>Null</i> .
key_id	The Key-ID, if the authentication type is MD5/SHA256; an integer from 1-255.
if_mtu_ignore	The maximum transmission unit status; one of <i>Enable</i> , <i>Disable</i> .
passive_interface	The passive interface status; one of <i>Enable</i> , <i>Disable</i> .
if_bfd	The BDF status; one of <i>Enable</i> , <i>Disable</i> .
db_filter_all_out	Database filter all out; one of <i>Enable</i> , <i>Disable</i> .

## Get OSPF Virtual Links

Gets the OSPF virtual-links.

### Request

Method Type	GET
Request URI	/nos/api/cfg/ospf/virtual-link/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: <code>default</code> .

### Response

Response Body (JSON)	<pre>[   {     "vrf_name": "&lt;vrf_name&gt;",     "vlink_name": "&lt;vlink_name&gt;",     "nbr_router_id": "&lt;nbr_router_id&gt;",     "ifp_name": "&lt;ifp_name&gt;",     "local_address": "&lt;local_address&gt;",     "remote_address": "&lt;remote_address&gt;",     "transit_area": "&lt;transit_area&gt;",     "transmit_delay": "&lt;transmit_delay&gt;",     "vlink_state": "&lt;vlink_state&gt;",     "hello_interval": "&lt;hello_interval&gt;",     "dead_interval": "&lt;dead_interval&gt;",     "wait_interval": "&lt;wait_interval&gt;",     "retransmit_interval": "&lt;retransmit_interval&gt;",     "hello_due": "&lt;hello_due&gt;",     "adjacency_state": "&lt;adjacency_state&gt;",     "authentication_type": "&lt;authentication_type&gt;",     "key_id": "&lt;key_id&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
<i>vrf_name</i>	Default VRF name. Default value: <i>default</i> .
<i>vlink_name</i>	The virtual-link name (string).
<i>nbr_router_id</i>	The neighbor router ID (string); a valid IP address.
<i>ifp_name</i>	The interface name (string). For example: <i>Ethernet1/X</i> or <i>VLAN interface</i> .

Element	Description
local_address	The local interface IP address (string); a valid IP address.
remote_address	The remote interface IP address (string); a valid IP address.
transit_area	The transit area-ID (string); a valid IP address.
transmit_delay	The transmission delay interval, in seconds, an integer from 1-3600.
vlink_state	The Virtual Link status (string); one of <i>Up</i> , <i>Down</i> .
hello_interval	The hello interval, in seconds; an integer from 1-65535.
dead_interval	The dead interval, in seconds; an integer from 1-65535.
wait_interval	The wait interval, in seconds; an integer from 1-65535.
retransmit_interval	The retransmit interval, in seconds; an integer from 1-65535.
hello_due	The due time to send the next hello (string).
adjacency_state	The adjacency state across the virtual-link (string).
authentication_type	The type of authentication (string); one of <i>Message-Digest</i> , <i>Simple</i> , <i>Null</i> .
key_id	The Key-ID, if the authentication type is MD5/SHA256; an integer from 1-255.

## Set OSPF Virtual Links

Sets the OSPF virtual-links.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/virtual-link/<vrf_name>
Request Body (JSON)	<pre>{   "vlink_name": "&lt;vlink_name&gt;",   "area_id": "&lt;area_id&gt;",   "nbr_router_id": "&lt;nbr_router_id&gt;",   "virtual_link_disable": "&lt;virtual_link_disable&gt;",   "hello_interval": &lt;hello_interval&gt;,   "dead_interval": &lt;dead_interval&gt;,   "retransmit_interval": &lt;retransmit_interval&gt;,   "transmit_delay": &lt;transmit_delay&gt;   "auth_type": "&lt;auth_type&gt;",   "auth_key": "&lt;auth_key&gt;",   "key_id": "&lt;key_id&gt;",   "md5": "&lt;md5_password&gt;", or "sha256": "&lt;sha256_password&gt;",   "bfd": "&lt;bfd&gt;",   "set_to_default": [set_to_default],   "key_remove_with_key_id": "&lt;key_remove_with_key_id&gt;" }</pre>

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.
vlink_name	The virtual-link name (string).
area_id	The area-ID (string); a valid IP address.
nbr_router_id	The neighbor router ID (string); a valid IP address.
transmit_delay	The transmission delay interval, in seconds, an integer from 1-3600.
virtual_link_disable	The Virtual Link status (string); one of <i>Yes</i> , <i>No</i> .
hello_interval	The hello interval, in seconds; an integer from 1-65535.
dead_interval	The dead interval, in seconds; an integer from 1-65535.
retransmit_interval	The retransmit interval, in seconds; an integer from 1-65535.
bfd	The BFD status; one of <i>Enable</i> , <i>Disable</i> .

Element	Description
auth_type	The type of authentication (string); one of <i>Message-Digest</i> , <i>Simple</i> , <i>Null</i> .
auth_key	The authentication key (string).
key_id	The Key-ID, if the authentication type is MD5/SHA256; an integer from 1-255.
md5/sha256	The password for Message-digest Authentication.
set_to_default	The list of keys to set to default settings. One of: <ul style="list-style-type: none"> <li>● <i>auth_key</i></li> <li>● <i>auth_type</i></li> <li>● <i>hello_interval</i></li> <li>● <i>dead_interval</i></li> <li>● <i>transmit_delay</i></li> <li>● <i>retransmit_interval</i></li> </ul>
key_remove_with_key_id	The md5 key ID to remove.

## Response

Response Body (JSON)	<pre>[   {     "vrf_name": "&lt;vrf_name&gt;",     "vlink_name": "&lt;vlink_name&gt;",     "nbr_router_id": "&lt;nbr_router_id&gt;",     "ifp_name": "&lt;ifp_name&gt;",     "local_address": "&lt;local_address&gt;",     "remote_address": "&lt;remote_address&gt;",     "transit_area": "&lt;transit_area&gt;",     "transmit_delay": "&lt;transmit_delay&gt;",     "vlink_state": "&lt;vlink_state&gt;",     "hello_interval": "&lt;hello_interval&gt;",     "dead_interval": "&lt;dead_interval&gt;",     "wait_interval": "&lt;wait_interval&gt;",     "retransmit_interval": "&lt;retransmit_interval&gt;",     "hello_due": "&lt;hello_due&gt;",     "adjacency_state": "&lt;adjacency_state&gt;",     "authentication_type": "&lt;authentication_type&gt;",     "key_id": "&lt;key_id&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
vrf_name	Default VRF name. Default value: <i>default</i> .
vlink_name	The virtual-link name (string).
nbr_router_id	The neighbor router ID (string); a valid IP address.

Element	Description
ifp_name	The interface name (string). For example: <i>Ethernet1/X</i> or <i>VLAN interface</i> .
local_address	The local interface IP address (string); a valid IP address.
remote_address	The remote interface IP address (string); a valid IP address.
transit_area	The transit area-ID (string); a valid IP address.
transmit_delay	The transmission delay interval, in seconds, an integer from 1-3600.
vlink_state	The Virtual Link status (string); one of <i>Up</i> , <i>Down</i> .
hello_interval	The hello interval, in seconds; an integer from 1-65535.
dead_interval	The dead interval, in seconds; an integer from 1-65535.
wait_interval	The wait interval, in seconds; an integer from 1-65535.
retransmit_interval	The retransmit interval, in seconds; an integer from 1-65535.
hello_due	The due time to send the next hello (string).
adjacency_state	The adjacency state across the virtual-link (string).
authentication_type	The type of authentication (string); one of <i>Message-Digest</i> , <i>Simple</i> , <i>Null</i> .
key_id	The Key-ID, if the authentication type is MD5/SHA256; an integer from 1-255.



## Get OSPF Process

Gets the OSPF process information.

### *Request*

Method Type	GET
Request URI	/nos/api/info/ospf/process/< <i>vrf_name</i> >
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.

## Response

Response Body (JSON)	<pre>[   {     "ospfId": "&lt;ospfId&gt;",     "routerId": "&lt;routerId&gt;",     "upTime": "&lt;upTime&gt;",     "vrfName": "&lt;vrfName&gt;",     "vrfFlags": "&lt;vrfFlags&gt;",     "abrType": "&lt;abrType&gt;",     "spfStartDelaySec": "&lt;spfStartDelaySec&gt;",     "spfStartDelayUsec": "&lt;spfStartDelayUsec&gt;",     "spfMinDelaySec": "&lt;spfMinDelaySec&gt;",     "spfMinDelayUsec": "&lt;spfMinDelayUsec&gt;",     "spfMaxDelaySec": "&lt;spfMaxDelaySec&gt;",     "lsdbCount": "&lt;lsdbCount&gt;",     "lsdbChecksum": "&lt;lsdbChecksum&gt;",     "originateNewLsas": "&lt;originateNewLsas&gt;",     "rxNewLsas": "&lt;rxNewLsas&gt;",     "distance_all": "&lt;distance_all&gt;",     "distance_intra": "&lt;distance_intra&gt;",     "distance_inter": "&lt;distance_inter&gt;",     "distance_external": "&lt;distance_external&gt;",     "area_info":       [         {           "auth_type": "&lt;auth_type&gt;",           "mode": "&lt;mode&gt;",           "area_id": "&lt;area_id&gt;",           "area_flags": "&lt;area_flags&gt;",           "area_type": "&lt;area_type&gt;",           "active_if_count": "&lt;active_if_count&gt;",           "full_virt_nbr_count": "&lt;full_virt_nbr_count&gt;",           "full_nbr_count": "&lt;full_nbr_count&gt;",           "spf_calc_count": "&lt;spf_calc_count&gt;",           "area_lsdb_count": "&lt;area_lsdb_count&gt;",           "area_lsdb_checksum": "&lt;area_lsdb_checksum&gt;",         }       ]     }   ]</pre>
-------------------------	---

where:

Element	Description
ospfId	The OSPF process identifier (integer). Default value: 0.
routerId	Router-ID in IP address format (string); a valid IP address.
uptime	The OSPF process uptime; a string in the following format: HH:MM:SS.
vrfName	Default VRF name (string). Default value: <i>default</i> .
vrfFlags	The VRF flag; a positive value.
abrType	The ABR type (integer); displays the valid ABR types.

Element	Description
spfStartDelaySec	The SPF schedule start delay, in seconds; an integer from 0-600.
spfStartDelayUsec	The SPF schedule start delay, in microseconds; an integer from 0-1000.
spfMinDelaySec	The minimum SPF schedule delay time; an integer from 1-600.
spfMinDelayUsec	The minimum SPF schedule delay time, in microseconds; an integer from 1-1000.
lsdbCount	The number of external LSAs; zero or a positive integer.
lsdbChecksum	LAS checksum value (integer).
lsdbOverflow	The number of LSAs exceeding the limit; zero or a positive integer.
originateNewLsas	The number of new originated LSAs; zero or a positive integer.
rxNewLsas	The number of new LSAs received; zero or a positive integer.
distance_all	The distance to all destinations; zero or a positive integer.
distance_intra	The distance to intra-area destinations; zero or a positive integer.
distance_inter	The distance to inter-area destinations; zero or a positive integer.
distance_external	The distance to external destinations; zero or a positive integer.
auth_type	The type of authentication (integer); one of <i>Null</i> , <i>zero</i> or <i>cryptographic</i> .
mode	The IS area shortcut (an integer); one of <i>Shortcut</i> , <i>none</i> .
area_id	The area-ID; an integer from 0-4294967295.
area_flags	The area flag; a positive value.
area_type	The area type (integer); one of <i>Default</i> , <i>stub</i> or <i>nssa</i> .
active_if_count	The number of active interfaces in an area; zero or a positive integer.
area_if_count	The number of interfaces in an area; zero or a positive integer.
full_virt_nbr_count	Virtual neighbors count; zero or a positive integer.

Element	Description
full_nbr_count	Total number of neighbors; zero or a positive integer.
spf_calc_count	The number of SPF calculations; zero or a positive integer.
area_lsdb_count	The number of LSAs in the area; zero or a positive integer.
area_lsdb_checksum	The valid checksum of the link state database; a positive integer.

## Get OSPF Multi-Area Neighbor

Gets the OSPF multi-area neighbor information.

### Request

Method Type	GET
Request URI	/nos/api/info/ospf/multiarea-neighbors/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.

### Response

Response Body (JSON)	<pre>[   {     "ifname": "&lt;ifname&gt;",     "nbr_addr": "&lt;nbr_addr&gt;",     "type": "&lt;type&gt;",     "ifIpAddress": "&lt;ifIpAddress&gt;",     "ifAreaId": "&lt;ifAreaId&gt;",     "ifMTU": "&lt;ifMTU&gt;",     "proc_id": "&lt;proc_id&gt;",     "ifRouterId": "&lt;ifRouterId&gt;",     "ifTransmitDelay": "&lt;ifTransmitDelay&gt;",     "ifNetworkType": "&lt;ifNetworkType&gt;",     "if_output_cost": "&lt;if_output_cost&gt;",     "d_router": "&lt;d_router&gt;",     "D_router_address": "&lt;D_router_address&gt;",     "Bd_router": "&lt;Bd_router&gt;",     "Bd_router_address": "&lt;Bd_router_address&gt;",     "hello_interval": "&lt;hello_interval&gt;",     "dead_interval": "&lt;dead_interval&gt;",     "retransmit_interval": "&lt;retransmit_interval&gt;",     "neighbor_count": "&lt;neighbor_count&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
<i>ifName</i>	The interface name (string). For example: <i>Ethernet1/X</i> or <i>VLAN interface</i> .
<i>nbr_addr</i>	Neighbor IP address (string); a valid IP address.
<i>type</i>	The area type (integer); one of <i>Default</i> , <i>stub</i> or <i>nssa</i> .

Element	Description
ifIpAddress	The interface IP address (string); a valid IP address.
ifAreaId	The interface area-ID; an integer from 0-4294967295.
ifMTU	The maximum transmission unit (integer).
proc_id	The OSPF process identifier (integer). Default value: 0.
ifRouterId	The router-ID in IP address format (string); a valid IP address.
ifNetworkType	The interface network type (integer). Default value: <i>Point-to-Point</i> .
if_output_cost	Interface output cost; zero or a positive integer.
if_transmit_delay	The interface transmit delay, in seconds (integer).
transmit_if_state	The interface state type (integer).
d_router	Designated Router-ID (string); a valid IP address.
D_router_address	The IP address for the designated router (string).
Bd_router	The backup Router-ID for the designated router (string); a valid IP address.
Bd_router_address	The backup address for the designated router. (string).
Hello_interval	The hello interval, in seconds (integer).
Dead_interval	The dead interval, in seconds (integer).
retransmit_interval	The retransmit interval, in seconds (integer).
neighbor_count	The number of multi-area adjacent neighbors (integer).

## Get OSPF RIB Counters

Gets the OSPF RIB counters information.

### Request

Method Type	GET
Request URI	/nos/api/info/ospf/ribcounter_info/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.

### Response

Response Body (JSON)	<pre>[   {     "ospf2rib_route_add": "&lt;ospf2rib_route_add&gt;",     "ospf2rib_route_add_error": "&lt;ospf2rib_route_add_error&gt;",     "ospf2rib_route_delete": "&lt;ospf2rib_route_delete&gt;",     "ospf2rib_route_delete_error": "&lt;ospf2rib_route_delete_error&gt;",     "ospf_route_adds": "&lt;ospf_route_adds&gt;",     "ospf_route_dels": "&lt;ospf_route_dels&gt;",     "ospf_route_adds_ignored": "&lt;ospf_route_adds_ignored&gt;",     "ospf_route_dels_ignored": "&lt;ospf_route_dels_ignored&gt;",     "rib2ospf_route_add": "&lt;rib2ospf_route_add&gt;",     "rib2ospf_route_add_error": "&lt;rib2ospf_route_add_error&gt;",     "rib2ospf_route_del": "&lt;rib2ospf_route_del&gt;",     "rib2ospf_route_del_error": "&lt;rib2ospf_route_del_error&gt;",   } ]</pre>
-------------------------	--

where:

Element	Description
ospf2rib_route_add	The OSPF route addition calls made to RIB (integer).
ospf2rib_route_add_error	The OSPF to RIB route addition call errors (integer).
ospf2rib_route_delete	The OSPF to RIB route deletion calls (integer).
ospf2rib_route_delete_error	The OSPF to RIB route deletion call errors (integer).
ospf2rib_route_add	The OSPF route addition calls (integer).
ospf2rib_route_dels	The OSPF route deleted calls (integer).

<b>Element</b>	<b>Description</b>
ospf_route_adds	The OSPF route addition calls (integer).
ospf_route_dels	The OSPF route deleted calls (integer).
ospf_route_adds_ignored	The OSPF ignored route addition calls (integer).
ospf_route_dels_ignored	The OSPF ignored route deleted calls (integer).
rib2ospf_route_add	The number of route additional calls from RIB to OSPF (integer).
rib2ospf_route_add_error	The number of route additional call errors from RIB to OSPF (integer).
rib2ospf_route_del	The number of route deleted calls from RIB to OSPF (integer).
rib2ospf_route_del_error	The number of route deleted call errors from RIB to OSPF (integer).



## Set OSPF Process

Updates the OSPF process information.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/process/
Request Body (JSON)	{ "routerId": "<routerId>", "defaultMetric": "<defaultMetric>", "distance_all": "<distance_all>", "bfd": "<bfd>", "shutdown": "<shutdown>" }

where:

Variable	Description
routerId	The OPSF router-ID in IP address format (string); a valid IP address.
defaultMetric	The default metric cost; an integer from 1-16777214.
distance_all	The administrative distance, an integer from 1-255.
bfd	Whether to enable BFD configuration (string); one of <i>Enable</i> , <i>Disable</i> .
shutdown	Whether to enable the shutdown OSPF process (string); one of <i>Enable</i> , <i>Disable</i> .

## Response

Response Body (JSON)	<pre> {   "ospfId": "&lt;ospfld&gt;",   "routerId": "&lt;routerId&gt;",   "upTime": "&lt;upTime&gt;",   "vrfName": "&lt;vrfName&gt;",   "adminFlags": "&lt;adminFlags&gt;",   "configFlags": "&lt;configFlags&gt;",   "abrType": "&lt;abrType&gt;",   "spfStartDelaySec": "&lt;spfStartDelaySec&gt;",   "spfStartDelayUsec": "&lt;spfStartDelayUsec&gt;",   "spfMinDelaySec": "&lt;spfMinDelaySec&gt;",   "spfMinDelayUsec": "&lt;spfMinDelayUsec&gt;",   "spfMaxDelaySec": "&lt;spfMaxDelaySec&gt;",   "lsdbCount": "&lt;lsdbCount&gt;",   "lsdbChecksum": "&lt;lsdbChecksum&gt;",   "originateNewLsas": "&lt;originateNewLsas&gt;",   "rxNewLsas": "&lt;rxNewLsas&gt;",   "distance_all": "&lt;distance_all&gt;",   "distance_intra": "&lt;distance_intra&gt;",   "distance_inter": "&lt;distance_inter&gt;",   "distance_external": "&lt;distance_external&gt;",   "area_info":   [     {       "auth_type": "&lt;auth_type&gt;",       "mode": "&lt;mode&gt;",       "area_id": "&lt;area_id&gt;",       "area_flags": "&lt;area_flags&gt;",       "area_type": "&lt;area_type&gt;",       "active_if_count": "&lt;active_if_count&gt;",       "full_virt_nbr_count": "&lt;full_virt_nbr_count&gt;",       "full_nbr_count": "&lt;full_nbr_count&gt;",       "spf_calc_count": "&lt;spf_calc_count&gt;",       "area_lsdb_count": "&lt;area_lsdb_count&gt;",       "area_lsdb_checksum": "&lt;area_lsdb_checksum&gt;",     }   ] } </pre>
-------------------------	---

where:

Element	Description
ospfId	OSPF process ID. Default value: 0.
routerId	The router ID; a valid IP address.
upTime	OSPF process uptime, in the following format: hh:mm:ss.
vrfName	The VRF name; a valid IP address.
adminFlag	Administrative Flags; a positive number.
configFlag	Configuration flags; a positive number.
vrf flags	VRF flags; a positive number.
abrType	Area Border Router type; a type of ABR.

Element	Description
spfStartDelaySec	SPF schedule start delay; the delay value, in seconds.
spfStartDelayUsec	SPF schedule start delay; the delay value, in microseconds.
spfMinDelayMinSec	The minimum SPF schedule delay time; the delay value, in seconds.
spfMinDelayMinUsec	The minimum SPF schedule delay time in microseconds; the delay value, in microseconds.
lsdbCount	Number of as-external-LSAs; zero, or a positive number.
lsdbChecksum	The Checksum value; a valid checksum value.
lsdbOverflow	Number of LSAs exceeding limit value; zero, or a positive number.
originateNewLsas	Number of new LSAs originated; zero, or a positive number.
rxNewLsas	Number of new LSAs received; zero or a positive number.
distance_all	Distances of all destinations; zero or a positive number.
distance_intra	Distance of intra-area destinations; zero or a positive number.
distance_inter	Distance of inter-area destinations; zero or a positive number.
distance_external	Distance of external destinations; zero or a positive number.
auth_type	Authentication type; one of <i>null</i> , <i>zero</i> , <i>cryptographic</i> .
mode is	Area configured as shortcut; one of <i>shortcut mode</i> or <i>none</i> .
area_id	The Area ID; zero or a positive number.
area_type	Type of area; one of <i>default</i> , <i>stub</i> , <i>nssa</i> .
active_if_count	Active interfaces in an area; zero or a positive number.
area_if_count	Number of interfaces in an area; zero or a positive number.
full_virt_nbr_count	Count of virtual neighbors; zero or a positive number.
full_nbr_count	Number of neighbors; zero or a positive number.
spf_calc_count	Number of SPF calculations; zero or a positive number.

Element	Description
area_lsdb_count	Number of LSAs in link state database; zero or a positive number.
area_lsdb_checksum	Checksum of link state database; a positive number.

## Get OSPF Redistribute

Gets the OSPF redistribution.

### Request

Method Type	GET
Request URI	/nos/api/cfg/ospf/redistribute/
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "vrfName": "&lt;vrfName&gt;",   "redist_direct": "&lt;redist_direct&gt;",   "direct_metric": "&lt;direct_metric&gt;",   "direct_metric_type": "&lt;direct_metric_type&gt;",   "direct_tag": "&lt;direct_tag&gt;",   "direct_rmap_name": "&lt;direct_rmap_name&gt;",   "redist_bgp": "&lt;redist_bgp&gt;",   "bgp_metric": "&lt;bgp_metric&gt;",   "bgp_metric_type": "&lt;bgp_metric&gt;",   "bgp_tag": " "&lt;bgp_tag&gt;",   "bgp_rmap_name": "&lt;bgp_rmap_name&gt;",   "redist_static": "&lt;redist_static&gt;",   "static_metric": "&lt;static_metric&gt;",   "static_metric_type": "&lt;static_metric_type&gt;",   "static_tag": "&lt;static_tag&gt;",   "static_rmap_name": "&lt;static_rmap_name&gt;" }</pre>
-------------------------	--

where:

Element	Description
vrf_name	(Optional) Default VRF name. Default value: <i>default</i> .
redist_direct	Redistribute the direct configuration (string); one of <i>Enable</i> , <i>Disable</i> .
direct_metric	Redistribute the direct cost; an integer from 0-16777214.
direct_metric_type	The external metric type (integer); one of 1,2.
direct_tag	The tag value; an integer from 0-4294967295.
direct_rmap_name	The route-map name (string).
redist_bgp	Whether redistribute BGP is enabled; one of <i>Enable</i> , <i>Disable</i> .

Element	Description
bgp_metric	Redistribute BGP cost; an integer from 0-16777214.
bgp_metric_type	The external metric type (integer); one of 1,2 .
bgp_tag	The BGP tag value; an integer from 0-4294967295.
bgp_rmap_name	The BGP route map name (string).
redist_static	Whether redistribute static is enabled (string); one of <i>Enable</i> , <i>Disable</i> .
static_metric	Redistribute static cost; an integer from 0-16777214.
static_metric_type	The external metric type (integer); one of 1,2 .
static_tag	The tag value; an integer from 0-4294967295.
static_rmap_name	The static route map name (string).

## Set OSPF Redistribute

Updates the OSPF redistribution.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/redistribute/<vrf_name>
Request Body (JSON)	<pre>{   "redist_direct": "&lt;redist_direct&gt;",   "direct_metric": "&lt;direct_metric&gt;",   "direct_metric_type": "&lt;direct_metric_type&gt;",   "direct_tag": "&lt;direct_tag&gt;",   "direct_rmap_name": "&lt;direct_rmap_name&gt;",   "redist_bgp": "&lt;redist_bgp&gt;",   "bgp_metric": "&lt;bgp_metric&gt;",   "bgp_metric_type": "&lt;bgp_metric&gt;",   "bgp_tag": "&lt;bgp_tag&gt;",   "bgp_rmap_name": "&lt;bgp_rmap_name&gt;",   "redist_static": "&lt;redist_static&gt;",   "static_metric": "&lt;static_metric&gt;",   "static_metric_type": "&lt;static_metric_type&gt;",   "static_tag": "&lt;static_tag&gt;",   "static_rmap_name": "&lt;static_rmap_name&gt;" }</pre>

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.
redist_direct	Redistribute the direct configuration (string); one of <i>Enable</i> , <i>Disable</i> .
direct_metric	Redistribute the direct cost; an integer from 0-16777214.
direct_metric_type	The external metric type (integer); one of 1,2.
direct_tag	The tag value; an integer from 0-4294967295.
direct_rmap_name	The route-map name (string).
redist_bgp	Whether redistribute BGP is enabled; one of <i>Enable</i> , <i>Disable</i> .
bgp_metric	Redistribute BGP cost; an integer from 0-16777214.
bgp_metric_type	The external metric type (integer); one of 1,2.
bgp_tag	The BGP tag value; an integer from 0-4294967295.
bgp_rmap_name	The BGP route map name (string).

Element	Description
redist_static	Whether redistribute static is enabled (string); one of <i>Enable</i> , <i>Disable</i> .
static_metric	Redistribute static cost; an integer from 0-16777214.
static_metric_type	The external metric type (integer); one of 1,2.
static_tag	The tag value; an integer from 0-4294967295.
static_rmap_name	The static route map name (string).

## Response

Response Body (JSON)	<pre>{   "vrfName": "&lt;vrfName&gt;",   "redist_direct": "&lt;redist_direct&gt;",   "direct_metric": "&lt;direct_metric&gt;",   "direct_metric_type": "&lt;direct_metric_type&gt;",   "direct_tag": "&lt;direct_tag&gt;",   "direct_rmap_name": "&lt;direct_rmap_name&gt;",   "redist_bgp": "&lt;redist_bgp&gt;",   "bgp_metric": "&lt;bgp_metric&gt;",   "bgp_metric_type": "&lt;bgp_metric&gt;",   "bgp_tag": "&lt;bgp_tag&gt;",   "bgp_rmap_name": "&lt;bgp_rmap_name&gt;",   "redist_static": "&lt;redist_static&gt;",   "static_metric": "&lt;static_metric&gt;",   "static_metric_type": "&lt;static_metric_type&gt;",   "static_tag": "&lt;static_tag&gt;",   "static_rmap_name": "&lt;static_rmap_name&gt;" }</pre>
-------------------------	--

where:

Element	Description
vrf_name	(Optional) Default VRF name. Default value: <i>default</i> .
redist_direct	Redistribute the direct configuration (string); one of <i>Enable</i> , <i>Disable</i> .
direct_metric	Redistribute the direct cost; an integer from 0-16777214.
direct_metric_type	The external metric type (integer); one of 1,2.
direct_tag	The tag value; an integer from 0-4294967295.
direct_rmap_name	The route-map name (string).
redist_bgp	Whether redistribute BGP is enabled; one of <i>Enable</i> , <i>Disable</i> .
bgp_metric	Redistribute BGP cost; an integer from 0-16777214.



<b>Element</b>	<b>Description</b>
bgp_metric_type	The external metric type (integer); one of 1,2 .
bgp_tag	The BGP tag value; an integer from 0-4294967295.
bgp_rmap_name	The BGP route map name (string).
redist_static	Whether redistribute static is enabled (string); one of <i>Enable, Disable</i> .
static_metric	Redistribute static cost; an integer from 0-16777214.
static_metric_type	The external metric type (integer); one of 1,2 .
static_tag	The tag value; an integer from 0-4294967295.
static_rmap_name	The static route map name (string).

## Get OSPF NSSA area

Gets the OSPF nssa area configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/ospf/nssa/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.

### Response

Response Body (JSON)	<pre>{   "nssa_area": "&lt;nssa_area&gt;",   "nssa_area_id": "&lt;nssa_area_id&gt;",   "nssa_def_info": "&lt;nssa_def_info&gt;",   "nssa_def_metric": "&lt;nssa_def_metric&gt;",   "nssa_def_metric_type": "&lt;nssa_def_metric_type&gt;",   "nssa_no_redist": "&lt;nssa_no_redist&gt;",   "nssa_no_summary": "&lt;nssa_no_summary&gt;",   "nssa_translate_always": "&lt;nssa_translate_always&gt;",   "nssa_stability_interval": "&lt;nssa_stability_interval&gt;" }</pre>
-------------------------	---

where:

Element	Description
nssa_area	The NSSA area configuration (string); one of <i>Enable</i> , <i>Disable</i> .
nssa_area_id	The NSSA area ID IP address (string); a valid IP address.
nssa_def_info	The NSSA default information originate configuration (string); one of <i>Enable</i> , <i>Disable</i> .
nssa_def_metric	The NSSA default metric; an integer from 0-16777214.
nssa_def_metric_type	The NSSA external metric type (integer); one of 1,2.
nssa_no_redist	Whether to stop redistribution in the NSSA area (string); one of <i>Enable</i> , <i>Disable</i> .

Element	Description
nssa_no_summary	Whether to stop summary LSAs into the NSSA area (string); one of <i>Enable</i> , <i>Disable</i> .
nssa_translate_always	Always translate type7 LSA (string); one of <i>Enable</i> , <i>Disable</i> .
nssa_stability_interval	The NSSA stability interval; an integer from 0-2147483647.

## Set OSPF NSSA area

Updates the OSPF nssa area configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/nssa/<vrf_name>
Request Body (JSON)	<pre>{   "vrfName": "&lt;vrfName&gt;"   "nssa_area": "&lt;nssa_area&gt;",   "nssa_area_id": "&lt;nssa_area_id&gt;",   "nssa_def_info": "&lt;nssa_def_info&gt;",   "nssa_def_metric": "&lt;nssa_def_metric&gt;",   "nssa_def_metric_type": "&lt;nssa_def_metric_type&gt;",   "nssa_no_redist": "&lt;nssa_no_redist&gt;",   "nssa_no_summary": "&lt;nssa_no_summary&gt;",   "nssa_translate_always": "&lt;nssa_translate_always&gt;",   "nssa_stability_interval": "&lt;nssa_stability_interval&gt;" }</pre>

where:

Element	Description
vrf_name	(Optional) Default VRF name. Default value: <b>default</b> .
nssa_area	The NSSA area configuration (string); one of <i>Enable, Disable</i> .
nssa_area_id	The NSSA area ID IP address (string); a valid IP address.
nssa_def_info	The NSSA default information originate configuration (string); one of <i>Enable, Disable</i> .
nssa_def_metric	The NSSA default metric; an integer from 0-16777214.
nssa_def_metric_type	The NSSA external metric type (integer); one of 1,2.
nssa_no_redist	Whether to stop redistribution in the NSSA area (string); one of <i>Enable, Disable</i> .
nssa_no_summary	Whether to stop summary LSAs into the NSSA area (string); one of <i>Enable, Disable</i> .
nssa_translate_always	Always translate type7 LSA (string); one of <i>Enable, Disable</i> .
nssa_stability_interval	The NSSA stability interval; an integer from 0-2147483647.

## Response

Response Body (JSON)	<pre>{   "nssa_area": "&lt;nssa_area&gt;",   "nssa_area_id": "&lt;nssa_area_id&gt;",   "nssa_def_info": "&lt;nssa_def_info&gt;",   "nssa_def_metric": "&lt;nssa_def_metric&gt;",   "nssa_def_metric_type": "&lt;nssa_def_metric_type&gt;",   "nssa_no_redist": "&lt;nssa_no_redist&gt;",   "nssa_no_summary": "&lt;nssa_no_summary&gt;",   "nssa_translate_always": "&lt;nssa_translate_always&gt;",   "nssa_stability_interval": "&lt;nssa_stability_interval&gt;" }</pre>
-------------------------	---

where:

Element	Description
nssa_area	The NSSA area configuration (string); one of <i>Enable</i> , <i>Disable</i> .
nssa_area_id	The NSSA area ID IP address (string); a valid IP address.
nssa_def_info	The NSSA default information originate configuration (string); one of <i>Enable</i> , <i>Disable</i> .
nssa_def_metric	The NSSA default metric; an integer from 0-16777214.
nssa_def_metric_type	The NSSA external metric type (integer); one of 1,2.
nssa_no_redist	Whether to stop redistribution in the NSSA area (string); one of <i>Enable</i> , <i>Disable</i> .
nssa_no_summary	Whether to stop summary LSAs into the NSSA area (string); one of <i>Enable</i> , <i>Disable</i> .
nssa_translate_always	Always translate type7 LSA (string); one of <i>Enable</i> , <i>Disable</i> .
nssa_stability_interval	The NSSA stability interval; an integer from 0-2147483647.

## Set OSPF default cost

Gets the OSPF database.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/area_def_cost
Request Body (JSON)	{ "vrfName": "<vrfName>", "area_id": "<area_id>", "state": "<state>", "default-cost": "<default-cost>" }

where:

Element	Description
vrf_name	(Optional) Default VRF name. Default value: <i>default</i> .
area_id	(Mandatory) The area ID IP address (string); a valid IP address.
state	Whether the default cost is enabled (string); one of <i>Enable, Disable</i> .
default_cost	The default summary cost value; an integer from 0-16777214.

### Response

Response Body (JSON)	
-------------------------	--

## Set Area Authentication

Updates the OSPF area authentication.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/area_auth/<vrf_name>
Request Body (JSON)	<pre>{   "vrfName": "&lt;vrfName&gt;",   "area_id": "&lt;area_id&gt;",   "auth": "auth",   "message-digest": "&lt;message-digest&gt;" }</pre>

where:

Element	Description
vrf_name	(Optional) Default VRF name. Default value: <i>default</i> .
area_id	The area ID IP address (string); a valid IP address.
auth	The authentication configuration (string); one of <i>Enable</i> , <i>Disable</i> .

### Response

Response Body (JSON)	
-------------------------	--

## Set OSPF Summary Address

Gets the OSPF summary address.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/summary_addr/<vrf_name>
Request Body (JSON)	{ "summary_addr": "<summary_addr>", "prefix": "<prefix>", "masklen": "<masklen>", "not-advertise": "<not-advertise>", "tag": "<tag>" }

where:

Element	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: <b>default</b> .
summary_addr	Whether to enable summary address configuration (string); one of <i>Enable</i> , <i>Disable</i> .
prefix	The IP address (string); a valid IP address.
masklen	The mask length; an integer from 0-32.
not-advertise	Whether to suppress routes that match the prefix (string); one of <i>Enable</i> , <i>Disable</i> .
tag	The tag value; an integer from 0-4294967295.

### Response

Response Body (JSON)	
-------------------------	--



## Set OSPF Area Range

Sets the OSPF area range addresses.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/range/<vrf_name>
Request Body (JSON)	<pre>{   "area_id": "&lt;area_id&gt;",   "range": "&lt;range&gt;",   "prefix": "&lt;prefix&gt;",   "masklen": "&lt;masklen&gt;",   "not-advertise": "&lt;not-advertise&gt;" }</pre>

where:

Variable	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.
<i>area_id</i>	The area ID IP address (string); a valid IP address.
<i>range</i>	Whether to enable the range of IP addresses (string); one of <i>Enable</i> , <i>Disable</i> .
<i>prefix</i>	The IP address (string); a valid IP address.
<i>mask</i>	The mask length; an integer from 0-32.
<i>not-advertise</i>	Whether to suppress routes that match the prefix (string); one of <i>Enable</i> , <i>Disable</i> .

### Response

Response Body (JSON)	
-------------------------	--

## Set OSPF Overflow Database

Updates the database overflow limits.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/overflow_db/<vrf_name>
Request Body (JSON)	<pre>{   "db_overflow": "&lt;db_overflow&gt;",   "max_lsas": "&lt;max_lsas&gt;",   "limit": "&lt;limit&gt;",   "external": "&lt;external&gt;",   "ext_max_lsas": "&lt;ext_max_lsas&gt;",   "recovery_time": "&lt;recovery_time&gt;" }</pre>

where:

Variable	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.
db_overflow	Whether to enable the database overflow configuration (string); one of <i>Enable</i> , <i>Disable</i> .
max_lsas	The maximum LSA limit; an integer from 0-4294967294.
limit	The database limit type (string); one of <i>Hard</i> , <i>soft</i> .
external	Whether to enable the external LSA limit (string); one of <i>Enable</i> , <i>Disable</i> .
ext_max_lsas	The maximum external LSA limit; an integer from 0-2147483647.
recovery_time	The time to recover from the external LSA limit, in seconds; an integer from 0-65535.

### Response

Response Body (JSON)	
-------------------------	--

## Set OSPF Auto-cost Reference Bandwidth

Updates the auto-cost reference bandwidth.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/autocost_refbw/<vrf_name>
Request Body (JSON)	{ "autocost_refbw": "<autocost_refbw>", "bw_value": "<bw_value>", "bw_unit": "<bw_unit>" }

where:

Variable	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.
<i>autocost_refbw</i>	Whether to enable the autocost reference bandwidth configuration (string); one of <i>Enable</i> , <i>Disable</i> .
<i>bw_value</i>	The bandwidth value; an integer from: <ul style="list-style-type: none"><li>• 1-4294 for Gbps</li><li>• 1-4294967 for Mbps</li></ul>
<i>bw_unit</i>	The bandwidth unit (string); one of <i>Gbps</i> , <i>Mbps</i> .

### Response

Response Body (JSON)	
-------------------------	--

## Set OSPF Stub Configuration

Updates the stub area configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/stub/<vrf_name>
Request Body (JSON)	{ "area_id": "<area_id>", "stub": "<stub>", "no_summary": "<no_summary>" }

where::

Variable	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.
area-id	The area ID IP address (string); a valid IP address.
stub	Whether to enable the stub area configuration (string); one of <i>Enable</i> , <i>Disable</i> .
no_summary	Whether to not inject summary routes into the stub configuration (string); one of <i>Enable</i> , <i>Disable</i> .

### Response

Response Body (JSON)	
-------------------------	--

## Set OSPF Remove Configuration

Sets the OSPF remove commands.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ospf/clear/<vrf_name>
Request Body (JSON)	{ "process": "<process>", "statistics": "<statistics>", "traffic": "<traffic>", "neighbors": "<neighbors>" }

where:

Variable	Description
<i>vrf_name</i>	(Optional) Default VRF name. Default value: default.
<i>process</i>	Remove the OSPF process configurations (string); one of <i>Enable</i> , <i>Disable</i> .
<i>statistics</i>	Remove the OSPF statistic configurations (string); one of <i>Enable</i> , <i>Disable</i> .
<i>traffic</i>	Remove the OSPF process traffic statistic configurations (string); one of <i>Enable</i> , <i>Disable</i> .
<i>neighbors</i>	Remove the OSPF neighbor configurations (string); one of <i>Enable</i> , <i>Disable</i> .

### Response

Response Body (JSON)	
-------------------------	--



---

## PKA

The following Public Key Authentication (PKA) URIs are available:

- /nos/api/cfg/pka GET
- /nos/api/cfg/pka/pub GET, PUT,DELETE

The following PKA commands are available:

- [Get PKA Summary Informations](#)
- [Get PKA Certificate](#)
- [Import PKA Certificate via SFTP](#)
- [Import PKA Certificate Directly](#)
- [Delete PKA Certificate](#)

## Get PKA Summary Informations

Gets the PKA summary informations.

### Request

Method Type	GET
Request URI	/nos/api/cfg/pka
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[ {   "pka_number": {pka_number},   "label_name_list": {label_name_list},   "pka_username": {pka_username} } ]</pre>
-------------------------	---

where:

Element	Description
pka_number	The binding public key number for a specific user; an integer from 1-10.
label_name_list	The binding public key label name list for a specific user a string in the following format: <i>{label_name_list}</i> .
pka_username	The username who binds the public key; an integer up to 28 characters.



## Get PKA Certificate

Gets the public key certificate for a specific label name.

### Request

Method Type	GET
Request URI	/nos/api/cfg/pka/pub/<pk_username>/<label_name>
Request Body (JSON)	

where:

Element	Description
<i>pk_username</i>	(Mandatory) The username who binds the public key; an integer up to 28 characters.
<i>label_name</i>	(Mandatory) The binding public key label name for a specific user a string in the following format: {label_name}.

### Response

Response Body (JSON)	[ "ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQDZXSHy1c40U9ByMtHoC2E9K10npyo tac0McTKP/zAXRbGeZT9CU58LPLneRYzkZQ1o6EQs0Hx+0codt6kYf0nqVY s15xRrKPNQYSxUVQYBwKZCigb7LwUPogaiX81h0120sMxAzBLTx3YydzEt1 SELfzPdqi+FHErycMUy0mmc1azIJc/US1/ZBmvw7K0UdVjwj1DBcQ1ZYdUX YNxBG/+YR3LpdpHkJnsxtDobdw94G3rqR2bTdcHXWcrZjCnpzQEcYjrDwHS d09EJwQZ5a+KorTkuZsYyqP5s/jAwyk4+B5saRidtd2n4H3qzKCq7U4PpZ EIFF3D0sgcU/0Du7fT stack@ubuntu-226" ]
-------------------------	--

## Import PKA Certificate via SFTP

Imports the public key certificate for a specific label name.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/pka/pub/<pk_username>/<label_name>
Request Body (JSON)	<pre>{   "import_type": "sftp",   "server_ip": {server_ip},   "src_file": {src_file},   "login_username": {login_username},   "login_passwd": {login_password},   "vrf_name": "{management   default}" }</pre>

where:

Element	Description
<i>pk_username</i>	(Mandatory) The username who binds the public key; an integer up to 28 characters.
<i>label_name</i>	(Mandatory) The binding public key label name for a specific user a string in the following format: {label_name}.
<i>import_type</i>	(Mandatory) The import type for the public key certificate (string); one of <i>sftp</i> , <i>line</i> .
<i>server_ip</i>	(Mandatory) The server IP address; a valid IPv4 or IPv6 address.
<i>src_file</i>	(Mandatory) The source file; a string up to 256 characters.
<i>login_username</i>	(Mandatory) The server username (string).
<i>login_passwd</i>	(Mandatory) The server password (string).
<i>vrf_name</i>	(Optional) The VRF instance name. Valid values: <ul style="list-style-type: none"><li>• <i>default</i></li><li>• <i>management</i></li></ul> Default value: <i>default</i> .

## Response

Response Body (JSON)	{ "status": "{successful   failed}", "details": "{details}", "filename": "{ filename }" }
-------------------------	---

where:

Element	Description
status	The import status (string); one of <i>failed</i> , <i>import success</i> .
details	The detailed description of the status (string).
filename	The source file name (string).

## Import PKA Certificate Directly

Imports the public key content.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/pka/pub/<pk_username>/<label_name>
Request Body (JSON)	{ "import_type": "line", "pk_content": {pk_content} }

where:

Element	Description
<i>pk_username</i>	The username who binds the public key; an integer up to 28 characters.
<i>label_name</i>	The binding public key label name for a specific user a string in the following format: {label_name}.
<i>import_type</i>	The import type for the public key certificate (string); one of <i>sftp</i> , <i>line</i> .
<i>pk_content</i>	The public key certificate content; a string in the following format: {pk_content}.

### Response

Response Body (JSON)	{ "status": "{successful   failed}", "details": "{details}", "filename": "{filename}" }
----------------------	---

where:

Element	Description
<i>status</i>	The import status (string); one of <i>failed</i> , <i>import success</i> .
<i>details</i>	The detailed description of the status (string).
<i>filename</i>	The source file name (string). If the import type is <i>null</i> , the filename is <i>null</i> .

## Delete PKA Certificate

Deletes a public key certificate.

### Request

Method Type	DELETE
Request URI	/nos/api/cfg/pka/pub/<pk_username>/<label_name>
Request Body (JSON)	

where:

Element	Description
<i>pk_username</i>	(Mandatory) The username who binds the public key; an integer up to 28 characters.
<i>label_name</i>	(Mandatory) The binding public key label name for a specific user a string in the following format: <i>{label_name}</i> .

### Response

Response Body (JSON)	
-------------------------	--



---

## PKI

The following Private Key Infrastructure (PKI) URIs are available:

- /nos/api/cfg/pki GET, DELETE
- /nos/api/cfg/pki/ca GET, PUT, DELETE
- /nos/api/cfg/pki/hostcert GET, PUT, POST, DELETE
- /nos/api/cfg/pki/csr GET, PUT, POST

The following PKI commands are available:

- [Get PKI Profile Summary Information](#)
- [Delete PKI Profile](#)
- [Get CA Certificate](#)
- [Import CA Certificate](#)
- [Delete CA Certificate](#)
- [Get Host Certificate](#)
- [Import Host Certificate](#)
- [Generate Host Certificate](#)
- [Delete Host Certificate](#)
- [Generate CSR](#)
- [Get CSR](#)
- [Export CSR and Import Signed CSR](#)

## Get PKI Profile Summary Information

Gets summary information about a specific PKI profile or about all configured PKI profiles.

### Request

Method Type	GET
Request URI	/nos/api/cfg/pki/<pk_name>
Request Body (JSON)	

where:

Element	Description
<i>pk_name</i>	The name of the PKI profile; a string up to 16 characters long. <b>Note:</b> If no PKI profile name is provided, then the command returns summary information about all configured PKI profiles.

### Response

Response Body (JSON)	[ { "PKI_Profile_Name": "<pk_name>", "In_use": "{yes no}", "CA": "<ca_number>", "Host_certificate": "{existent non existent}", "CSR": "{existent non existent}" } ]
----------------------	---

where:

Element	Description
PKI_Profile_Name	The name of the PKI profile; a string up to 16 characters long.
In_use	Whether the PKI profile is used by the switch; one of <i>yes</i> , <i>no</i> .
CA	The number of Certificate Authority (CA) stored in the PKI profile; an integer from 0-5.
Host_certificate	Whether host certificates are present in the PKI profile; one of <i>existent</i> , <i>non existent</i> .
CSR	Whether Certificate Signing Requests (CSR) are present in the PKI profile; one of <i>existent</i> , <i>non existent</i> .



## Delete PKI Profile

Removes a configured PKI profile.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/pki/<pk_name>
Request Body (JSON)	

where:

Element	Description
<i>pk_name</i>	The name of the PKI profile; a string up to 16 characters long.

## Get CA Certificate

Gets the Certificate Authority (CA) stored in the PKI profile.

### Request

Method Type	GET
Request URI	/nos/api/cfg/pki/ca/<pk_name>/<format>
Request Body (JSON)	

where:

Element	Description
<i>pk_name</i>	The name of the PKI profile; a string up to 16 characters long.
<i>format</i>	The format for displaying the CA; one of <code>text</code> , <code>base64</code> . Default value: <code>text</code> .

### Response

Example when chosen format is `text`:

Response Body (JSON)	[ "Certificate: Data: Version: 3 (0x2) Serial Number: 89:0f:d1:1e:d7:79:37:cb Signature Algorithm: sha256WithRSAEncryption Issuer: C=US, ST=Maryland, L=Baltimore, O=Test CA, Limited, OU=Server Research Department, CN=Test CA, emailAddress=test@example.com Validity Not Before: Dec 28 08:26:50 2016 GMT Not After : Sep 24 08:26:50 2019 GMT Subject: C=US, ST=Maryland, L=Baltimore, O=Test CA, Limited, OU=Server Research Department, CN=Test CA/emailAddress=test@example.com Subject Public Key Info: Public Key Algorithm: rsaEncryption Public-Key: (4096 bit) Modulus: 00:a8:cc:51:e8:18:c7:50:68:12:3c:7d:c4:9f:9a: d3:a3:4e:8d:0a:e3:b6:25:88:f6:07:0e:de:09:b3: 96:59:d7:e3:38:2c:2f:1d:50:e5:40:91:4f:29:9d: b6:45:4f:d6:f3:f9:27:09:04:85:13:50:91:6b:e8: 4e:6b:c0:f7:c5:b9:f0:9b:45:9a:90:80:49:5f:3b: ... ]
----------------------	---

Example when chosen format is *base64*:

Response Body (JSON)	<pre>[   "-----BEGIN CERTIFICATE----- MIIGMzCCBBUGAwIBAgIJAIkP0R7XeTfLMA0GCSqGSIb3DQEBCwUAMIGnMQswCQYD VQQGEwJVUzERMA8GA1UECAwITWYewXhbmQxEjAQBGNVBAcMCUJhbHRpbw9yZTEZ MBcGA1UECgVGVzdBQDQSwgTGltaXRlZDEjMCEGA1UECwwaU2VydMvYIFJlc2Vh cmNoIERlcGFydG1lbnQxEDA0BgNVBAMMB1Rlc3QgQ0ExHzAdBgkqhkiG9w0BCQEW EHRlc3RAZXhhbXBsZS5jb20wHhcNMTYxMjI4MDgyNjUwWhcNMTkwOTI0MDgyNjUw WjCBpzELMAKGA1UEBhMCVVMxETAPBgNVBAGMCE1hcnlsYw5kMRIwEAYDVQQHDA1C YX80aW1vcUxGTAXBGNVBAoMEFRlc3QgQ0EsIExpblw10ZwQxIzAhBgNVBASMG1N1 cnZlciBSZXNlYXJjaCBEZXhcnRtZW50MRAwDgYDVQQDDAdUZXR0IENBMR8wHQYJ KozIhvcNAQkBFhB0ZXN0QGV4Yw1wbGUuY29tMIICIjANBgkqhkiG9w0BAQEFAAOc Ag8AMIICGKCAgEAQmXr6BjHUGgSPH3En5rTo06NCu02JYj2Bw7eCb0Wwdfj0Cww HVD1QJFPKZ22RU/w8/knCQSF1CRA+h0a8D3xbnm0WakIBJXzuLsCAIIV78nDuq NzI6xbuHdT0P60ldZiLUgyqZypb0ScNfGkQnCMoSIdJBUpAgkqG9hGYD/ATpn3/R BzdrOGCPJZ3Zm/90i5qUBKHoQmXdk5/R29kf4bM2HLKw2tqh4+Ba/PJowZ2wASvT AzU39JTKLU+HtKg8F2hEs4CtZ/sE1A+oKSGUzftJPF50mM28xIb4a0HlecTY92i /6rbcxZS10RnH3Z1VENlHgQCeYf4XXBLI20kL1Bknm5IqqojK1BNP7Z61vEiLhx LqX8XdXyrjzqXK7P0+yc+7jXmwG9mhPxWDW05yvFFM1IhwmNh08uNE+dCo+REmtp jGkmi4gJdzUEDZwYfUXbIRZpdAtCYuIygZ0CX7kzvSoGn2IxG43svKhxZYvR038M xtjjBNW23jMcpMy+48bs04dVMBNYJd9LubI1+tMKqZZmTT8dCRP6woxL05DCVn79 ... Ay8jxzXX93uIKa0a3K+0B25iFT6xwK50ioVSLfaGqfw71lsf/k2vFViqhBTnoLux 2oSiHoEHGGSAMw0pQz9DTdVFYeFieE+BaIfs0yEgmXoJC4sxUrDrpzJydSfjJ6n 5Pc2cZRVkJZoSwXR40NfJCsVpxTDJrN8A+3UqyIW/539shRBqUyxounE25ooYN49 a0RIjMDXm25bz7V7Xm+uHUw7gQeWACLIOhJiqc7QS+0w1b9zBau5pU670NH+W7R LjE17rXska== -----END CERTIFICATE-----" ]</pre>
----------------------	--

## Import CA Certificate

Imports a CA certificate from a remote server to a specific PKI profile on the switch.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/pki/ca/<pk_name>
Request Body (JSON)	<pre>{   "server_ip": "{server_ip}",   "src_file": "{src_file}",   "username": "{username}",   "passwd": "{password}",   "vrf_name": "{management default}" }</pre>

where:

Element	Description
<i>pk_name</i>	The name of the PKI profile; a string up to 16 characters long. <b>Note:</b> If the specified PKI profile does not exist, then the switch creates a new PKI profile with that name.
<i>server_ip</i>	The IP address of the remote server from where the CA certificate is imported.
<i>src_file</i>	The source filepath of the CA certificate on the server; a string representing the filepath of the CA certificate.
<i>username</i>	The username used to log onto the remote server (string).
<i>passwd</i>	The password used to log onto the remote server (string).
<i>vrf_name</i>	The VRF instance used to connect to the remote server; one of <i>default</i> , <i>management</i> . Default value: <i>default</i> .

### Response

Response Body (JSON)	<pre>{   "status": "{successful failed}",   "details": "{details}",   "filename": "{filename}" }</pre>
----------------------	--

where:

Element	Description
<i>status</i>	The status of the CA certificate import; one of <i>successful</i> , <i>failed</i> .
<i>details</i>	The detailed description of the import status (string).
<i>filename</i>	The filename of the CA certificate (string).

## Delete CA Certificate

Deletes a CA certificate from a specific PKI profile.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/pki/ca/<pkc_name>?subject=<subject>
Request Body (JSON)	

where:

Element	Description
<i>pkc_name</i>	The name of the PKI profile; a string up to 16 characters long.
<i>subject</i>	The subject of the CA certificate; a string up to 255 characters long. For example: "C=US, ST=Maryland, L=Baltimore, O=Test CA, Limited, OU=Server Research Department, CN=Test CA, emailAddress=test@example.com"

## Get Host Certificate

Gets the host certificate stored in a specific PKI profile.

### Request

Method Type	GET
Request URI	/nos/api/cfg/pki/hostcert/<pk_name>/<format>
Request Body (JSON)	

where:

Element	Description
<i>pk_name</i>	The name of the PKI profile; a string up to 16 characters long.
<i>format</i>	The format for displaying the host certificate; one of <code>text</code> , <code>base64</code> . Default value: <code>text</code> .

### Response

Example when chosen format is `text`:

Response Body (JSON)	[ "Certificate: Data: Version: 3 (0x2) Serial Number: 89:0f:d1:1e:d7:79:37:cb Signature Algorithm: sha256WithRSAEncryption Issuer: C=US, ST=Maryland, L=Baltimore, O=Test CA, Limited, OU=Server Research Department, CN=Test CA, emailAddress=test@example.com Validity Not Before: Dec 28 08:26:50 2016 GMT Not After : Sep 24 08:26:50 2019 GMT Subject: C=US, ST=Maryland, L=Baltimore, O=Test CA, Limited, OU=Server Research Department, CN=Test CA/emailAddress=test@example.com Subject Public Key Info: Public Key Algorithm: rsaEncryption Public-Key: (4096 bit) Modulus: 00:a8:cc:51:e8:18:c7:50:68:12:3c:7d:c4:9f:9a: d3:a3:4e:8d:0a:e3:b6:25:88:f6:07:0e:de:09:b3: 96:59:d7:e3:38:2c:2f:1d:50:e5:40:91:4f:29:9d: b6:45:4f:d6:f3:f9:27:09:04:85:13:50:91:6b:e8: 4e:6b:c0:f7:c5:b9:f0:9b:45:9a:90:80:49:5f:3b: ... ]
----------------------	---

Example when chosen format is *base64*:

Response Body (JSON)	<pre>[   "-----BEGIN CERTIFICATE----- MIIGmzCCBbugAwIBAgIJAIkP0R7XeTfLMA0GCSqGSIb3DQEBCwUAMIGnMQswCQYD VQQGEwJVUzERMA8GA1UECAwITWYwXzhhbmQxXzEjAQBgNVBAMCUJhbHRpbW9yZTEZ MBCGA1UECgwQVGVzdCBkQSwgTGltaXRlZDEjMCEGA1UECwwaU2VydmVyIFJlc2Vh cmNoIERlcGFydG1lbnQxEDAOBgNVBAMMB1Rlc3QgQ0ExHzAdBgkqhkiG9w0BCQEW EHRlc3RAZXhhbXBsZS5jb20wHhcNMTYxMjI4MDgyNjUwWhcNMTkwOTI0MDgyNjUw WjCBpzELMAKGA1UEBhMCMVVMxETAPBgNVBAGMCE1hcnlsYw5kMRIwEAYDVQQHDA1C YX8jXzEjMCEGA1UECgwQVGVzdCBkQSwgTGltaXRlZDEjMCEGA1UECwwaU2VydmVy IFJlc2VhcmNoIERlcGFydG1lbnQxEDAOBgNVBAMMB1Rlc3QgQ0ExHzAdBgkqhkiG9w0 BAQFAAOCCAgEAQMAxR6BjHUGGSPH3En5rTo06NCu02JYj2Bw7eCb0wWdfj0Cwv HVD1QJFPKZ22RU/w8/knCQSFE1CRa+h0a8D3xbnm0WakIBJXzuLscAIIIV78nDuq NzI6xbuHdT0P60ldZiLUgyqZypb0ScNfGkQnCMoSIdJBUpAgkqG9hGYD/ATpn3/R BzdrOGCPJZ3Zm/90i5qUBKHoQmXdk5/R29kf4bM2HLKw2tqh4+Ba/PJowZ2wASvT AzU39JTKLU+HtKg8F2hEs4CtZ/sE1A+oKSGUzftJPF50mM28xIb4a0HlecqTY92i /6rbcdxZS10RnH3Z1VENlHgQCeYf4XXBLI20kL1Bknm5IqqojK1BNP7Z61vEiLhx LqX8XdXyrjzqXK7P0+yc+7jXmwG9mhPxWDW05yvFFM1IhwmN08uNE+dCo+REmtp jGkmi4gJdzUEDZwYfUXbIRZpdAtCYuIygZ0CX7kzvSoGn2IxG43svKhxZYvR038M xtjjBNW23jMcpMy+48bs04dVMBNYJd9LubI1+tMKqZZmTT8dCRP6woxL05DCVn79 JCAqCVY0vFE1mVSUggF5CVG0n9/dylTmXIpaiap0dAqJ3DNjnPbxpCnUYXn3NFIL ... Ay8jxzXX93uIKa0a3K+0B25iFT6xwK50ioVSLfaGqfw71sf/k2vFViqhBTnoLux 2oSiHoEHGGSAMw0pQz9DTdVFYeFie+BaIfs0yEgmXoJC4sxUrDrpczJydSfjJ6n 5Pc2cZRVKJZoSWXR4oNfJCsVpxTDJrN8A+3UqyIW/539shRBqUyxounE25ooYN49 a0RIjMDXm25bz7f7V7Xm+uHUw7gQeWACLIohJiqc7QS+0w1b9zBau5pU670NH+W7R LjE17rXska== -----END CERTIFICATE-----" ]</pre>
----------------------	--

## Import Host Certificate

Imports a host certificate from a remote server to a specific PKI profile on the switch.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/pki/hostcert/<pk_name>
Request Body (JSON)	<pre>{   "server_ip": "{server_ip}",   "src_file": "{src_file}",   "dst_file": "{certificate private-key}",   "username": "{username}",   "passwd": "{password}",   "vrf_name": "{management default}" }</pre>

where:

Element	Description
<i>pk_name</i>	The name of the PKI profile; a string up to 16 characters long. <b>Note:</b> If the specified PKI profile does not exist, then the switch creates a new PKI profile with that name.
<i>server_ip</i>	The IP address of the remote server from where the host certificate is imported.
<i>src_file</i>	The source filepath of the host certificate on the server; a string representing the filepath of the CA certificate.
<i>dst_file</i>	The destination filepath of the host certificate on the switch; one of <i>certificate</i> , <i>private-key</i> . <b>Note:</b> The host certificate is imported only when both the certificate and the private key are successfully imported.
<i>username</i>	The username used to log onto the remote server (string).
<i>passwd</i>	The password used to log onto the remote server (string).
<i>vrf_name</i>	The VRF instance used to connect to the remote server; one of <i>default</i> , <i>management</i> . Default value: <i>default</i> .



## Response

Response Body (JSON)	<pre>{   "status": "{successful failed}",   "details": "{details}",   "filename": "{filename}" }</pre>
----------------------	--

where:

Element	Description
status	The status of the host certificate import; one of <i>successful</i> , <i>failed</i> .
details	The detailed description of the import status (string). If only the certificate has been imported, then this variable is " <i>still needs private-key</i> ". If only the private key has been imported, the this variable is " <i>still needs certificate</i> ".
filename	The filename of the host certificate (string).

## Generate Host Certificate

Generates a host certificate for a specific PKI profile.

### Request

Method Type	POST
Request URI	/nos/api/cfg/pki/hostcert/<pkf_name>
Request Body (JSON)	{ "CountryName": "{CountryName}", "StateName": "{StateName}", "LocalityName": "{LocalityName}", "OrganizationName": "{OrganizationName}", "OrganizationalUnitName": "{OrganizationalUnitName}", "CommonName": "{CommonName}", "Email": "{Email}" }

where:

Element	Description
<i>pkf_name</i>	The name of the PKI profile; a string up to 16 characters long. <b>Note:</b> If the specified PKI profile does not exist, then the switch creates a new PKI profile with that name.
CountryName	The code of the country; a string up to 2 characters long. For example: US.
StateName	The name of the state or province; a string up to 16 characters long. For example: California.
LocalityName	The name of the locality (for example, a city); a string up to 32 characters long. For example: Santa Clara.
OrganizationName	The name of the organization (for example, a company); a string up to 64 characters long. For example: Lenovo.
OrganizationalUnitName	The name of the organizational unit (for example, a department); a string up to 32 characters long. For example: Network Engineering.
CommonName	The common name; a string up to 64 characters long. For example: TestHostCert. <b>Note:</b> The name must start with an alphanumeric character and can contain only alphanumeric characters and the underscore (_), dash (-) and point (.) characters.
Email	The e-mail address; a string up to 32 characters long. For example: test@example.com.

## Response

Response Body (JSON)	{ "status": "{generation succeeded generation failed}", }
----------------------	---

where:

Element	Description
status	The status of the host certificate generation; one of <i>generation succeeded</i> , <i>generation failed</i> .

## Delete Host Certificate

Deletes the host certificate from a specific PKI profile.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/pki/hostcert/<pk_name>
Request Body (JSON)	

where:

Element	Description
<i>pk_name</i>	The name of the PKI profile; a string up to 16 characters long.

## Generate CSR

Generates the Certificate Signing Request (CSR) for a specific PKI profile.

### Request

Method Type	POST
Request URI	/nos/api/cfg/pki/csr/<pk_name>
Request Body (JSON)	{ "CountryName": "{CountryName}", "StateName": "{StateName}", "LocalityName": "{LocalityName}", "OrganizationName": "{OrganizationName}", "OrganizationalUnitName": "{OrganizationalUnitName}", "CommonName": "{CommonName}", "Email": "{Email}" }

where:

Element	Description
<i>pk_name</i>	The name of the PKI profile; a string up to 16 characters long. <b>Note:</b> If the specified PKI profile does not exist, then the switch creates a new PKI profile with that name.
CountryName	The code of the country; a string up to 2 characters long. For example: US.
StateName	The name of the state or province; a string up to 16 characters long. For example: California.
LocalityName	The name of the locality (for example, a city); a string up to 32 characters long. For example: Santa Clara.
Organization Name	The name of the organization (for example, a company); a string up to 64 characters long. For example: Lenovo.
Organization alUnitName	The name of the organizational unit (for example, a department); a string up to 32 characters long. For example: Network Engineering.
CommonName	The common name; a string up to 64 characters long. For example: TestCSR. <b>Note:</b> The name must start with an alphanumeric character and can contain only alphanumeric characters and the underscore (_), dash (-) and point (.) characters.
Email	The e-mail address; a string up to 32 characters long. For example: test@example.com.

## Response

Response Body (JSON)	{ "status": "{generation succeeded generation failed}", }
----------------------	---

where:

Element	Description
status	The status of the host certificate generation; one of <i>generation succeeded</i> , <i>generation failed</i> .

## Get CSR

Gets the CSR stored in a specific PKI profile.

### Request

Method Type	GET
Request URI	/nos/api/cfg/pki/csr/<pk_name>/<format>
Request Body (JSON)	

where:

Element	Description
<i>pk_name</i>	The name of the PKI profile; a string up to 16 characters long.
<i>format</i>	The format for displaying the CSR; one of <code>text</code> , <code>base64</code> . Default value: <code>text</code> .

### Response

Example when chosen format is *text*:

Response Body (JSON)	[ "Certificate Request: Data: Version: 0 (0x0) Subject: C=US, ST=California, L=Santa Clara, O=Lenovo Networking Operating System, OU=Network Engineering, CN=cccc/emailAddress=cccc@lenovo.com Subject Public Key Info: Public Key Algorithm: rsaEncryption Public-Key: (2048 bit) Modulus: 00:c3:78:73:d2:6b:e6:64:3c:10:8a:63:3d:11:d0: bf:95:56:0b:a1:1c:12:39:6d:d8:5a:45:20:06:90: b4:a9:2f:a6:87:5c:bc:fd:d3:1f:08:e6:31:7c:82: 94:aa:50:20:14:5a:63:19:1e:26:52:b0:35:56:b2: 8c:b6:aa:e1:6e:1c:1b:32:79:08:bd:02:a6:1b:5d: 59:cc:f1:44:12:36:e3:7d:2b:73:7e:5e:70:9e:e2: b9:94:3c:38:5b:fd:30:10:2b:b7:7b:5d:d0:d9:08: ... ]
----------------------	--

Example when chosen format is *base64*:

Response Body (JSON)	[ "-----BEGIN CERTIFICATE REQUEST----- MIIC+DCCAeACAQAwbIXCzAJBgNVBAYTA1VTMRMwEQYDVQQIDApDYWxpZm9ybml1 h MRQwEgYDVQQHDAtTYW50YSBDbGFyYTERMCKGA1UECgwiTGvub3ZvIE5ldHdvcm1 p bmcgT3BlcmF0aw5nIFN5c3RlbTEcMBoGA1UECwwTTmV0d29yayBFbmdpbmV1cm1 u ZzENMAsGA1UEAwwEY2NjYzEeMBwGCSqGSIb3DQEJARYPY2NjY0BsZW5vdm8uY29 t MIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAW3hz0mvmZDwQimM9EdC / lVYLoRwSOW3YwkUgBpC0qS+mh1y8/dMfCOYxfIKUq1AgFFpjGR4mUrA1VrKmtqr h bhwbMnkIvQKmG11ZzPFEEjbjfStzf15wnuK51Dw4w/0wECu3e13Q2QhK1CCu2gG x EQKXOMrC1cnnSEWp20koYSWMYAEGQkjy0uVNAEWxiMdb1EXf5yG2fwnGNMSZ+0f / qFQ+2cWI0WY/7GnyIrNw1WpZoD+oGAZBjn1qRMTR9bZTwAQmvgI99Ry9LeSxxaK 6 KH5xe14cSHM1KqNrv9aht3w+GaleQ1EKUEgTws40wmMhyfSff81ZexRQNiDwVd2 j SQIDAQABoAAwDQYJKoZIhvcNAQELBQADggEBALTGf7fktJgKc1LA6Zy8tVj0s2W U kWDGphm/cLV/bBovCTV/nFsmNP4o6qvyffd08t3Waz9P1cfceg7bkJM0uSw8Ii7 c 5cKg59smpuNGNA9rnReB+M90cv3+Ah9SJQGYArbHImp8ApWypMADREKwkGW8YsA G KqiGXsSs9xJ20NAPCr/l8+6pvVcAn5L7iyCyNb69X73S8FTbXks+3VRzQv5VWuM z IwHIZjI6YniZVJjAZqpiqR90EK4KrV4wzeUL2lJL/RLRRdRnRk3QfpJ09GxP+Hp e 1U4B2xvMIk1LXIzUwH1aHqli34RscYW12moWh8/G125Qqfs0RE1YWXGPw24= -----END CERTIFICATE REQUEST-----" ]
----------------------	--



## Export CSR and Import Signed CSR

Exports a CSR or imports a signed CSR.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/pki/csr/<pk_name>/<action>
Request Body (JSON)	{ "server_ip": "{server_ip}", "src_file": "{src_file}", "username": "{username}", "passwd": "{password}", "vrf_name": "{management default}" }

where:

Element	Description
<i>pk_name</i>	The name of the PKI profile; a string up to 16 characters long. <b>Note:</b> If the specified PKI profile does not exist, then the switch creates a new PKI profile with that name.
<i>action</i>	Whether to export a CSR or import a signed CSR; one of <code>export</code> , <code>import</code> .
<i>server_ip</i>	The IP address of the remote server from where the CA certificate is imported.
<i>src_file</i>	The source filepath of the CA certificate on the server; a string representing the filepath of the CA certificate
<i>username</i>	The username used to log onto the remote server (string).
<i>passwd</i>	The password used to log onto the remote server (string).
<i>vrf_name</i>	The VRF instance used to connect to the remote server; one of <code>default</code> , <code>management</code> . Default value: <code>default</code> .

### Response

Response Body (JSON)	{ "status": "{successful failed}", "details": "{details}", "filename": "{filename}" }
----------------------	---

where:

Element	Description
<i>status</i>	The status of the CA certificate import; one of <code>successful</code> , <code>failed</code> .

<b>Element</b>	<b>Description</b>
details	The detailed description of the import status (string).
filename	The filename of the CA certificate (string).

---

## Private VLAN

The following Private VLAN-related URIs are available:

- /nos/api/cfg/pvlan GET, POST, DELETE
- /nos/api/cfg/pvlan/interface GET
- /nos/api/cfg/pvlan/<pvlan\_type>/<vid> POST, DELETE
- /nos/api/cfg/pvlan/primary/ POST, DELETE
- /nos/api/cfg/pvlan/interface/<if\_type> POST, PUT, DELETE
- /nos/api/cfg/pvlan/primary/<primary\_pvlan\_vid> DELETE

The following PVLAN commands are available:

- [Create a Private VLAN](#)
- [Delete a Private VLAN](#)
- [Create a Private VLAN Association](#)
- [Delete a Private VLAN Association](#)
- [Delete All Private VLAN Associations for a VLAN](#)
- [Apply a Private VLAN Mode on Interface](#)
- [Remove a Private VLAN Mode from Interface](#)
- [Create or Remove a Private VLAN Port Mapping/Association](#)
- [Show Private VLAN Information](#)
- [Show Interface Private VLAN Information](#)
- [Enable Private VLAN Globally](#)
- [Disable Private VLAN Globally](#)

## Create a Private VLAN

Creates a private vLAN.

### Request

Method Type	POST
Request URI	/nos/api/cfg/pvlan/<vlan_type>/<vid>
Request Body (JSON)	

where:

Element	Description
<i>vlan_type</i>	(Mandatory) Private VLAN type; one of <i>primary</i> , <i>isolated</i> , <i>community</i> .
<i>vid</i>	(Mandatory) The VLAN ID; a positive integer from 2-4093.

### Response

Response Body (JSON)	
-------------------------	--

## Delete a Private VLAN

Deletes a private VLAN.

### Request

Method Type	DELETE
Request URI	/nos/api/cfg/pvlan/<pvlan_type>/<vid>
Request Body (JSON)	

where:

Element	Description
<i>pvlan_type</i>	(Mandatory) Private VLAN type; one of <b>primary</b> , <b>isolated</b> , <b>community</b> .
<i>vid</i>	(Mandatory) The VLAN ID; a positive integer from 2-4093.

### Response

Response Body (JSON)	
-------------------------	--

## Create a Private VLAN Association

Creates a private VLAN association.

### Request

Method Type	POST
Request URI	/nos/api/cfg/pvlan/primary/<primary_pvlan_vid>/assoc/ <secondary_vlan_id>
Request Body (JSON)	

where:

Element	Description
<i>primary_pvlan_vid</i>	(Mandatory) The primary VLAN ID; a positive integer from 2-4093.
<i>secondary_vlan_id</i>	(Mandatory) The secondary VLAN ID; a positive integer from 2-4093.

### Response

Response Body (JSON)	
-------------------------	--

## Delete a Private VLAN Association

Deletes a private VLAN association.

### Request

Method Type	DELETE
Request URI	/nos/api/cfg/pvlan/primary/<primary_pvlan_vid>/assoc/<secondary_vlan_id>
Request Body (JSON)	

where:

Element	Description
<i>primary_pvlan_vid</i>	(Mandatory) The primary VLAN ID; a positive integer from 2-4093.
<i>secondary_vlan_id</i>	(Mandatory) The secondary VLAN ID; a positive integer from 2-4093.

### Response

Response Body (JSON)	
-------------------------	--

## Delete All Private VLAN Associations for a VLAN

Deletes all private VLAN associations for a VLAN.

### Request

Method Type	DELETE
Request URI	/nos/api/cfg/pvlan/primary/<primary_pvlan_vid>/assoc
Request Body (JSON)	

where:

Element	Description
<i>primary_pvlan_vid</i>	(Mandatory) The primary VLAN ID; a positive integer from 2-4093.

### Response

Response Body (JSON)	
-------------------------	--



## Apply a Private VLAN Mode on Interface

Applies a private VLAN mode on a specified interface.

### Request

Method Type	POST
Request URI	/nos/api/cfg/pvlan/interface/<if_type>/<chassis_number>/<if_number>/<if_sub_number>
Request Body (JSON)	

where:

Element	Description
<i>if_type</i>	(Mandatory) The interface type (string); one of <code>ethernet</code> , for Ethernet interfaces, <code>po</code> for port-channel interfaces.
<i>chassis_number</i>	(Mandatory) The chassis number for the Ethernet interfaces (integer). For example: 1 for Ethernet1/2, or none for port-channel interfaces.
<i>if_number</i>	(Mandatory) The interface number for the Ethernet interfaces (integer). An integer from 1 to the maximum number of switch interfaces.
<i>if_sub_number</i>	(Optional) The sub-interface number for the Ethernet interfaces a positive integer from 1-4.

### Response

Response Body (JSON)	
----------------------	--

## Remove a Private VLAN Mode from Interface

Deletes a private VLAN mode on a specified interface.

### Request

Method Type	DELETE
Request URI	/nos/api/cfg/pvlan/interface/<if_type>/<chassis_number>/<if_number>/<is_subnumber>
Request Body (JSON)	

where:

Element	Description
<i>if_type</i>	(Mandatory) The interface type (string); one of <code>ethernet</code> , for Ethernet interfaces, <code>p0</code> for port-channel interfaces.
<i>chassis_number</i>	(Mandatory) The chassis number for the Ethernet interfaces (integer). For example: 1 for Ethernet1/2, or none for port-channel interfaces.
<i>if_number</i>	(Mandatory) The interface number for the Ethernet interfaces (integer). An integer from 1 to the maximum number of switch interfaces.
<i>if_sub_number</i>	(Optional) The sub-interface number for the Ethernet interfaces a positive integer from 1-4.

### Response

Response Body (JSON)	
----------------------	--

## Create or Remove a Private VLAN Port Mapping/Association

Creates or deletes a private VLAN port mapping/association.

**Note:** First, you must enable switch port mode private VLAN on a specified interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/pvlan/interface/<if_type>/<chassis_number>/<if_number>/<is_subnumber>
Request Body (JSON)	{ "type" : "{type}", "op" : "{op}" "primaryVlanID" : "{pvid}" "secondaryVlanID": "{svid}" }

where:

Element	Description
<i>if_type</i>	(Mandatory) The interface type (string); one of <b>ethernet</b> , for Ethernet interfaces, <b>po</b> for port-channel interfaces.
<i>chassis_number</i>	(Mandatory) The chassis number for the Ethernet interfaces (integer). For example: 1 for Ethernet1/2, or none for port-channel interfaces.
<i>if_number</i>	(Mandatory) The interface number for the Ethernet interfaces (integer). An integer from 1 to the maximum number of switch interfaces.
<i>if_sub_number</i>	(Optional) The sub-interface number for the Ethernet interfaces a positive integer from 1-4.
<b>type</b>	(Mandatory) PVLAN action type.
<b>op</b>	(Mandatory) Operation type; one of <i>add</i> , <i>remove</i> .
<b>primaryVlanID</b>	(Mandatory) The primary VLAN ID; a positive integer from 2-4093.
<b>secondaryVlanID</b>	(Optional) The secondary VLAN ID; a positive integer from 2-4093.

### Response

Response Body (JSON)	
----------------------	--

## Show Private VLAN Information

Displays private VLAN information.

### Request

Method Type	GET
Request URI	/nos/api/cfg/pvlan
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "type": "{type}",   "vlanID": "{vlanID}",   "primaryVlanID": "{primaryVlanID}" }</pre>
----------------------	---

where:

Element	Description
type	Private VLAN type; one of <i>primary</i> , <i>isolated</i> , <i>community</i> .
vlanID	The VLAN ID; a positive integer from 2-4093.
primaryVlanID	The primary VLAN ID; a positive integer from 2-4093.

## Show Interface Private VLAN Information

Displays the private VLAN interface information.

### Request

Method Type	GET
Request URI	/nos/api/cfg/pvlan/interface
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "ifname": "{ifname}",   "vlan": ["{vlanID}"],   "portMode": "{portMode}"   "pvlanPortMode": "{pvlanPortMode}" }</pre>
----------------------	--

where:

Element	Description
ifname	Interface name; one of <i>primary</i> , <i>isolated</i> , <i>community</i> .
vlan	The associated private VLAN; a positive integer from 2-4093.
portMode	The port mode; one of <i>access</i> , <i>trunk</i> .
pvlanPortMode	The private VLAN port mode; one of <i>host</i> , <i>promiscuous</i> , <i>configured</i> .

## Enable Private VLAN Globally

Globally enables the private VLAN.

### *Request*

Method Type	POST
Request URI	/nos/api/cfg/pvlan
Request Body (JSON)	

### *Response*

Response Body (JSON)	
----------------------	--

## Disable Private VLAN Globally

Globally disables the private VLAN.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/pvlan
Request Body (JSON)	

### *Response*

Response Body (JSON)	
----------------------	--





---

## QoS over L3

The following QoS over L3 URI is available:

- [/nos/api/cfg/dot1qencaps](#) POST

The following QoS over L3 command is available:

- [QoS over L3 Tag Configuration](#)

## QoS over L3 Tag Configuration

Enables or disables DOT1Q encapsulation tag value on routed port.

### *Request*

Method Type	POST
Request URI	/nos/api/cfg/dot1qencaps
Request Body (JSON)	<pre>{   "interface": &lt; interface_name &gt;,   "dot1q_tag": &lt; tag_value &gt; }</pre>

where:

Element	Description
interface	The interface name.
dot1q_tag	DOT1Q tag value, an integer from 0-4093. 0 disables the tag value.

### *Response*

True if the operation succeeded; otherwise False.

---

## RADIUS

The following Remote Authentication Dial-In User Service (RADIUS) URIs are available:

- /nos/api/cfg/radius GET, PUT
- /nos/api/cfg/radius/hosts GET, POST, DELETE
- /nos/api/cfg/radius/groups GET, POST, DELETE

The following RADIUS commands are available:

- [Get RADIUS Configuration](#)
- [Update RADIUS Configuration](#)
- [Get RADIUS Server Configuration](#)
- [Add RADIUS Server](#)
- [Delete RADIUS Server](#)
- [Get RADIUS Server Group Configuration](#)
- [Add RADIUS Server Group](#)
- [Delete RADIUS Server Group](#)

## Get RADIUS Configuration

Gets the RADIUS configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/radius
Request Body (JSON)	{ "source_interface": "{source interface name not configured}", "retransmit": {retransmit}, "timeout": {timeout}, "global_key": "{configured not configured}" }

where:

Element	Description
source_interface	The name of the global RADIUS source interface; one of <i>interface name, not configured</i> .
retransmit	The number of retries the switch will make to establish a connection with a RADIUS server after the initial attempt failed; an integer from 0-5.
timeout	The amount of time, in seconds, before a RADIUS server connection attempt is considered to have failed; an integer from 1-60.
global_key	The status of the RADIUS global authentication key; one of <i>configured, not configured</i> .

### Response

Response Body (JSON)	{ "source_interface": "{source interface name not configured}", "retransmit": {retransmit}, "timeout": {timeout}, "global_key": "{configured not configured}" }
----------------------	--

where:

Element	Description
source_interface	The name of the global RADIUS source interface; one of <i>interface name, not configured</i> .
retransmit	The number of retries the switch will make to establish a connection with a RADIUS server after the initial attempt failed; an integer from 0-5.

Element	Description
timeout	The amount of time, in seconds, before a RADIUS server connection attempt is considered to have failed; an integer from 1-60.
global_key	The status of the RADIUS global authentication key; one of <i>configured</i> , <i>not configured</i> .

## Update RADIUS Configuration

Updates the RADIUS configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/radius
Request Body (JSON)	<pre>{   "retransmit": {retransmit},   "timeout": {timeout},   "global_key": "{global_key}",   "global_key_form": {0 7},   "source_interface": "{source interface name   default}" }</pre>

where:

Element	Description
retransmit	The number of retries the switch will make to establish a connection with a RADIUS server after the initial attempt failed; an integer from 0-5.
timeout	The amount of time, in seconds, before a RADIUS server connection attempt is considered to have failed; an integer from 1-60.
global_key	The status of the RADIUS global authentication key; one of <i>configured</i> , <i>not configured</i> .
global_key_form	The encryption method of the RADIUS global authentication key; one of 0 (clear text), 7 (encrypted).
source_interface	The name of the global RADIUS source interface; one of <i>interface name</i> , <i>default</i> . <b>Note:</b> If the variable is set to <i>default</i> , then it will reset to <i>not configured</i> .

## Response

Response Body (JSON)	<pre>{   "source_interface": "{source interface name not configured}",   "retransmit": {retransmit},   "timeout": {timeout},   "global_key": "{configured not configured}" }</pre>
----------------------	--

where:

Element	Description
source_interface	The name of the global RADIUS source interface; one of <i>interface name</i> , <i>not configured</i> .
retransmit	The number of retries the switch will make to establish a connection with a RADIUS server after the initial attempt failed; an integer from 0-5.
timeout	The amount of time, in seconds, before a RADIUS server connection attempt is considered to have failed; an integer from 1-60.
global_key	The status of the RADIUS global authentication key; one of <i>configured</i> , <i>not configured</i> .

## Get RADIUS Server Configuration

Gets the configuration of a specific configured RADIUS server or of all configured RADIUS servers.

### Request

Method Type	GET
Request URI	/nos/api/cfg/radius/hosts/<IP_addr>
Request Body (JSON)	

where:

Element	Description
IP_addr	The IP address of the RADIUS server. <b>Note:</b> If no IP address is provided, then the command returns the configuration of all configured RADIUS servers.

### Response

Response Body (JSON)	[ { "IP_addr": "{IP_addr}", "retransmit": {retransmit}, "timeout": {timeout}, "key": "{configured not configured}", "auth-port": {auth-port}, "acct-port": {acct-port} } ]
----------------------	---

where:

Element	Description
IP_addr	The IP address of the RADIUS server.
retransmit	The number of retries the switch will make to establish a connection with a RADIUS server after the initial attempt failed; an integer from 0-5.
timeout	The amount of time, in seconds, before a RADIUS server connection attempt is considered to have failed; an integer from 1-60.
key	The status of the RADIUS server authentication key; one of <i>configured</i> , <i>not configured</i> .



Element	Description
auth-port	The TCP port used for RADIUS server authentication; an integer from 0-65535.
acct-port	The TCP port used for RADIUS server accounting; an integer from 0-65535.

## Add RADIUS Server

Configures a RADIUS server.

### Request

Method Type	POST
Request URI	/nos/api/cfg/radius/hosts
Request Body (JSON)	<pre>{   "IP_addr": "{IP_addr}",   "retransmit": {retransmit},   "timeout": {timeout},   "key": "{key}",   "key_form": {0 7},   "auth-port": {auth-port},   "acct-port": {acct-port} }</pre>

where:

Element	Description
IP_addr	The IP address of the RADIUS server.
retransmit	The number of retries the switch will make to establish a connection with a RADIUS server after the initial attempt failed; an integer from 0-5.
timeout	The amount of time, in seconds, before a RADIUS server connection attempt is considered to have failed; an integer from 1-60.
key	The RADIUS server authentication key (string).
key_form	The encryption method of the RADIUS server authentication key; one of 0 (clear text), 7 (encrypted).
auth-port	The TCP port used for RADIUS server authentication; an integer from 0-65535.
acct-port	The TCP port used for RADIUS server accounting; an integer from 0-65535.

## Response

Response Body (JSON)	<pre>{   "IP_addr": "{IP_addr}",   "retransmit": {retransmit},   "timeout": {timeout},   "key": "{configured not configured}",   "auth-port": {auth-port},   "acct-port": {acct-port} }</pre>
----------------------	---

where:

Element	Description
IP_addr	The IP address of the RADIUS server.
retransmit	The number of retries the switch will make to establish a connection with a RADIUS server after the initial attempt failed; an integer from 0-5.
timeout	The amount of time, in seconds, before a RADIUS server connection attempt is considered to have failed; an integer from 1-60.
key	The status of the RADIUS server authentication key; one of <i>configured</i> , <i>not configured</i> .
auth-port	The TCP port used for RADIUS server authentication; an integer from 0-65535.
acct-port	The TCP port used for RADIUS server accounting; an integer from 0-65535.

## Delete RADIUS Server

Removes a configured RADIUS server.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/radius/hosts/<IP_addr>
Request Body (JSON)	

where:

Element	Description
<i>IP_addr</i>	The IP address of the RADIUS server.

## Get RADIUS Server Group Configuration

Gets the configuration of a specific configured RADIUS server group or of all configured RADIUS server groups.

### Request

Method Type	GET
Request URI	/nos/api/cfg/radius/groups/<group_name>
Request Body (JSON)	

where:

Element	Description
<i>group_name</i>	The name of the RADIUS server group; a string up to 127 characters long. <b>Note:</b> If no group name is provided, then the command returns the configuration of all configured RADIUS server groups.

### Response

Response Body (JSON)	<pre>[   {     "group_name": "{group_name}"     "vrf_name": "{vrf_name}",     "source_interface": "{source interface name not configured}",     "hosts":       [         {           "IP_addr": "{IP_addr}",           "retransmit": {retransmit},           "timeout": {timeout},           "key": "{configured not configured}",           "auth-port": {auth-port},           "acct-port": {acct-port}         }       ]   } ]</pre>
----------------------	---

where:

Element	Description
group_name	The name of the RADIUS server group; a string up to 127 characters long.
vrf_name	The VRF instance for the RADIUS server group. Valid value: the <i>VRF instance name</i> .
source_interface	The name of the RADIUS group source interface; one of <i>interface name, not configured</i> .
hosts	The list of servers members of the RADIUS server group.
IP_addr	The IP address of the RADIUS server.
retransmit	The number of retries the switch will make to establish a connection with a RADIUS server after the initial attempt failed; an integer from 0-5.
timeout	The amount of time, in seconds, before a RADIUS server connection attempt is considered to have failed; an integer from 1-60.
key	The status of the RADIUS server authentication key; one of <i>configured, not configured</i> .
auth-port	The TCP port used for RADIUS server authentication; an integer from 0-65535.
acct-port	The TCP port used for RADIUS server accounting; an integer from 0-65535.

## Add RADIUS Server Group

Configures a RADIUS server group.

### Request

Method Type	POST
Request URI	/nos/api/cfg/radius/groups
Request Body (JSON)	<pre>{   "group_name": "{group_name}",   "vrf_name": "{vrf_name}",   "source_interface": "{source interface name default}",   "hosts":     [       "{IP_addr}"     ] }</pre>

where:

Element	Description
group_name	The name of the RADIUS server group; a string up to 127 characters lonh.
vrf_name	The VRF instance for the RADIUS server group. Valid value: the <i>VRF instance name</i> .
source_interface	The name of the RADIUS group source interface; one of <i>interface name, default</i> . <b>Note:</b> If the variable is set to <i>default</i> , then it will reset to <i>not configured</i> .
hosts	The list of servers members of the RADIUS server group.
IP_addr	The IP address of the RADIUS server to be added to the group.

## Response

Response Body (JSON)	<pre>[   {     "group_name": "{group_name}"     "vrf_name": "{vrf_name}",     "source_interface": "{source interface name not configured}",     "hosts":       [         {           "IP_addr": "{IP_addr}",           "retransmit": {retransmit},           "timeout": {timeout},           "key": "{configured not configured}",           "auth-port": {auth-port},           "acct-port": {acct-port}         }       ]   } ]</pre>
----------------------	---

where:

Element	Description
group_name	The name of the RADIUS server group; a string up to 127 characters long.
vrf_name	The VRF instance for the RADIUS server group. Valid value: the <i>VRF instance name</i> .
source_interface	The name of the RADIUS group source interface; one of <i>interface name</i> , <i>not configured</i> .
hosts	The list of servers members of the RADIUS server group.
IP_addr	The IP address of the RADIUS server.
retransmit	The number of retries the switch will make to establish a connection with a RADIUS server after the initial attempt failed; an integer from 0-5.
timeout	The amount of time, in seconds, before a RADIUS server connection attempt is considered to have failed; an integer from 1-60.
key	The status of the RADIUS server authentication key; one of <i>configured</i> , <i>not configured</i> .
auth-port	The TCP port used for RADIUS server authentication; an integer from 0-65535.
acct-port	The TCP port used for RADIUS server accounting; an integer from 0-65535.



## Delete RADIUS Server Group

Removes a configured RADIUS server group.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/radius/groups/<group_name>
Request Body (JSON)	

where:

Element	Description
<i>group_name</i>	The name of the RADIUS server group; a string up to 127characters long.



---

## REST

The following REST URIs are available:

- /nos/api/cfg/rest/server GET, PUT

The following REST commands are available:

- [Get REST Server](#)
- [Set REST Server](#)

## Get REST Server

Gets the REST server status.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/rest/server
Request Body (JSON)	

### *Response*

Response Body (JSON)	<pre>{   "status": "{enable   disable}",   "protocol": "{http   https}", }</pre>
-------------------------	--

where:

Element	Description
status	The REST server status (string); one of <i>enable</i> , <i>disable</i> .
protocol	The REST server protocol; one of <i>http</i> , <i>https</i> .

## Set REST Server

Sets the REST server status.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/rest/server
Request Body (JSON)	{ "status": "{enable   disable}", "protocol": "{enable   disable}", }

where:

Element	Description
status	The REST server status (string); one of <i>enable</i> , <i>disable</i> .
protocol	The REST server protocol; one of <i>http</i> , <i>https</i> .

### *Response*

Response Body (JSON)	
-------------------------	--



---

## Route Maps

The following route map URI is available:

- /nos/api/info/routemap GET

The following route map command is available:

- [Get Route Maps](#)

## Get Route Maps

Gets route maps property information.

### Request

Method Type	GET
Request URI	/nos/api/info/routemap
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[ {   "rmapName": "&lt;rmapName&gt;",   "matchAction": "&lt;matchAction&gt;",   "seqNum": "&lt;seqNum&gt;",   "matchList":   [     {       "cmd": "&lt;matchList_cmd&gt;"     }   ],   "applyList":   [     {       "cmd": "&lt;cmd&gt;"     }   ] } ]</pre>
-------------------------	---

where:

Element	Description
rmapName	Route map name
matchAction	Match action
seqnum	Sequence number
matchList_cmd	Match list command
applyList_cmd	Apply list command



---

## Security Mode

The following security mode URI is available:

- /nos/api/cfg/secmode GET, PUT

The following security mode commands are available:

- [Get Security Mode Configuration](#)
- [Update Security Mode Configuration](#)

## Get Security Mode Configuration

Gets the current security mode configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/secmode
Request Body (JSON)	

### Response

Response Body (JSON)	{ "current": "{legacy_mode secure_mode}", "setting": "{legacy_mode secure_mode}" }
----------------------	---

where:

Element	Description
current	The currently configured security mode. Valid values: <ul style="list-style-type: none"><li>● <i>legacy_mode</i></li><li>● <i>secure_mode</i></li></ul>
setting	The security mode that takes effect after switch reload. Valid values: <ul style="list-style-type: none"><li>● <i>legacy_mode</i></li><li>● <i>secure_mode</i></li></ul>

## Update Security Mode Configuration

Updates the security mode configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/secmode
Request Body (JSON)	{ "setting": "{legacy_mode secure_mode}" }

where:

Element	Description
setting	The security mode that takes effect after switch reload; one of <i>legacy_mode</i> , <i>secure_mode</i> .

### Response

Response Body (JSON)	{ "current": "{legacy_mode secure_mode}", "setting": "{legacy_mode secure_mode}" }
----------------------	---

where:

Element	Description
current	The currently configured security mode; one of <i>legacy_mode</i> , <i>secure_mode</i> .
setting	The security mode that takes effect after switch reload; one of <i>legacy_mode</i> , <i>secure_mode</i> .



---

## sFlow

The following sFlow URIs are available:

- /nos/api/cfg/sflow GET, PUT
- /nos/api/cfg/sflow/interface/<if\_name> PUT
- /nos/api/info/sflow/stats GET, DELETE

The following sFlow commands are available:

- [Get sFlow Configuration](#)
- [Update sFlow Global Configuration](#)
- [Update sFlow Interface Configuration](#)
- [Get sFlow Statistics](#)
- [Clear sFlow Statistics](#)

## Get sFlow Configuration

Gets the current sFlow configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/sflow
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   enabled: [enabled disabled],   sampling-rate: &lt;sampling_rate&gt;,   max-sampled-size: &lt;sampled_size&gt;,   polling-interval: &lt;polling_interval&gt;,   max-datagram-size: &lt;datagram_size&gt;,   collector:   {     ip: &lt;ip_addr&gt;,     port: &lt;port&gt;,     vrf: &lt;vrf&gt;   },   interfaces:   [     &lt;if_name&gt;,     ...   ] }</pre>
----------------------	--

where:

Element	Description
enabled	The status of sFlow on the switch; one of <i>enabled</i> , <i>disabled</i> .
sampling-rate	The sFlow sampling rate, in packets per sample; an integer from 4096-1000000000. Default value: 4096.
max-sampled-size	The maximum sFlow sampling size of packets; an integer from 64-256. Default value: 128.
polling-interval	The sFlow polling interval, in seconds; an integer from 0-86400. <b>Note:</b> Setting this variable to 0 disables sFlow polling.
max-datagram-size	The maximum sFlow datagram size; an integer from 200-9000. Default value: 1500
collector	The sFlow collector configuration.
ip	The IP address of the sFlow server.

Element	Description
port	The UDP port of the sFlow server; an integer from 1-65535. Default value: 6343
vrf	The VRF instance used by the sFlow server. Valid value: the <i>VRF instance name</i> .
interfaces	The interfaces on which sFlow sampling is enabled. Valid value: the <i>interface name</i> (for example, <i>Ethernet1/12</i> ).

## Update sFlow Global Configuration

Updates the global sFlow configuration on the switch.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/sflow
Request Body (JSON)	<pre>{   enabled: [enabled disabled],   sampling-rate: &lt;sampling_rate&gt;,   max-sampled-size: &lt;sampled_size&gt;,   polling-interval: &lt;polling_interval&gt;,   max-datagram-size: &lt;datagram_size&gt;,   collector:   {     ip: &lt;ip_addr&gt;,     port: &lt;port&gt;,     vrf: &lt;vrf&gt;   }, }</pre>

where:

Element	Description
enabled	The status of sFlow on the switch; one of <i>enabled</i> , <i>disabled</i> .
sampling-rate	The sFlow sampling rate, in packets per sample; an integer from 4096-1000000000. Default value: 4096.
max-sampled-size	The maximum sFlow sampling size of packets; an integer from 64-256. Default value: 128.
polling-interval	The sFlow polling interval, in seconds; an integer from 0-86400. <b>Note:</b> Setting this variable to 0 disables sFlow polling.
max-datagram-size	The maximum sFlow datagram size; an integer from 200-9000. Default value: 1500
collector	The sFlow collector configuration.
ip	The IP address of the sFlow server.
port	The UDP port of the sFlow server. Valid value: <ul style="list-style-type: none"><li>1-65535</li></ul> Default value: 6343
vrf	The VRF instance used by the sFlow server. Valid value: <ul style="list-style-type: none"><li>VRF instance name</li></ul>



## Update sFlow Interface Configuration

Updates the sFlow configuration for a specific switch interface.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/sflow/interface/<if_name>
Request Body (JSON)	{ enabled: [enabled disabled] }

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example, <i>Ethernet1/12</i> .
<i>enabled</i>	The status of sFlow on the switch; one of <i>enabled</i> , <i>disabled</i> .

## Get sFlow Statistics

Gets sFlow statistics.

### Request

Method Type	GET
Request URI	/nos/api/info/sflow/stats
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   processed_samples: &lt;processed_samples&gt;,   dropped_samples: &lt;dropped_samples&gt;,   sent_datagrams: &lt;sent_datagrams&gt;,   dropped_datagrams: &lt;dropped_datagrams&gt; }</pre>
----------------------	---

where:

Element	Description
processed_samples	The number of processed sFlow samples (integer). Valid value: <ul style="list-style-type: none"><li>• <i>integer</i></li></ul>
dropped_samples	The number of dropped sFlow samples. (integer).
sent_datagrams	The number of sent sFlow datagrams (integer).
dropped_datagrams	The number of dropped sFlow datagrams (integer).

## Clear sFlow Statistics

Resets sFlow statistics.

### *Request*

Method Type	DELETE
Request URI	/nos/api/info/sflow/stats/clear
Request Body (JSON)	



---

## SNMP

The following SNMP-related URIs are available:

- /nos/api/cfg/snmp/hosuser GET, PUT, DELETE
- /nos/api/hostraphost GET, PUT, DELETE

**Note:** These URIs and commands are necessary for XClarity support.

The following SNMP commands are available:

- [Get the SNMPv3 Account for XClarity](#)
- [Set the SNMPv3 Account for XClarity](#)
- [Delete the SNMPv3 Account for XClarity](#)
- [Get the SNMPv3 Trap Host IP Address for XClarity](#)
- [Set the SNMPv3 Trap Host IP Address for XClarity](#)
- [Delete the SNMPv3 Trap Host IP Address for XClarity](#)

## Get the SNMPv3 Account for XClarity

Gets the special SNMPv3 user account for XClarity.

### Request

Method Type	GET
Request URI	/nos/api/cfg/snmp/hosuser
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "user_name": "&lt;user_name&gt;",   "group_name": "&lt;group_name&gt;",   "auth_type": "&lt;auth_type&gt;",   "auth_passwd": "&lt;password&gt;",   "priv_type": " &lt;priv_type&gt;",   "priv_passwd": "&lt;password&gt;"   "xclarity_id": "&lt;identifier&gt;" }</pre>
-------------------------	--

where:

Element	Description
user_name	User name; a text string from 5-32 characters long.
group_name	Group name; one of <i>network_operator</i> , <i>network_admin</i> . Default value: <i>network-operator</i> .
auth_type	Authentication type; one of <i>invalid</i> , <i>md5</i> , <i>sha</i> .
auth_passwd	Authentication password; a string from 8-32 characters long.
priv_type	Privilege type; one of <i>invalid</i> , <i>des</i> , <i>aes</i> .
priv_passwd	Privilege password; a string from 8-32 characters long.
xclarity_id	XClarity instance identifier (string).

**Note:** If the user account does not exist, the request will return the error message "404 Resource not available: Snmp Hos User instance not present in DUT".

## Set the SNMPv3 Account for XClarity

Sets the special SNMPv3 user account for XClarity.

**Note:** This account is only for XClarity support and differs from SNMPv3 user accounts in the following ways:

- It cannot be set from the command line interface.
- It does not appear in any command.
- This information must be included in any tech support dump.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/snmp/hosuser
Request Body (JSON)	<pre>{   "user_name": "&lt;user_name&gt;",   "group_name": "&lt;group_name&gt;",   "auth_type": "&lt;auth_type&gt;",   "auth_passwd": "&lt;password&gt;",   "priv_type": " &lt;priv_type&gt;",   "priv_passwd": "&lt;password&gt;"   "xclarity_id": "&lt;identifier&gt;" }</pre>

where:

Element	Description
user_name	User name; a text string from 5-32 characters long.
group_name	Group name; one of <i>network_operator</i> , <i>network_admin</i> . Default value: <i>network-operator</i> .
auth_type	Authentication type; one of <i>invalid</i> , <i>md5</i> , <i>sha</i> .
auth_passwd	Authentication password; a string from 8-32 characters long.
priv_type	Privilege type; one of <i>invalid</i> , <i>des</i> , <i>aes</i> .
priv_passwd	Privilege password; a string from 8-32 characters long.
xclarity_id	XClarity instance identifier (string).

## Response

Response Body (JSON)	<pre>{   "username": "&lt;username&gt;",   "group_name": "&lt;group_name&gt;",   "auth_type": "&lt;auth_type&gt;",   "auth_passwd": "&lt;password&gt;",   "priv_type": "&lt;priv_type&gt;",   "priv_passwd": "&lt;password&gt;",   "xclarity_id": "&lt;identifier&gt;" }</pre>
-------------------------	--

where:

Element	Description
user_name	User name; a text string from 5-32 characters long.
group_name	Group name; one of <i>network_operator</i> , <i>network_admin</i> . Default value: <i>network-operator</i> .
auth_type	Authentication type; one of <i>invalid</i> , <i>md5</i> , <i>sha</i> .
auth_passwd	Authentication password; a string from 8-32 characters long.
priv_type	Privilege type; one of <i>invalid</i> , <i>des</i> , <i>aes</i> .
priv_passwd	Privilege password; a string from 8-32 characters long.
xclarity_id	XClarity instance identifier (string).



## Delete the SNMPv3 Account for XClarity

Deletes the special SNMPv3 user account for XClarity.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/snmp/hosuser
Request Body (JSON)	

### *Response*

True if the operation succeeded; otherwise False.

## Get the SNMPv3 Trap Host IP Address for XClarity

Gets the IP address of the special SNMPv3 trap host for XClarity.

### Request

Method Type	GET
Request URI	/nos/api/cfg/snmp/hostraphost
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "host_name": "&lt;host_name&gt;",   "security_level": "&lt;security_level&gt;",   "username": "&lt;username&gt;",   "message_type": " &lt;priv_type&gt;",   "port": "&lt;port&gt;" }</pre>
-------------------------	---

where:

Element	Description
host_name	Trap host name; a valid IPv4 or IPv6 address.
security_level	Security level; one of <i>auth</i> , <i>authpriv</i> , <i>noauth</i> .
username	Username; a text string 5-32 characters long.
message_type	Message type; one of <i>trap</i> , <i>inform</i> . Default value: <i>trap</i> .
port	Host UDP port; an integer from 1-65535. Default value: 162.

**Note:** If the user name does not exist, the request will return the error message "404 Resource not available: Snmp Hos User instance not present in DUT".

## Set the SNMPv3 Trap Host IP Address for XClarity

Sets the IP address of the special SNMPv3 trap host for XClarity.

**Note:** The trap destination IP address is only for XClarity and differs from a standard SNMPv3 trap host in the following ways:

- It cannot be set from the command line interface.
- It does not appear in any command.
- This information must be included in any tech support dump.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/snmp/hostraphost
Request Body (JSON)	<pre>{   "host_name": "&lt;host_name&gt;",   "security_level": "&lt;security_level&gt;",   "username": "&lt;username&gt;",   "message_type": " &lt;priv_type&gt;",   "port": "&lt;port&gt;" }</pre>

where:

Element	Description
host_name	Trap host name; a valid IPv4 or IPv6 address.
security_level	Security level; one of <i>auth</i> , <i>authpriv</i> , <i>noauth</i> .
username	Username; a text string 5-32 characters long.
message_type	Message type; one of <i>trap</i> , <i>inform</i> . Default value: <i>trap</i> .
port	Host UDP port; an integer from 1-65535. Default value: 162.

## Response

Response Body (JSON)	<pre>{   "host_name": "&lt;host_name&gt;",   "security_level": "&lt;security_level&gt;",   "username": "&lt;username&gt;",   "message_type": " &lt;priv_type&gt;",   "port": "&lt;port&gt;" }</pre>
----------------------	---

where:

Element	Description
host_name	Trap host name; a valid IPv4 or IPv6 address.
security_level	Security level; one of <i>auth</i> , <i>authpriv</i> , <i>noauth</i> .
username	Username; a text string 5-32 characters long.
message_type	Message type; one of <i>trap</i> , <i>inform</i> . Default value: <i>trap</i> .
port	Host UDP port; an integer from 1-65535. Default value: 162.

## Delete the SNMPv3 Trap Host IP Address for XClarity

Deletes the special SNMPv3 trap host IP address for XClarity.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/snmp/hostraphost
Request Body (JSON)	

### *Response*

True if the operation succeeded; otherwise False.



---

## SSH

The following Secure Shell (SSH) URIs are available:

- /nos/api/cfg/ssh/server GET, PUT

The following SSH commands are available:

- [Get SSH Server](#)
- [Set SSH Server](#)

## Get SSH Server

Gets the SSH server status.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/ssh/server
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "status": "{enable   disable}" }
-------------------------	--

where:

Element	Description
status	The SSH server status (string); one of <i>enable</i> , <i>disable</i> .



## Set SSH Server

Sets the SSH server status.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/ssh/server
Request Body (JSON)	{ "status": "{enable/disable}" }

where:

Element	Description
status	The SSH server status (string); one of <i>enable</i> , <i>disable</i> .

### Response

Response Body (JSON)	{ "status": "{enable   disable}" }
-------------------------	--

where:

Element	Description
status	The SSH server status (string); one of <i>enable</i> , <i>disable</i> .



---

## Startup Information

The following startup information URIs are available:

- /nos/api/startup GET
- /nos/api/startup/ztp GET, PUT
- /nos/api/startup/software GET, PUT

The following startup commands are available:

- [Get System Startup Information](#)
- [Put System ZTP Interface](#)
- [Get System ZTP Setting](#)
- [Put System Startup Image](#)
- [Get System Startup Image](#)

## Get System Startup Information

Gets system boot information.

**Note:** This is required for XClarity support.

### Request

Method Type	GET
Request URI	/nos/api/startup
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "ztp"           : "Forcedly Enabled",   "active image" : "version 0.0.0.0, downloaded 19:20:29 UTC Tue Feb 16 2016",   "standby image": "version 0.0.0.0, downloaded 13:20:02 UTC Sun Feb 28 2016",   "Uboot"        : "version 0.0.0.0, downloaded 13:20:04 UTC Sun Feb 28 2016",   "ONIE"         : "empty",   "boot software": "active",   "scheduled reboot": "none",   "port mode"    : "default" }</pre>
-------------------------	---

where:

Element	Description
ztp	Current zero touch provisioning setting.
active image	Active image information.
standby image	Standby image information.
Uboot	Uboot image information.
ONIE	ONIE image information.
boot software	Next boot image setting.
scheduled reboot	Scheduled reboot setting.
port mode	Current port mode.

## Put System ZTP Interface

Updates the system Zero Touch Provisioning setting.

### Request

Method Type	PUT
Request URI	/nos/api/startup/ztp/<enable>
Request Body (JSON)	{ "ztp" : "<setting>" }

where:

Element	Description
ztp	The ZTP provisioning setting; one of <i>Enable</i> , <i>Forcedly Enabled</i> , <i>Forcedly Disabled</i> .

### Response

Response Body (JSON)	{ "ztp" : "<setting>" }
-------------------------	-------------------------------

where:

Element	Description
ztp	Current ZTP provisioning setting.

## Get System ZTP Setting

Gets the current system Zero Touch Provisioning setting.

### *Request*

Method Type	GET
Request URI	/nos/api/startup/ztp
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "ztp" : "<setting>" }
-------------------------	-------------------------------

where:

Element	Description
ztp	Current ZTP provisioning setting.

## Put System Startup Image

Updates the system startup image.

**Note:** This request is required for XClarity support.

### Request

Method Type	PUT
Request URI	/nos/api/startup/software
Request Body (JSON)	{ "boot software" : "<setting>" }

where:

Element	Description
boot software	Next startup image setting; one of <i>active</i> , <i>standby</i> .

### Response

Response Body (JSON)	{ "boot software" : "<setting>" }
-------------------------	---

where:

Element	Description
boot software	Next startup image setting; one of <i>active</i> , <i>standby</i> .

## Get System Startup Image

Gets the system boot image.

**Note:** This request is required for XClarity support.

### *Request*

Method Type	GET
Request URI	/nos/api/startup/software
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "boot software" : "<setting>" }
-------------------------	---

where:

Element	Description
boot software	Next startup image setting; one of <i>active</i> , <i>standby</i> .



---

## STP

The following STP URIs are available:

- /nos/api/cfg/stp\_interface GET
- /nos/api/cfg/stp\_interface/<if\_name> GET, PUT
- /nos/api/cfg/stp/vlan/<vid> GET, PUT
- /nos/api/cfg/stp/interface/<if\_name> GET, PUT
- /nos/api/cfg/stp/interface/<if\_name>/vlan/<vlan\_id> GET, PUT

The following STP interface property commands are available:

- [Get STP Properties for All Interfaces](#)
- [Get STP Interface Properties](#)
- [Update STP Interface Properties](#)
- [Get STP Properties Per VLAN](#)
- [Set STP Properties Per VLAN](#)
- [Get STP Interface Properties](#)
- [Update STP Interface Properties](#)
- [Get STP Interface VLAN Properties](#)
- [Update STP Interface VLAN Properties](#)

## Get STP Properties for All Interfaces

Gets STP properties of all interfaces. These properties are supported by all STP modes.

### Request

Method Type	GET
Request URI	/nos/api/cfg/stp/interface
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "edge_port": "&lt;edge_port&gt;",   "bpdu_guard": "&lt;bpdu_guard&gt;",   "loop_guard": "&lt;loop_guard&gt;",   "root_guard": "&lt;root_guard&gt;" }</pre>
-------------------------	---

where:

Element	Description
if_name	The IP interface name (string). <b>Note:</b> The interface must exist.
edge_port	Whether the interface is configured as an edge port, which allows the port to automatically transition to the STP forwarding state; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
bpdu_guard	(Optional) Whether BPDU guard is enabled on a port, which automatically shuts down the interface upon receipt of a BPDU; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
loop_guard	(Optional) Whether loop guard is enabled on a port for additional checks for preventing STP looping; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
root_guard	(Optional) Whether guard mode is set to root guard on interface.

## Get STP Interface Properties

Gets STP properties of one interface. These properties are supported by all STP modes.

### Request

Method Type	GET
Request URI	/nos/api/cfg/stp/interface/<if_name>
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "edge_port": "&lt;edge_port&gt;",   "bpdu_guard": "&lt;bpdu_guard&gt;",   "loop_guard": "&lt;loop_guard&gt;",   "root_guard": "&lt;root_guard&gt;" }</pre>
-------------------------	---

where:

Element	Description
<i>if_name</i>	The IP interface name (string). <b>Note:</b> The interface must exist.
<i>edge_port</i>	Whether the interface is configured as an edge port, which allows the port to automatically transition to the STP forwarding state; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
<i>bpdu_guard</i>	(Optional) Whether BPDU guard is enabled on a port, which automatically shuts down the interface upon receipt of a BPDU; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
<i>loop_guard</i>	(Optional) Whether loop guard is enabled on a port for additional checks for preventing STP looping; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
<i>root_guard</i>	(Optional) Whether guard mode is set to root guard on interface.

## Update STP Interface Properties

Updates STP properties of one interface. These properties are supported by all STP modes.

**Note:** If an element is not specified in a PUT request, no update for that element will be performed.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/stp/interface/<if_name>
Request Body (JSON)	{ "if_name": "<if_name>", "edge_port": "<edge_port>", "bpdu_guard": "<bpdu_guard>", "loop_guard": "<loop_guard>", "root_guard": "<root_guard>" }

where:

Element	Description
<i>if_name</i>	The IP interface name (string). <b>Note:</b> The interface must exist.
<i>edge_port</i>	Whether the interface is configured as an edge port, which allows the port to automatically transition to the STP forwarding state; one of <i>yes, no</i> . Default value: <i>yes</i> .
<i>bpdu_guard</i>	(Optional) Whether BPDU guard is enabled on a port, which automatically shuts down the interface upon receipt of a BPDU; one of <i>enable, disable</i> . Default value: <i>disable</i> .
<i>loop_guard</i>	(Optional) Whether loop guard is enabled on a port for additional checks for preventing STP looping; one of <i>enable, disable</i> . Default value: <i>disable</i> .
<i>root_guard</i>	(Optional) Whether guard mode is set to root guard on interface.

## Response

Response Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "edge_port": "&lt;edge_port&gt;",   "bpdu_guard": "&lt;bpdu_guard&gt;",   "loop_guard": "&lt;loop_guard&gt;",   "root_guard": "&lt;root_guard&gt;" }</pre>
-------------------------	---

where:

Element	Description
if_name	The IP interface name (string). <b>Note:</b> The interface must exist.
edge_port	Whether the interface is configured as an edge port, which allows the port to automatically transition to the STP forwarding state; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
bpdu_guard	(Optional) Whether BPDU guard is enabled on a port, which automatically shuts down the interface upon receipt of a BPDU; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
loop_guard	(Optional) Whether look guard is enabled on a port for additional checks for preventing STP looping; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
root_guard	(Optional) Whether guard mode is set to root guard on interface.

## Get STP Properties Per VLAN

Gets STP parameters for each VLAN.

**Note:** This is designed only for rapid Per VLAN Spanning Tree (PVST) mode.

### Request

Method Type	GET
Request URI	/nos/api/cfg/stp/vlan/<vlan_ID>
Request Body (JSON)	

where:

Element	Description
<i>vlan_ID</i>	VLAN ID; an integer from 2-3999.

### Response

Response Body (JSON)	{ "forward-time": "<forward-time>", "hello-time": "<hello-time>", "max-age" : "<max-age>", "priority" : "<priority>" }
-------------------------	---

where:

Element	Description
<i>forward-time</i>	The forward delay for the spanning tree; an integer from 4-30.
<i>hello-time</i>	The hello interval for the spanning tree; an integer from 1-10.
<i>max-age</i>	The maximum age interval for the spanning tree; an integer from 6-40.
<i>priority</i>	The bridge priority for the spanning tree; an integer from 0-61440.

## Set STP Properties Per VLAN

Sets STP parameters for each VLAN.

**Note:** This is designed only for rapid Per VLAN Spanning Tree (PVST) mode.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/stp/vlan/<vlan_ID>
Request Body (JSON)	{ "forward-time": "<forward-time>", "hello-time": "<hello-time>", "max-age" : "<max-age>", "priority" : "<priority>" }

where:

Element	Description
vlan_ID	VLAN number.; an integer from 2-3999.
forward-time	The forward delay for the spanning tree; an integer from 4-30.
hello-time	The hello interval for the spanning tree; an integer from 1-10.
max-age	The maximum age interval for the spanning tree; an integer from 6-40.
priority	The bridge priority for the spanning tree; an integer from 0-61440.

### Response

Response Body (JSON)	{ "forward-time": "<forward-time>", "hello-time": "<hello-time>", "max-age" : "<max-age>", "priority" : "<priority>" }
-------------------------	---

where:

Element	Description
forward-time	(Optional) The forward delay for the spanning tree; an integer from 4-30.
hello-time	(Optional) The hello interval for the spanning tree; an integer from 1-10.

<b>Element</b>	<b>Description</b>
max - age	(Optional) The maximum age interval for the spanning tree; an integer from <i>6-40</i> .
priority	(Optional) The bridge priority for the spanning tree; an integer from <i>0-61440</i> .



## Get STP Interface Properties

Gets the STP properties of the specified interface.

**Note:** These properties are supported by all STP modes.

### Request

Method Type	GET
Request URI	/nos/api/cfg/stp/interface/<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The IP interface name (string). <b>Note:</b> The interface must exist.

### Response

Response Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "edge_port": "&lt;edge_port&gt;",   "bpdu_guard": "&lt;bpdu_guard&gt;",   "loop_guard": "&lt;loop_guard&gt;",   "root_guard": "&lt;root_guard&gt;" }</pre>
-------------------------	---

where:

Element	Description
<i>if_name</i>	The IP interface name (string). <b>Note:</b> The interface must exist.
<i>edge_port</i>	Whether the interface is configured as an edge port, which allows the port to automatically transition to the STP forwarding state; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
<i>bpdu_guard</i>	(Optional) Whether BPDU guard is enabled on a port, which automatically shuts down the interface upon receipt of a BPDU; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
<i>loop_guard</i>	(Optional) Whether look guard is enabled on a port for additional checks for preventing STP looping; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
<i>root_guard</i>	(Optional) Whether guard mode is set to root guard on interface.

## Update STP Interface Properties

Updates the STP properties of the specified interface.

**Note:** These properties are supported by all STP modes.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/stp/interface/<if_name>
Request Body (JSON)	{ "if_name": "<if_name>", "edge_port": "<edge_port>", "bpdu_guard": "<bpdu_guard>", "loop_guard": "<loop_guard>", "root_guard": "<root_guard>" }

where:

Element	Description
<i>if_name</i>	The IP interface name (string). <b>Note:</b> The interface must exist.
<i>edge_port</i>	Whether the interface is configured as an edge port, which allows the port to automatically transition to the STP forwarding state; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
<i>bpdu_guard</i>	(Optional) Whether BPDU guard is enabled on a port, which automatically shuts down the interface upon receipt of a BPDU; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
<i>loop_guard</i>	(Optional) Whether loop guard is enabled on a port for additional checks for preventing STP looping; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
<i>root_guard</i>	(Optional) Whether guard mode is set to root guard on interface.

## Get STP Interface VLAN Properties

Gets the STP interface VLAN properties of the specified interface and VLAN.

**Note:** This is designed only for rapid Per VLAN Spanning Tree (PVST) mode.

### Request

Method Type	GET
Request URI	/nos/api/cfg/stp/interface/<if_name>/vlan/<vlan_id>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The IP interface name (string). <b>Note:</b> The interface must exist.
<i>vlan_ID</i>	VLAN ID; an integer from 2-3999.

### Response

Response Body (JSON)	{ "cost": "<cost>", "priority": "<priority>", }
-------------------------	--

where:

Element	Description
<i>cost</i>	The interface's spanning-tree port path cost; one of <i>auto</i> (based on port speed), an integer from 1-200000000.
<i>priority</i>	The interface's spanning-tree port path priority, in increments of 32; an integer from 0-224 that is a multiple of 32. Default value: 128.

## Update STP Interface VLAN Properties

Updates the STP interface VLAN properties of the specified interface and VLAN.

**Note:** This is designed only for rapid Per VLAN Spanning Tree (PVST) mode.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/stp/interface/<if_name>/vlan/<vlan_id>
Request Body (JSON)	{ "cost": "<cost>", "priority": "<priority>", }

where:

Element	Description
<i>if_name</i>	The IP interface name (string). <b>Note:</b> The interface must exist.
<i>vlan_ID</i>	VLAN ID; an integer from 2-3999.
<i>cost</i>	The interface's spanning-tree port path cost; one of <i>auto</i> (based on port speed), an integer from 1-200000000.
<i>priority</i>	The interface's spanning-tree port path priority, in increments of 32; an integer from 0-224 that is a multiple of 32. Default value: 128.

### Response

Response Body (JSON)	{ "if_name": "<if_name>", "edge_port": "<edge_port>", "bpdu_guard": "<bpdu_guard>", }
-------------------------	---

where:

Element	Description
<i>if_name</i>	The IP interface name (string). <b>Note:</b> The interface must exist.
<i>edge_port</i>	Whether the interface is configured as an edge port, which allows the port to automatically transition to the STP forwarding state; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
<i>bpdu_guard</i>	(Optional) Whether BPDU guard is enabled on a port, which automatically shuts down the interface upon receipt of a BPDU; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .

---

## System

The following system URI is available:

- /nos/api/system GET

The following system interface property command is available:

- [Get System Properties](#)

## Get System Properties

Gets basic properties of the system. All properties are version-independent.

### *Request*

Request URI	/nos/api/system
Request Body (JSON)	

### *Response*

```
{
  "switch_type": "{switch_type}",
  "fw_version": "{version}"
}
```

where:

Element	Description
switch_type	Switch platform type.
fw_version	The version number of the firmware running on the switch.

---

## System Configuration

The following system configuration-related URIs are available:

- /nos/api/cfg/hostname GET, PUT
- /nos/api/cfg/clock GET, PUT
- /nos/api/cfg/clock/format PUT
- /nos/api/cfg/clock/protocol PUT
- /nos/api/cfg/clock/timezone PUT
- /nos/api/cfg/clock/summertime PUT
- /nos/api/cfg/syscontact GET, PUT
- /nos/api/cfg/sysdescr GET, PUT
- /nos/api/cfg/rack\_prop GET, PUT

**Note:** These requests are required for XClarity support.

The following system configuration commands are available:

- [Get Hostname](#)
- [Set Hostname](#)
- [Get Clock Date](#)
- [Set Clock Date](#)
- [Set Clock Format](#)
- [Set Clock Protocol](#)
- [Set Clock Timezone](#)
- [Set Clock Summer Time](#)
- [Get Device Contact](#)
- [Update Device Contact](#)
- [Get Device Description](#)
- [Update Device Description](#)
- [Get Rack Properties](#)
- [Update Rack Properties](#)

## Get Hostname

Gets the hostname of the system.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/hostname
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "hostname": "<hostname>", }
-------------------------	-------------------------------------

where:

Element	Description
host name	The hostname of the system; a string from 1-64 characters long.



## Set Hostname

Sets the hostname of the system.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/hostname
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "hostname": "<hostname>", }
-------------------------	-------------------------------------

where:

Element	Description
host name	The hostname of the system; a string from 1-64 characters long.

## Get Clock Date

Gets the system date.

### Request

Method Type	GET
Request URI	/nos/api/cfg/clock
Request Body (JSON)	

### Response

Response Body (JSON)	{ "date": "<date>", }
-------------------------	-----------------------------

where:

Element	Description
date	System date in the following format: HH:MM:SS xM ZZZ Wkd Mon Dy YEAR where: <ul style="list-style-type: none"><li>● HH - hour</li><li>● MM - minutes</li><li>● SS - seconds</li><li>● xM - one of "AM", "PM"</li><li>● ZZZ - name of the time zone</li><li>● Wkd - three-letter weekday abbreviation</li><li>● Mon - three-letter month abbreviation</li><li>● Dy - one or two-digit day</li><li>● YEAR - four-digit year</li></ul> For example: 10:55:58 AM UTC Mon Jul 4 2016

## Set Clock Date

Sets the system date and time.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/clock
Request Body (JSON)	<pre>{   "time": "&lt;HH:MM:SS&gt;" ,   "day": &lt;day&gt;,   "month": &lt;month&gt; ,   "year": &lt;year&gt; }</pre>

where:

Element	Description
time	System time in the following format: HH:MM:SS.
day	The day of the month; an integer from 1-31.
month	The month; one of the following case-insensitive strings: <ul style="list-style-type: none"><li>• <i>January</i></li><li>• <i>February</i></li><li>• <i>March</i></li><li>• <i>April</i></li><li>• <i>May</i></li><li>• <i>June</i></li><li>• <i>July</i></li><li>• <i>August</i></li><li>• <i>September</i></li><li>• <i>October</i></li><li>• <i>November</i></li><li>• <i>December</i></li></ul>
year	The year; an integer from 2000-2030.

## Response

Response Body (JSON)	<pre>{   "date": "&lt;date&gt;", }</pre>
-------------------------	--

where:

Element	Description
date	<p>System date in the following format: HH:MM:SS xM ZZZ Wkd Mon Dy YEAR</p> <p>where:</p> <ul style="list-style-type: none"><li>● HH - hour</li><li>● MM - minutes</li><li>● SS - seconds</li><li>● xM - one of "AM", "PM"</li><li>● ZZZ - name of the time zone</li><li>● Wkd - three-letter weekday abbreviation</li><li>● Mon - three-letter month abbreviation</li><li>● Dy - one or two-digit day</li><li>● YEAR - four-digit year</li></ul> <p>For example:</p> <p>10:55:58 AM UTC Mon Jul 4 2016</p>

## Set Clock Format

Sets the system clock format to 12 hour or 24 hour format.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/clock/format/
Request Body (JSON)	{ "format": <format>, }

where:

Element	Description
format	System clock format; one of: <ul style="list-style-type: none"><li>● 12 (12 hour format)</li><li>● 24 (24 hour format)</li></ul>

### Response

Response Body (JSON)	{ "format": <format>, }
-------------------------	-------------------------------

where:

Element	Description
format	System clock format; one of: <ul style="list-style-type: none"><li>● 12 (12 hour format)</li><li>● 24 (24 hour format)</li></ul>

## Set Clock Protocol

Sets the clock protocol to either manual or Network Time Protocol (NTP).

### Request

Method Type	PUT
Request URI	/nos/api/cfg/clock/protocol/
Request Body (JSON)	{ "protocol": "<protocol>", }

where:

Element	Description
protocol	System clock protocol; one of: <ul style="list-style-type: none"><li>• <i>none</i> - the clock is manually configured</li><li>• <i>ntp</i> - the clock is configured through NTP</li></ul> Default value: <i>ntp</i> .

### Response

Response Body (JSON)	{ "protocol": "<protocol>", }
-------------------------	-------------------------------------

where:

Element	Description
protocol	System clock protocol; one of: <ul style="list-style-type: none"><li>• <i>none</i> - the clock is manually configured</li><li>• <i>ntp</i> - the clock is configured through NTP</li></ul> Default value: <i>ntp</i> .

## Set Clock Timezone

Sets the clock time zone for the switch.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/clock/timezone
Request Body (JSON)	{ "timezone": "<timezone>", "offsethour": "<offsethour>", "offsetmin": "<lag_mode>", }

where:

Element	Description
timezone	One to five letter string denoting the local system time zone.
offsethour	Hours offset from UTC; an integer from -23 through 23.
offsetmin	Minutes offset from UTC; an integer from 0-59.

### Response

Response Body (JSON)	{ "date": "<date>", }
-------------------------	-----------------------------

where:

Element	Description
date	System date in the following format: HH:MM:SS xM ZZZ Wkd Mon Dy YEAR where: <ul style="list-style-type: none"><li>● HH - hour</li><li>● MM - minutes</li><li>● SS - seconds</li><li>● xM - one of "AM", "PM"</li><li>● ZZZ - name of the time zone</li><li>● Wkd - three-letter weekday abbreviation</li><li>● Mon - three-letter month abbreviation</li><li>● Dy - one or two-digit day</li><li>● YEAR - four-digit year</li></ul> For example: 10:55:58 AM UTC Mon Jul 4 2016

## Set Clock Summer Time

Sets the transition to and from a summer time zone adjustment.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/clock/summertime
Request Body (JSON)	<pre>{   "timezone": &lt;time_zone&gt;,   "startweek": &lt;start_week&gt;,   "startweekday": &lt;start_weekday&gt;,   "startmonth": &lt;start_month&gt;,   "starttime" : "&lt;HH:MM&gt;",   "endweek" : &lt;end_week&gt;,   "endweekday": &lt;end_weekday&gt;,   "endmonth" : &lt;end_month&gt;,   "endtime" : "&lt;HH:MM&gt;",   "offsetmin" : &lt;minutes&gt; }</pre>

where:

Element	Description
timezone	Local time zone of the system; a three to five character string such as <i>PST</i> , <i>MST</i> , <i>CST</i> , or <i>EST</i> .
startweek	Week number in the month in which to start Daylight Saving time; an integer from 1-5 (first week=1, last week=5).
startweekday	Weekday on which to start DST; one of the following case-insensitive strings: <ul style="list-style-type: none"><li>● <i>monday</i></li><li>● <i>tuesday</i></li><li>● <i>wednesday</i></li><li>● <i>thursday</i></li><li>● <i>friday</i></li><li>● <i>saturday</i></li><li>● <i>sunday</i></li></ul>



Element	Description
startmonth	Month to start DST; one of the following case-insensitive strings: <ul style="list-style-type: none"> <li>● <i>january</i></li> <li>● <i>february</i></li> <li>● <i>march</i></li> <li>● <i>april</i></li> <li>● <i>may</i></li> <li>● <i>june</i></li> <li>● <i>july</i></li> <li>● <i>august</i></li> <li>● <i>september</i></li> <li>● <i>october</i></li> <li>● <i>november</i></li> <li>● <i>december</i></li> </ul>
starttime	Time to start DST; a string in the following format: HH:MM.
endweek	Week number in which to end DST; an integer from 1-5 (first week=1, last week=5).
endweekday	Weekday on which to end DST; one of the following case-insensitive strings: <ul style="list-style-type: none"> <li>● <i>monday</i></li> <li>● <i>tuesday</i></li> <li>● <i>wednesday</i></li> <li>● <i>thursday</i></li> <li>● <i>friday</i></li> <li>● <i>saturday</i></li> <li>● <i>sunday</i></li> </ul>
endmonth	Month in which DST ends; one of the following case-insensitive strings: <ul style="list-style-type: none"> <li>● <i>january</i></li> <li>● <i>february</i></li> <li>● <i>march</i></li> <li>● <i>april</i></li> <li>● <i>may</i></li> <li>● <i>june</i></li> <li>● <i>july</i></li> <li>● <i>august</i></li> <li>● <i>september</i></li> <li>● <i>october</i></li> <li>● <i>november</i></li> <li>● <i>december</i></li> </ul>
endtime	Time to end DST; a string in the following format: HH:MM.
offsetmin	Offset to add, in minutes; an integer from 1-1440.

## Response

Response Body (JSON)	<pre>{   "date": "&lt;date&gt;", }</pre>
-------------------------	--

where:

Element	Description
date	<p>System date in the following format: HH:MM:SS xM ZZZ Wkd Mon Dy YEAR</p> <p>where:</p> <ul style="list-style-type: none"><li>● HH - hour</li><li>● MM - minutes</li><li>● SS - seconds</li><li>● xM - one of "AM", "PM"</li><li>● ZZZ - name of the time zone</li><li>● Wkd - three-letter weekday abbreviation</li><li>● Mon - three-letter month abbreviation</li><li>● Dy - one or two-digit day</li><li>● YEAR - four-digit year</li></ul> <p>For example:</p> <p>10:55:58 AM UTC Mon Jul 4 2016</p>

## Get Device Contact

Gets the device contact.

### Request

Method Type	GET
Request URI	/nos/api/cfg/contact
Request Body (JSON)	{ "contact": <contact>, }

where:

Element	Description
contact	Device contact; a string up to 256 characters long.

### Response

Response Body (JSON)	{ "contact": <contact>, }
-------------------------	---------------------------------

where:

Element	Description
contact	Device contact; a string up to 256 characters long.

## Update Device Contact

Updates the device contact.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/contact
Request Body (JSON)	{ "contact": <contact>, }

where:

Element	Description
contact	Device contact; a string up to 256 characters long.

### *Response*

Response Body (JSON)	{ "contact": <contact>, }
-------------------------	---------------------------------

where:

Element	Description
contact	Device contact; a string up to 256 characters long.

## Get Device Description

Gets the device description.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/descr
Request Body (JSON)	{ "descr": <descr>, }

where:

Element	Description
descr	Device description; a string up to 256 characters long.

### *Response*

Response Body (JSON)	{ "descr": <descr>, }
-------------------------	-----------------------------

where:

Element	Description
descr	Device description; a string up to 256 characters long.

## Update Device Description

Updates the device description.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/descr
Request Body (JSON)	{ "descr": <descr>, }

where:

Element	Description
descr	Device description; a string up to 256 characters long.

### *Response*

Response Body (JSON)	{ "descr": <descr>, }
-------------------------	-----------------------------

where:

Element	Description
descr	Device description; a string up to 256 characters long.

## Get Rack Properties

Gets the rack properties for the switch.

### Request

Method Type	GET
Request URI	/nos/api/cfg/rack_prop
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "location": "&lt;location&gt;",   "room": "&lt;room&gt;",   "rack": "&lt;rack&gt;",   "lru": "&lt;lru&gt;" }</pre>
-------------------------	---

where:

Element	Description
location	Device location; a string up to 256 characters long.
room	Device room ID; a string up to 256 characters long.
rack	Device Rack; a string up to 256 characters long.
lru	Device lowest rack unit; a string up to 256 characters long.

## Update Rack Properties

Updates the rack properties for the switch.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/rack_prop
Request Body (JSON)	<pre>{   "location": "&lt;location&gt;",   "room": "&lt;room&gt;",   "rack": "&lt;rack&gt;",   "lru": "&lt;lru&gt;" }</pre>

where:

Element	Description
location	(Optional) Device location; a string up to 256 characters long.
room	(Optional) Device room ID; a string up to 256 characters long.
rack	(Optional) Device Rack; a string up to 256 characters long.
lru	(Optional) Device lowest rack unit; a string up to 256 characters long.

### Response

Response Body (JSON)	<pre>{   "location": "&lt;location&gt;",   "room": "&lt;room&gt;",   "rack": "&lt;rack&gt;",   "lru": "&lt;lru&gt;" }</pre>
-------------------------	---

where:

Element	Description
location	Device location; a string up to 256 characters long.
room	Device room ID; a string up to 256 characters long.
rack	Device Rack; a string up to 256 characters long.
lru	Device lowest rack unit; a string up to 256 characters long.



---

## System Information

The following system information URIs are available:

- `/nos/api/sysinfo` GET
- `/nos/api/sysinfo/<fans>` GET
- `/nos/api/sysinfo/<power>` GET
- `/nos/api/sysinfo/<temperature>` GET
- `/nos/api/sysinfo/<inventory>` GET
- `/nos/api/sysinfo/serial_number` GET
- `/nos/api/sysinfo/panic_dump` GET
- `/nos/api/sysinfo/<globalhealthstatus>` GET
- `/nos/api/sysinfo/resources` GET

The following system information commands are available:

- [Get All System Information](#)
- [Get System Fan Information](#)
- [Get System Power Information](#)
- [Get System Temperature Information](#)
- [Get System Inventory](#)
- [Get System Serial Number](#)
- [Get Panic Dump Information](#)
- [Get Global Health Status](#)
- [Get System Resource Statistics](#)

## Get All System Information

Gets information about the system hardware.

### *Request*

Request URI	/nos/api/sysinfo
Request Body (JSON)	

### *Response*

Response Body (JSON)	<pre>{   "Fans":   {     "Fan 1":     {       "Module" : "1"       "Air-flow" : " Front-to-Back",       "Speed-percent" : "0",       "Speed-rpm" : "4205"     },     "Fan 2":     {       "Module" : "1"       "Air-flow" : " Front-to-Back",       "Speed-percent" : "24",       "Speed-rpm" : "4402"     }   } },</pre>
----------------------	---

```
"Power":
{
  "power1":
  {
    "Name" : "Power Supply 1"
    "Manufacturer" : " DELTA",
    "Model" : "XXXXXXXXXX",
    "State" : "Normal ON"
  },
  "power2":
  {
    "Name" : "Power Supply 2"
    "Manufacturer" : " DELTA",
    "Model" : "XXXXXXXXXX",
    "State" : "12V Output Fault"
  }
},
"Temperature" :
{
  "cpu":
  {
    "Temp" : "31"
    "State" : "OK"
  },
  "Ambient":
  {
    "Temp" : "30",
    "State" : "OK"
  },
  "Hot Spot" :
  {
    "Temp" : "46",
    "State": "OK"
  }
  "Temperature threshold" :
  {
    "System Warning" : 85,
    "System Shutdown" : 95,
    "System Set Point" : 70
  }
},
"Inventory" :
{
  "Name" : "8272",
  "Description" : "G8272 (48x10GE + 6x40GE)",
  "Model" : "LENOVO G8272",
  "Manufacture Date": "1452",
  "Serial Number" : "Y052MV4CT00J",
  "PCB Assembly" : "00CJ067",
  "Electronic Serial Number": "MM01267",
  "Firmware Revision" : "0.0.0.0",
  "Software Revision" : "0.0.0.0",
  "Uuid" : "A48CDB33B600Y052MV4CT00J",
  "Last reset Reason" : "Reset by CLI reload
command",
  "Service Led" : "enabled"
},
```

	<pre> "Panic Dump":   {     "File 3" : {       "Name" : "nsm.gz",       "Date" : "2016-05-31 22:38:03"     },     "File 2" : {       "Name" : "hsl.gz",       "Date" : "2016-05-31 22:38:10"     },     "File 1" : {       "Name" : "imish.gz",       "Date" : "2016-05-31 22:38:34"     }   } } </pre>
--	---

where:

Element	Description
Fans	System fan information.
Powers	System power information.
Temperature	System temperature information.
Inventory	System inventory.
Panic Dump	Panic dump information.

## Get System Fan Information

Gets information about the system fans.

### Request

Request URI	/nos/api/sysinfo/fans
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "Fan 1":   {     "Module" : "1"     "Air-flow" : " Front-to-Back",     "Speed-percent" : "0",     "Speed-rpm" : "4205"   },   "Fan 2":   {     "Module" : "1"     "Air-flow" : " Front-to-Back",     "Speed-percent" : "24",     "Speed-rpm" : "4402"   } }</pre>
----------------------	--

where:

Element	Description
Module	Module number.
Air - flow	Air flow type.
Speed - percent	Speed percentage.
Speed - rpm	Speed in RPM.

## Get System Power Information

Gets information about the system power supplies.

### Request

Request URI	/nos/api/sysinfo/power
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "power1":   {     "Name" : "Power Supply 1"     "Manufacturer" : " DELTA",     "Model" : "XXXXXXXXXX",     "State" : "Normal ON"   },   "power2":   {     "Name" : "Power Supply 2"     "Manufacturer" : " DELTA",     "Model" : "XXXXXXXXXX",     "State" : "12V Output Fault"   } },</pre>
----------------------	---

where:

Element	Description
name	Power supply name.
manufacturer	Power supply manufacturer.
model	Power supply model.
state	Power supply state.

## Get System Temperature Information

Gets information about the system temperature.

### Request

Request URI	/nos/api/sysinfo/temperatures
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "Cpu Local":   {     "Temp" : "31"     "State" : "OK"   },   "Ambient":   {     "Temp" : "30",     "State" : "OK"   },   "Hot Spot" :   {     "Temp" : "46",     "State": "OK"   }   "Temperature threshold" :   {     "System Warning" : 85,     "System Shutdown" : 95,     "System Set Point" : 70   } },</pre>
----------------------	---

where:

Element	Description
temp	The temperature.
state	The state.
System warning	Temperature at which a system warning is issued.
System shutdown	The temperature at which the system shuts down
System set point	The system set point temperature.

## Get System Inventory

Gets information about the system inventory.

### Request

Request URI	/nos/api/sysinfo/inventory
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "Name"      : "8272",   "Description" : "G8272 (48x10GE + 6x40GE)",   "Model"     : "LENOVO G8272",   "Manufacture Date": "1452",   "Serial Number"  : "Y052MV4CT00J",   "PCB Assembly"   : "00CJ067",   "Electronic Serial Number" : "MM01267",   "Firmware Revision" : "0.0.0.0",   "Software Revision" : "0.0.0.0",   "Uuid" : "A48CDB33B600Y052MV4CT00J",   "Last reset Reason" : "Reset by CLI reload command",   "Service Led" : "enabled" },</pre>
----------------------	--

where:

Element	Description
name	System name.
description	System description.
model	System model.
Manufacture Date	System Manufacture Date.
Serial Number	System Serial Number.
PCB Assembly	System PCB Assembly.
Electronic Serial Number	System Electronic Serial Number.
Firmware Revision	System Firmware Revision.
Software Revision	System Software Revision.
Uuid	System UUID.
Last reset Reason	System last reset reason.
Service Led	Whether or not the Service LED is enabled.



## Get System Serial Number

Gets the system serial number.

### *Request*

Request URI	/nos/api/sysinfo/serial_number
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "Serial Number" : "Y052MV4CT00J", }
----------------------	---

where:

Element	Description
Serial Number	System Serial Number.

## Get Panic Dump Information

Gets information about system panic dumps.

### Request

Request URI	/nos/api/sysinfo/panic_dump
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   {     "File 3" : {       "Name" : "nsm.gz",       "Date" : "2016-05-31 22:38:03"     },     "File 2" : {       "Name" : "hsl.gz",       "Date" : "2016-05-31 22:38:10"     },     "File 1" : {       "Name" : "imish.gz",       "Date" : "2016-05-31 22:38:34"     }   } }</pre>
----------------------	---

where:

Element	Description
Name	File name.
Date	Date and time when the file was created.

## Get Global Health Status

Gets information about system global health.

### Request

Request URI	/nos/api/sysinfo/globalhealthstatus
Request Body (JSON)	

### Response

Response Body (JSON)	{ "status": "<status>", "description": "<description>" }
----------------------	---

where:

Element	Description
status	System global health status; one of: <ul style="list-style-type: none"><li>• <i>OK</i></li><li>• <i>Noncritical</i></li><li>• <i>Critical</i></li></ul>
description	Detailed description of the status; one of: <ul style="list-style-type: none"><li>• <i>OK</i>:<ul style="list-style-type: none"><li>◦ All temperature sensors are below the warning threshold;</li><li>◦ All fans are running at <math>\geq 100</math> RPMs;</li><li>◦ All power supplies are on;</li><li>◦ No panic dump exists in flash.</li></ul></li><li>• <i>Noncritical</i>:<ul style="list-style-type: none"><li>◦ One or more temperature sensors is in the warning range;</li><li>◦ A panic dump exists in flash.</li></ul></li><li>• <i>Critical</i>:<ul style="list-style-type: none"><li>◦ One or more temperature sensors is in the failure range;</li><li>◦ One or more fans are running <math>&lt; 100</math> RPM;</li><li>◦ One power supply is off.</li></ul></li></ul>

## Get System Resource Statistics

Gets system resource statistics, such as CPU statistics, memory statistics, tasks and load average.

### Request

Method Type	GET
Request URI	/nos/api/sysinfo/resources
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "Cpu(s)":   {     "idle": "88.4",     "hardware_interrupt": "0.0",     "stolen_time": "0.0",     "software_interrupt": "0.0",     "io_wait": "0.1",     "system": "2.9",     "user_nice": "0.0",     "user_un_nice": "8.7"   },   "Mem":   {     "total": "4000796",     "buffers": "355260",     "free": "3159012",     "used": "486524"   },   "tasks":   {     "zombie": "0",     "running": "1",     "total": "108",     "stopped": "0",     "sleeping": "107"   },   "load average":   {     "5 min": "0.36",     "15 min": "0.35",     "1 min": "0.26"   } }</pre>
----------------------	---

---

## Telemetry

The following telemetry configuration-related URIs are available:

- /nos/api/info/telemetry/switch-properties GET
- /nos/api/cfg/telemetry/feature GET, PUT
- /nos/api/cfg/telemetry/bst/tracking GET, PUT
- /nos/api/cfg/telemetry/bst/feature GET, PUT
- /nos/api/info/telemetry/bst/report POST
- /nos/api/info/telemetry/bst/congestion-drop-counters POST
- /nos/api/cfg/telemetry/bst/threshold PUT, POST
- /nos/api/cfg/telemetry/bst/limits GET
- /nos/api/cfg/telemetry/bst/clear/threshold GET
- /nos/api/cfg/telemetry/bst/clear/statistics GET
- /nos/api/cfg/telemetry/clear-cgsn-drop-counters GET
- /nos/api/cfg/telemetry/cancel-request PUT
- /nos/api/info/statistics/interface/{if\_name} GET
- /nos/api/cfg/statistics/clear/interface/{if\_name} DELETE

The following telemetry configuration commands are available:

- [Get Switch Properties](#)
- [Set System Feature](#)
- [Get System Feature](#)
- [Set BST Tracking](#)
- [Get BST Tracking](#)
- [Set BST Feature](#)
- [Get BST Feature](#)
- [Get BST Limits](#)
- [Get BST Report](#)
- [Get BST Congestion Drop Counters](#)
- [Set BST Threshold](#)
- [Get BST Threshold](#)
- [Clear BST Threshold](#)
- [Clear BST Statistics](#)
- [Clear BST Congestion Drops](#)
- [Cancel BST Request](#)

- [Get Interface Statistics](#)
- [Clear Interface Statistics](#)

## Get Switch Properties

Gets system switch properties.

### Request

Method Type	GET
Request URI	/nos/api/info/telemetry/switch-properties
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>"time-stamp": "2015-10-18 - 00:15:04", {   "number-of-asics": 1,   "asic-info": [     [       "1",       "BCM56850",       78     ]   ],   "supported-features": [     "BST"   ],   "network-os": "CNOS",   "uid": "0000d80bb99bbbb",   "agent-ip": "192.168.1.2",   "agent-port": "8080",   "agent-sw-version": "3.0.0.1" }</pre>
-------------------------	---

where:

Element	Description
number-of-asics	Number of asics in the switch; integer format.
asic-info	List of dictionaries; one of: <ul style="list-style-type: none"><li>asic-id: ASIC identifier; string</li><li>chip-id: part number of the silicon; string</li><li>num-ports: Number of ports available on the switch and managed by this ASIC; an integer</li></ul>
supported-features	A list of strings indicating the features supported by the Agent.
network-os	The Network Operating system currently used on the switch.
uid	Unique identifier for this switch. This unique ID is the key for the SDN controller to map the switch to the nodes existing in their discovery database.
agent-ip	IP address of the switch where the Agent is running; string

Element	Description
agent - port	TCP port number of the switch, at which the Agent is listening; string
agent - sw - version	Software version number for the Agent; string



## Set System Feature

Sets system feature.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/telemetry/feature
Request Body (JSON)	{ "heartbeat-enable" : 1, "msg-interval" : 10 }

where:

Element	Description
heartbeat-enable	When enabled, the Agent asynchronously sends the registration and heartbeat message to the collector. One of: <ul style="list-style-type: none"><li>● 0: disable heartbeat</li><li>● 1: enable heartbeat (default value)</li></ul>
msg-interval	Determines the interval with which the registration and heartbeat messages are sent to the collector; units of seconds from 1-600. Default value: 5 seconds.

### *Response*

Response Body (JSON)	
-------------------------	--

## Get System Feature

Gets system feature.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/telemetry/feature
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "heartbeat-enable" : 1, "msg-interval" : 5 }
-------------------------	---

where:

Element	Description
heartbeat - enable	When enabled, the Agent asynchronously sends the registration and heartbeat message to the collector. One of: <ul style="list-style-type: none"><li>● 0: disable heartbeat</li><li>● 1: enable heartbeat (default value)</li></ul>
msg - interval	Determines the interval with which the registration and heartbeat messages are sent to the collector; units of seconds from 1-600. Default value: 5 seconds.

## Set BST Tracking

Sets the BST trackers and the tracking-mode on the ASIC.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/telemetry/bst/tracking
Request Body (JSON)	<pre>{   "track-peak-stats":1,   "track-ingress-port-priority-group":1,   "track-ingress-port-service-pool":1,   "track-ingress-service-pool":1,   "track-egress-port-service-pool":1,   "track-egress-service-pool":1,   "track-egress-rqe-queue":1,   "track-egress-cpu-queue":1,   "track-egress-uc-queue":1,   "track-device":1 }</pre>

where:

Element	Description
track-peak-stats	Set to 1 to peak statistics tracking, 0 to disable this feature
track-ingress-port-priority-group	Set to 1 to enable ingress port priority group tracking, 0 to disable this feature
track-ingress-port-service-pool	Set to 1 to enable ingress port service pool tracking, 0 to disable this feature
track-ingress-service-pool	Set to 1 to enable ingress service pool tracking, 0 to disable this feature
track-egress-port-service-pool	Set to 1 to enable egress port service pool tracking, 0 to disable this feature
track-egress-service-pool	Set to 1 to enable egress service pool tracking, 0 to disable this feature
track-egress-rqe-queue	Set to 1 to enable egress RQE queue tracking, 0 to disable this feature
track-egress-cpu-queue	Set to 1 to enable egress CPU queue tracking, 0 to disable this feature
track-egress-uc-queue	Set to 1 to enable egress unicast queue tracking, 0 to disable this feature

Element	Description
track-egress-mc-queue	Set to 1 to enable egress multicast queue tracking, 0 to disable this feature
track-device	Set to 1 to enable tracking of this device, 0 to disable this feature

## *Response*

Response Body (JSON)	
----------------------------	--

## Get BST Tracking

Gets the BST trackers and the tracking-mode on the ASIC.

### Request

Method Type	GET
Request URI	/nos/api/cfg/telemetry/bst/tracking
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "track-peak-stats":1,   "track-ingress-port-priority-group":1,   "track-ingress-port-service-pool":1,   "track-ingress-service-pool":1,   "track-egress-port-service-pool":1,   "track-egress-service-pool":1,   "track-egress-rqe-queue":1,   "track-egress-cpu-queue":1,   "track-egress-uc-queue":1,   "track-egress-mc-queue":1,   "track-device":1 }</pre>
-------------------------	--

where:

Element	Description
track-peak-stats	1 to peak statistics tracking, 0 to disable this feature
track-ingress-port-priority-group	1 to enable ingress port priority group tracking, 0 to disable this feature
track-ingress-port-service-pool	1 to enable ingress port service pool tracking, 0 to disable this feature
track-ingress-service-pool	1 to enable ingress service pool tracking, 0 to disable this feature
track-egress-port-service-pool	1 to enable egress port service pool tracking, 0 to disable this feature
track-egress-service-pool	1 to enable egress service pool tracking, 0 to disable this feature
track-egress-rqe-queue	1 to enable egress RQE queue tracking, 0 to disable this feature

Element	Description
track-egress-cpu-queue	Set to 1 to enable egress CPU queue tracking, 0 to disable this feature
track-egress-uc-queue	Set to 1 to enable egress unicast queue tracking, 0 to disable this feature
track-egress-mc-queue	Set to 1 to enable egress multicast queue tracking, 0 to disable this feature
track-device	1 to enable tracking of this device, 0 to disable this feature

## Set BST Feature

Sets BST feature.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/telemetry/bst/feature
Request Body (JSON)	{ "bst-enable": 1, "send-async-reports": 1, "collection-interval": 300, "trigger-rate-limit": 5, "trigger-rate-limit-interval": 2, "send-snapshot-on-trigger": 1, "async-full-reports": 1, }

where:

Element	Description
bst-enable	Set to 1 to enable BST, 0 to disable it. Enabling BST allows the switch to track buffer utilization statistics.
send-async-reports	Set to 1 to enable the transmission of periodic asynchronous reports, 0 to disable this feature.
collection-interval	The collection interval, in seconds. This defines how frequently periodic reports will be sent to the configured controller; an integer from 10 - 600.
trigger-rate-limit	The trigger rate limit, which defines the maximum number of threshold-driven triggered reports that the agent is allowed to send to the controller per trigger-rate-limit-interval; an integer from 1-5.
trigger-rate-limit-interval	The trigger rate limit interval, in seconds; an integer from 10-60.
send-snapshot-on-trigger	Set to 1 to enable sending a complete snapshot of all buffer statistics counters when a trigger happens, 0 to disable this feature.
async-full-report	Set to 1 to enable the async full report feature, 0 to disable it.  When this feature is enabled, the agent sends full reports containing data related to all counters. When the feature is disabled, the agent sends incremental reports containing only the counters that have changed since the last report.

*Response*

Response Body (JSON)	
----------------------------	--



## Get BST Feature

Gets BST information.

### Request

Method Type	GET
Request URI	/nos/api/cfg/telemetry/bst/feature
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "stat-units-in-cells": 0,   "stats-in-percentage": 1,   "collection-interval": 60,   "send-async-reports": 0,   "send-snapshot-on-trigger": 1,   "trigger-rate-limit": 1,   "async-full-report": 0,   "trigger-rate-limit-interval": 10,   "bst-enable": 0 }</pre>
-------------------------	---

where:

Element	Description
bst-enable	Set to 1 to enable BST, 0 to disable it. Enabling BST allows the switch to track buffer utilization statistics.
send-async-reports	Set to 1 to enable the transmission of periodic asynchronous reports, 0 to disable this feature.
collection-interval	The collection interval, in seconds. This defines how frequently periodic reports will be sent to the configured controller.
trigger-rate-limit	The trigger rate limit, which defines the maximum number of threshold-driven triggered reports that the agent is allowed to send to the controller per <code>trigger-rate-limit-interval</code> ; an integer from 1-5.
trigger-rate-limit-interval	The trigger rate limit interval, in seconds; an integer from 10-60.
send-snapshot-on-trigger	Set to 1 to enable sending a complete snapshot of all buffer statistics counters when a trigger happens, 0 to disable this feature.

Element	Description
async-full-report	<p>Set to 1 to enable the async full report feature, 0 to disable it.</p> <p>When this feature is enabled, the agent sends full reports containing data related to all counters. When the feature is disabled, the agent sends incremental reports containing only the counters that have changed since the last report.</p>
stat-units-in-cells	<p>Whether the buffer statistics are reported in units of bytes or cells.</p> <p><b>Note:</b> This value is always set to 0. It cannot be modified and it is always ignored because stats-in-percentage is always set to 1.</p>
stats-in-percentage	<p>When set to 1, the buffer usage statistics are reported as percentages. When this variable is set to 1, the parameter stat-units-in-cells is ignored while reporting the statistics. This variable is applicable for statistics and threshold reporting.</p> <p><b>Note:</b> This variable is always set to 1 and cannot be modified. The percentage values in the BST/trigger report are an approximation of buffer utilization, not an exact value.</p>

## Get BST Limits

Gets BST limit information for BST parameters.

### Request

Method Type	GET
Request URI	nos/api/cfg/telemetry/bst/limits
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>"time-stamp": "2015-10-18 - 00:15:04 ", {   "cpu-queue": {"max": 47, "min": 0},   "multicast-queue": {"max": 2599, "min": 0},   "priority-group": {"max": 7, "min": 7},   "queue-group": {"max": 127, "min": 0},   "rqe-queue": {"max": 10, "min": 0},   "service-pool": {"max": 0, "min": 0},   "unicast-queue": {"max": 2599, "min": 0},   "user-queue": {"max": 7, "min": 0} }</pre>
-------------------------	--

The range of the following parameters depends on the hardware configuration. For example, the service-pool and priority-group ranges are different when Converged Ethernet Mode is enabled on the switch:

Element	Description
cpu-queue	Cpu-queue minimum and maximum values.
multicast-queue	Multicast-queue minimum and maximum values.
priority-group	Priority-group minimum and maximum values.
queue-group	Queue-group minimum and maximum values.
rqe-queue	Rqe-queue minimum and maximum values.
service-pool	Service-pool minimum and maximum values.
unicast-queue	Unicast-queue minimum and maximum values.
user-queue	User-queue minimum and maximum values.

## Get BST Report

Gets BST information.

### Request

Method Type	POST
Request URI	/nos/api/info/telemetry/bst/report
Request Body (JSON)	<pre>{   "include-ingress-port-priority-group" : 1,   "include-ingress-port-service-pool" : 0,   "include-ingress-service-pool" : 0,   "include-egress-port-service-pool" : 0,   "include-egress-service-pool" : 1,   "include-egress-rqe-queue" : 0,   "include-egress-uc-queue" : 1,   "include-egress-mc-queue" : 1,   "include-egress-cpu-queue" : 0,   "include-device" : 0 }</pre>

where:

Element	Description
include-ingress-port-priority-group	Ingress port priority group; 1 to enable, 0 to disable.
include-ingress-port-service-pool	Ingress port service pool; 1 to enable, 0 to disable.
include-ingress-service-pool	Ingress service pool; 1 to enable, 0 to disable.
include-egress-port-service-pool	Egress port service pool; 1 to enable, 0 to disable.
include-egress-service-pool	Egress service pool; 1 to enable, 0 to disable.
include-egress-rqe-queue	Egress RQE queue; 1 to enable, 0 to disable.
include-egress-uc-queue	Egress unicast queue buffers. Set to 1 to enable in BST report, 0 to disable it.
include-egress-cpu-queue	Egress CPU queue buffers. Set to 1 to enable in BST report, 0 to disable it.
include-egress-mc-queue	Egress multicast queue buffers. Set to 1 to enable in BST report, 0 to disable it.
include-device	Device; 1 to enable, 0 to disable.

## Response

Response Body (JSON)	<pre>{   { "time-stamp": "2014-11-14 - 00:15:04 ",     "report": [       { "realm": "device",         "data": "46"       },       { "realm": "ingress-port-priority-group",         "data": [           { "interface": " Ethernet1/2",             "data": [[5, "100", "100"]]           }, { "interface": " Ethernet1/3",             "data": [[5, "100", "100"]]           }         ]       },       { "realm": "ingress-port-service-pool",         "data": [           { "interface": "Ethernet1/2",             "data": [[5, "100"]]           }, { "interface": "Ethernet1/3",             "data": [[6, "100"]]           }         ]       },       { "realm": "ingress-service-pool",         "data": [[1, "100"], [2, "100"]]       },       { "realm": "egress-cpu-queue",         "data": [[3, "100"]]       },       { "realm": "egress-uc-queue",         "data": [[3, "100"]]       },       { "realm": "egress-mc-queue",         "data": [[3, "100"]]       },       { "realm": "egress-port-service-pool",         " port-service-pool-ctr": [{           "interface": " Ethernet1/2",           "data": [["5","10", "10", "30"]]         }, { "interface": " Ethernet1/3",           "data": [["60", "30", "36","45"]]         }       ]       },       { "realm": "egress-rqe-queue",         "data": [[2, "33"], [5, "25"]]       },       { "realm": "egress-service-pool",         "data": [[1,"20", "10", "10", "32"],           [3, "3660", 0, 0]]       },     ]   } }</pre>
-------------------------	--

where:

Realm	Index # 1	Index # 2	Statistics
ingress-port-priority-group	<i>interface</i> (such as Ethernet1/7)	priority-group	um-share-buffer-count um-headroom-buffer-count
ingress-port-service-pool	<i>interface</i> (such as Ethernet1/7)	service-pool	um-share-buffer-count
ingress-service-pool	service-pool		um-share-buffer-count
egress-port-service-pool	<i>interface</i> (such as Ethernet1/7)	service-pool	uc-share-buffer-count, um-share-buffer-count, mc-share-buffer-count,
egress-cpu-queue	queue		cpu-buffer-count
egress-uc-queue	queue		uc-buffer-count
egress-mc-queue	queue		mc-buffer-count
egress-service-pool	service-pool		um-share-buffercount, mc-share-buffer-count
egress-rqe-queue	queue		rqe-buffer-count
device			data

**Note:** For more information on realm parameters and indexes, see the *CNOS Application Guide*.

## Get BST Congestion Drop Counters

Gets BST congestion drop counters information.

### Request

Method Type	POST
Request URI	/nos/api/info/telemetry/bst/congestion-drop-counters
Request Body (JSON)	<pre>{   req_id : 1   "request-type" : "top-drops" or "top-port-queue-drops" or                   "port-drops" or " port-queue-drops"   "request-params": {     "count":8     "interface-list" :["if_name1", "if_name2", "if_name3"]     "queue-type" :   "ucast" or "mcast" or "all"     "queue-list"    : [ 1, 2, 3]                   },   "collection-interval": 30 }</pre>

where:

Element	Description
req-id	The request ID; an integer
request-type	One of the following: <ul style="list-style-type: none"><li>● <b>top-drops</b>: Show ports with maximum congestion on the switch and their drop-counters</li><li>● <b>top-port-queue-drops</b>: Show top port-queue level drop-counters on the switch</li><li>● <b>port-queue-drops</b>: Show per port-queue level drop-counters on the switch</li><li>● <b>port-drops</b>: Show per-port total drop counters on the switch</li></ul>

Element	Description
request - params	<p>Request parameters; one of the following strings:</p> <ul style="list-style-type: none"> <li>● <b>count</b>: Number of ports required in the report. The ports are sorted with the port suffering maximum congestion at the top; an integer. <ul style="list-style-type: none"> <li><b>Note:</b> This parameter is configurable only if request - type is top-drops or top-port-queue-drops</li> </ul> </li> <li>● <b>queue - type</b>: Filters the report on the queue type; one of the following strings: <ul style="list-style-type: none"> <li>– ucast: Unicast queues</li> <li>– mcast: Multicast queues</li> <li>– all: All supported queues</li> </ul> </li> <li>● <b>interface - list</b>: Comma-separated list of ports for the congestion drop counter report; an array. A value of all requests all the ports, applicable for port-queue and port-queue-drops request-type only.</li> <li>● <b>queue - list</b>: An array of queue numbers to be considered for the drop report.</li> <li>● <b>collection - interval</b>: (Optional) The period in which the counters are collected from ASIC; An integer from 1-60. Default value: 0</li> </ul>



## Response

Method Type	POST
Request URI	/nos/api/info/telemetry/bst/congestion-drop-counters
Request Body (JSON)	<pre>{   "time-stamp": "2017-01-02 - 14:54:22 ",   "report-type": "port-drops",   "congestion-ctr": [     {"interface": "Ethernet1/1", "ctr": "56776 "},     {"interface": "Ethernet1/2", "ctr": "56767"},     {"interface": "Ethernet1/3", "ctr": " 76654"}   ] }</pre>

where:

Element	Description
time-stamp	Time of the report generation.
report-type	One of the following: <ul style="list-style-type: none"> <li>● top-drops: Show ports with maximum congestion on the switch and their drop-counters</li> <li>● top-port-queue-drops: Show top port-queue level drop-counters on the switch</li> <li>● port-queue-drops: Show per port-queue level drop-counters on the switch</li> <li>● port-drops: Show per-port total drop counters on the switch</li> </ul>
congestion-ctr	Congestion counters contents; a list of dictionaries. Depending on the configuration, each dictionary may contain the following values: <ul style="list-style-type: none"> <li>● interface: Interface name</li> <li>● ctr: Counter value; a string.</li> <li>● queue-type; one of ucast, mcast</li> <li>● queue-drop-ctr; one of:               <ul style="list-style-type: none"> <li>- queue number: an integer from 1-8.</li> <li>- counter value: the 64 bit counter value; a string.</li> </ul> </li> </ul>

## Port Drop Report Example

### Request

Method Type	POST
Request URI	/nos/api/info/telemetry/bst/congestion-drop-counters
Request Body (JSON)	<pre>{   "req_id" : 1   "request-type" : "port-drops"   "request-params":   {     "interface-list" : ["Ethernet1/1", "Ethernet1/2",     "Ethernet1/3"]   } }</pre>

### Response

Response Body (JSON)	<pre>{   "time-stamp": "2017-01-02 - 14:54:22 ",   "report-type": "port-drops",   "congestion-ctr": [     {"interface": "Ethernet1/1", "ctr": "56776 "},     {"interface": "Ethernet1/2", "ctr": "56767"},     {"interface": "Ethernet1/3", "ctr": " 76654"}   ] }</pre>
-------------------------	--

## Top Drop Report Example

### Request

Method Type	POST
Request URI	/nos/api/info/telemetry/bst/congestion-drop-counters
Request Body (JSON)	<pre>{   "req-id" : 2,   "request-type" : "top-drops",   "request-params": {     "count":3   } }</pre>

### Response

Response Body (JSON)	<pre>{   "time-stamp": "2017-01-02 - 14:54:22 ",   "report-type": "top-drops",   "congestion-ctr": [     {"interface": "Ethernet1/1", "ctr": " 1234 "},     {"interface": "Ethernet1/2", "ctr": " 3234"},     {"interface": "Ethernet1/3", "ctr": " 3455"}   ] }</pre>
-------------------------	--

## Port Queue Drops Report Example

### Request

Method Type	POST
Request URI	/nos/api/info/telemetry/bst/congestion-drop-counters
Request Body (JSON)	<pre>{   "req-id" : 4,   "request-type" : "port-queue-drops",   "request-params": {     "interface-list": ["Ethernet1/1", "Ethernet1/2"],     "queue-type": "mcast",     "queue-list" : [1,2] } }</pre>

### Response

Response Body (JSON)	<pre>{   "time-stamp": "2017-01-02 - 14:40:01 ",   "report-type": "port-queue-drops",   "congestion-ctr": [     {       "interface": "Ethernet1/1",       "queue-type": "mcast",       "queue-drop-ctr": [[1, "0  "], [2, "      0 "]]     },     {       "interface": "Ethernet1/2",       "queue-type": "mcast",       "queue-drop-ctr": [[1, "0  "], [2, "      0 "]]     }   ] }</pre>
-------------------------	--

## Top Port Queue Drops Report Example

### Request

Method Type	POST
Request URI	/nos/api/info/telemetry/bst/congestion-drop-counters
Request Body (JSON)	<pre>{   "req-id" : 3,   "request-type" : "top-port-queue-drops",   "request-params": {     "count":5 ,     "queue-type": "ucast"   } }</pre>

## Response

Response Body (JSON)	<pre>{ { "time-stamp": "2017-01-02 - 14:43:39 ", "report-type": "top-port-queue-drops", "congestion-ctr": [ { "interface": "Ethernet1/1", "queue-type": "ucast", "queue-drop-ctr": [[1, "0"], [2, "0"], [3, "0"], [4, "0"], [5, "0"]] } ] }</pre>
----------------------------	---

## Set BST Threshold

Sets BST threshold to trigger BST reports. Use the following REST APIs to set thresholds for each realm.

### Request

Method Type	PUT
Request URI	nos/api/cfg/telemetry/bst/threshold
Request Body (JSON)	{ "realm": "ingress-service-pool", "service-pool": 0, "um-share-threshold": 70 }

where:

Realm	Index # 1	Index # 2	Thresholds
ingress-port-priority-group	<i>interface</i> (such as Ethernet1/7)	priority-group	um-share-threshold
ingress-port-service-pool	<i>interface</i> (such as Ethernet1/7)	service-pool	um-share-threshold
ingress-service-pool	service-pool		um-share-threshold
egress-port-service-pool	service-pool		uc-share-threshold, um-share-threshold
egress-service-pool	service-pool		um-share-threshold mc-share-threshold
egress-rqe-queue	queue		rqe-threshold
egress-cpu-queue	queue		cpu-threshold
egress-uc-queue	queue		uc-threshold
	interface	user-queue	uc-threshold
egress-mc-queue	queue		mc-threshold
	interface	user-queue	mc-threshold
include-device			threshold

**Note:** For more information on realm parameters and indexes, see the *CNOS Application Guide*.

*Response*

Response Body (JSON)	
----------------------------	--

## Get BST Threshold

Retrieves BST threshold.

### Request

Method Type	POST
Request URI	nos/api/cfg/telemetry/bst/threshold
Request Body (JSON)	<pre>{   "include-ingress-port-priority-group" : 1,   "include-ingress-port-service-pool" : 1,   "include-ingress-service-pool" : 1,   "include-egress-port-service-pool" : 1,   "include-egress-service-pool" : 1,   "include-egress-cpu-queue":1,   "include-egress-uc-queue":1,   "include-egress-mc-queue":1 }</pre>

where:

Element	Description
include-ingress-port-priority-group	Ingress port priority group; 1 to enable, 0 to disable.
include-ingress-port-service-pool	Ingress port service pool; 1 to enable, 0 to disable.
include-ingress-service-pool	Ingress service pool; 1 to enable, 0 to disable.
include-egress-port-service-pool	Egress port service pool; 1 to enable, 0 to disable.
include-egress-service-pool	Egress service pool; 1 to enable, 0 to disable.
include-egress-cpu-queue	Egress CPU queue buffers. Set to 1 to enable in BST threshold report, 0 to disable it.
include-egress-uc-queue	Egress unicast queue buffers. Set to 1 to enable in BST threshold report, 0 to disable it.
include-egress-mc-queue	Egress multicast queue buffers. Set to 1 to enable in BST threshold report, 0 to disable it.

## Response

Response Body (JSON)	<pre> {   "report": [     {       "realm": "ingress-port-service-pool",       "data": [         {           "interface": "Ethernet1/40",           "data": [             [               0,               "100"             ]           ]         },         {           "interface": "Ethernet1/1",           "data": [             [               0,               "100"             ]           ]         }       ],       ...     },     {       "realm": "ingress-service-pool",       "data": [         [           0,           "100"         ]       ]     }   ],   ... } </pre>
-------------------------	---

where:

Realm	Index # 1	Index # 2	Thresholds
ingress-port-priority-group	<i>interface</i> (such as Ethernet1/7)	priority-group	um-share-threshold um-head room-threshold
ingress-port-service-pool	<i>interface</i> (such as Ethernet1/7)	service-pool	um-share-threshold
ingress-service-pool	service-pool		um-share-threshold
egress-port-service-pool	<i>interface</i> (such as Ethernet1/7)	service-pool	uc-share-threshold, um-share-threshold mc-share-threshold
egress-service-pool	service-pool		um-share-threshold mc-share-threshold
egress-rqe-queue	queue		rqe-threshold
egress-cpu-queue	queue		cpu-threshold



Realm	Index # 1	Index # 2	Thresholds
egress-uc-queue	queue		uc-threshold
egress-mc-queue	queue		mc-threshold
device			threshold

**Note:** For more information on realm parameters and indexes, see the *CNOS Application Guide*.

## Clear BST Threshold

Clears BST threshold.

### *Request*

Method Type	GET
Request URI	nos/api/cfg/telemetry/bst/clear/threshold
Request Body (JSON)	

### *Response*

Response Body (JSON)	
-------------------------	--

## Clear BST Statistics

Clears BST statistics.

### *Request*

Method Type	GET
Request URI	nos/api/cfg/telemetry/bst/clear/statistics
Request Body (JSON)	

### *Response*

Response Body (JSON)	
-------------------------	--

## Clear BST Congestion Drops

Clears BST congestion drop.

### *Request*

Method Type	GET
Request URI	nos/api/cfg/telemetry/clear-cgsn-drop-counters
Request Body (JSON)	

### *Response*

Response Body (JSON)	
-------------------------	--

## Cancel BST Request

Cancels BST request.

### *Request*

Method Type	PUT
Request URI	nos/api/cfg/telemetry/cancel-request
Request Body (JSON)	{ "req-id":200, "cancel-req-id":1 }

where:

Element	Description
req-id	The unique request ID; an integer from 1-10,000.
cancel-req-id	The request ID of the periodic report to cancel; an integer from 1-10,000.

### *Response*

On success, a HTTP 200 OK response is sent with no JSON body.

Response Body (JSON)	
----------------------	--

## Get Interface Statistics

Gets statistics for a specific switch interface.

### *Request*

Method Type	GET
Request URI	/nos/api/info/statistics/interface< <i>if_name</i> >
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example: <i>Ethernet1/12</i> .

## Response

Following is a command response example:

Response Body (JSON)	<pre>{   "tx_pkts_65_to_127_bytes": "0",   "rx_mcast_pkts": "0",   "rx_pkts": "0",   "tx_dropped": "0",   "if_name": "Ethernet1/1",   "rx_pkts_65_to_127_bytes": "0",   "rx_rate": "0",   "tx_oversize_pkts": "0",   "tx_pkts_512_to_1023_bytes": "0",   "rx_pkts_256_to_511_bytes": "0",   "if_down_drops": "0",   "rx_pkts_1519_to_1548_bytesg": "0",   "tx_bytes": "0",   "rx_ucast_pkts": "0",   "rx_crc_errors": "0",   "tx_mcast_pkts": "0",   "tx_rate": "0",   "tx_ucast_pkts": "0",   "rx_pkts_1024_to_1518_bytes": "0",   "tx_pkts_128_to_255_bytes": "0",   "rx_pkts_1519_to_1548_bytes": "0",   "rx_pkts_0_to_64_bytes": "0",   "rx_bcast_pkts": "0",   "rx_bytes": "0",   "tx_errors": "0",   "tx_pkts_0_to_64_bytes": "0",   "tx_bcast_pkts": "0",   "rx_bytes": "0",   "tx_errors": "0",   "tx_pkts_0_to_64_bytes": "0",   "tx_bcast_pkts": "0",   "rx_pause": "0",   "tx_pkts_1024_to_1518_bytes": "0",   "rx_undersize_pkts": "0",   "tx_pkts_256_to_511_bytes": "0",   "rx_input_discards": "0",   "tx_pause": "0",   "rx_pkts_128_to_255_bytes": "0",   "rx_errors": "0",   "tx_pkts": "0",   "rx_pkts_512_to_1023_bytes": "0",   "tx_bit_rate": "0",   "rx_bit_rate": "0",   "tx_pkts_1519_to_1548_bytes": "0",   "rx_oversize_pkts": "0" }</pre>
-------------------------	---

## Clear Interface Statistics

Resets the statistics for a specific switch interface.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/statistics/clear/interface/<if_name>
Request Body (JSON)	

where:

Element	Description
<i>if_name</i>	The name of the switch interface. For example: <i>Ethernet1/12</i> .



---

## Telnet

The following Telnet URI is available:

- [/nos/api/cfg/telnet/server](#) GET, PUT

The following Telnet commands are available:

- [Get Telnet Server](#)
- [Set Telnet Server](#)

## Get Telnet Server

Gets the Telnet server status.

### *Request*

Method Type	GET
Request URI	/nos/api/cfg/telnet/server
Request Body (JSON)	

### *Response*

Response Body (JSON)	{ "status": "{enable   disable}" }
-------------------------	--

where:

Element	Description
status	The Telnet server status (string); one of <i>enable</i> , <i>disable</i> .

## Set Telnet Server

Sets the Telnet server status.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/telnet/server
Request Body (JSON)	{ "status": "{enable/disable}" }

where:

Element	Description
status	The Telnet server status (string); one of <i>enable</i> , <i>disable</i> .

### Response

Response Body (JSON)	{ "status": "{enable   disable}" }
-------------------------	--

where:

Element	Description
status	The Telnet server status (string); one of <i>enable</i> , <i>disable</i> .



---

## TACACS+

The following Terminal Access Controller Access-Control System Plus (TACACS+) URIs are available:

- /nos/api/cfg/tacacs GET, PUT
- /nos/api/cfg/tacacs/hosts GET, POST, DELETE
- /nos/api/cfg/tacacs/groups GET, POST, DELETE

The following TACACS+ commands are available:

- [Get TACACS+ Configuration](#)
- [Update TACACS+ Configuration](#)
- [Get TACACS+ Server Configuration](#)
- [Add TACACS+ Server](#)
- [Delete TACACS+ Server](#)
- [Get TACACS+ Server Group Configuration](#)
- [Add TACACS+ Server Group](#)
- [Delete TACACS+ Server Group](#)

## Get TACACS+ Configuration

Gets the TACACS+ configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/tacacs
Request Body (JSON)	

### Response

Response Body (JSON)	{ "status": "{enable disable}", "global_key": "{configured not configured}" }
----------------------	--

where:

Element	Description
status	The status of the TACACS+ service on the switch; one of <i>enable</i> , <i>disable</i> .
global_key	The status of the global TACACS+ encryption/decryption key; one of <i>configured</i> , <i>not configured</i> .

## Update TACACS+ Configuration

Updates the TACACS+ configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/tacacs
Request Body (JSON)	<pre>{   "status":"{enable disable}",   "global_key":"{global_key}",   "global_key_form":{0 7} }</pre>

where:

Element	Description
status	The status of the TACACS+ service on the switch; one of <i>enable</i> , <i>disable</i> .
global_key	The global TACACS+ encryption/decryption key; a string up to 63 characters long.
global_key_form	The encryption method for the global TACACS+ key; one of 0 (clear text), 7 (encrypted).

### Response

Response Body (JSON)	<pre>{   "status":"{enable disable}",   "global_key":"{configured not configured}" }</pre>
----------------------	--

where:

Element	Description
status	The status of the TACACS+ service on the switch; one of <i>enable</i> , <i>disable</i> .
global_key	The status of the global TACACS+ encryption/decryption key; one of <i>configured</i> , <i>not configured</i> .

## Get TACACS+ Server Configuration

Gets the configuration of a specific configured TACACS+ server or of all configured TACACS+ servers.

### Request

Method Type	GET
Request URI	/nos/api/cfg/tacacs/hosts/<IP_addr>
Request Body (JSON)	

where:

Element	Description
IP_addr	The IP address of the configured TACACS+ server. If no IP address is provided, then the command returns the configuration of all configured TACACS+ servers.

### Response

Response Body (JSON)	[ { "IP_addr": "{IP_addr}", "port": {port}, "key": "{configured not configured}" } ]
----------------------	--

where:

Element	Description
IP_addr	The IP address of the configured TACACS+ server.
port	The TCP port used to connect to the TACACS+ server; an integer from 1-65535.
key	The status of the TACACS+ server encryption/decryption key; one of <i>configured</i> , <i>not configured</i> .



## Add TACACS+ Server

Configures a TACACS+ server.

### Request

Method Type	POST
Request URI	/nos/api/cfg/tacacs/hosts
Request Body (JSON)	<pre>{   "IP_addr": "{IP_addr}",   "port": {port},   "key": "{key}",   "key_form": {0 7} }</pre>

where:

Element	Description
IP_addr	The IP address of the TACACS+ server.
port	The TCP port used to connect to the TACACS+ server; an integer from 1-65535.
key	The TACACS+ server encryption/decryption key; a string up to 63 characters long.
key_form	The encryption method for the TACACS+ server key; one of 0 (clear text), 7 (encrypted).

### Response

Response Body (JSON)	<pre>{   "IP_addr": "{IP_addr}",   "port": {port},   "key": "{configured not configured}" }</pre>
----------------------	---

where:

Element	Description
IP_addr	The IP address of the TACACS+ server.
port	The TCP port used to connect to the TACACS+ server; an integer from 1-65535.
key	The status of the TACACS+ server encryption/decryption key; one of <i>configured</i> , <i>not configured</i> .

## Delete TACACS+ Server

Removes a configured TACASC+ server.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/tacacs/hosts/<IP_addr>
Request Body (JSON)	

where:

Element	Description
<i>IP_addr</i>	The IP address of the TACACS+ server.

## Get TACACS+ Server Group Configuration

Gets the configuration of a specific configured TACACS+ server group or of all configured TACACS+ server groups.

### Request

Method Type	GET
Request URI	/nos/api/cfg/tacacs/groups/<group_name>
Request Body (JSON)	

where:

Element	Description
group_name	The name of the TACACS+ server group; a string up to 127 characters long. <b>Note:</b> If no group name is provided, then the command returns the configuration of all configured TACACS+ server groups.

### Response

Response Body (JSON)	<pre>[   {     "group_name": "{group_name}"     "vrf_name": "{vrf_name}",     "hosts":       [         {           "IP_addr": "{IP_addr}",           "port": {port},           "key": "{configured not configured}"         }       ]   } ]</pre>
----------------------	---

where:

Element	Description
group_name	The name of the TACACS+ server group; a string up to 127 characters long.
vrf_name	The VRF instance for the TACACS+ server group. Valid value: the <i>VRF instance name</i> .
hosts	The list of servers members of the TACACS+ server group.
IP_addr	The IP address of the TACACS+ server.

Element	Description
port	The TCP port used to connect to the TACACS+ server; an integer from 1-65535.
key	The status of the TACACS+ server encryption/decryption key; one of <i>configured</i> , <i>not configured</i> .

## Add TACACS+ Server Group

Configures a TACACS+ server group.

### Request

Method Type	POST
Request URI	/nos/api/cfg/tacacs/groups
Request Body (JSON)	<pre>{   "group_name": "{group_name}",   "vrf_name": "{vrf_name}",   "hosts":     [       "{IP_addr}"     ] }</pre>

where:

Element	Description
group_name	The name of the TACACS+ server group; a string up to 127 characters long.
vrf_name	The VRF instance for the TACACS+ server group. Valid value: the <i>VRF instance name</i> .
hosts	The list of servers members of the TACACS+ server group.
IP_addr	The IP address of the TACACS+ server to be added to the group.

## Response

Response Body (JSON)	<pre>[   {     "group_name": "{group_name}"     "vrf_name": "{vrf_name}",     "hosts":       [         {           "IP_addr": "{IP_addr}",           "port": {port},           "key": "{configured not configured}"         }       ]   } ]</pre>
----------------------	---

where:

Element	Description
group_name	The name of the TACACS+ server group; a string up to 127 characters long.
vrf_name	The VRF instance for the TACACS+ server group. Valid value: the <i>VRF instance name</i> .
hosts	The list of servers members of the TACACS+ server group.
IP_addr	The IP address of the TACACS+ server.
port	The TCP port used to connect to the TACACS+ server.; an integer from 1-65535.
key	The status of the TACACS+ server encryption/decryption key; one of <i>configured</i> , <i>not configured</i> .

## Delete TACACS+ Server Group

Removes a configured TACACS+ server group.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/tacacs/groups/<group_name>
Request Body (JSON)	

where:

Element	Description
<i>group_name</i>	The name of the TACACS+ server group; a string up to 127 characters long.





---

## vLAG

The following Virtual Link Aggregation Group (vLAG) URIs are available:

- /nos/api/cfg/vlag GET, PUT
- /nos/api/info/vlag GET
- /nos/api/info/vlag/isl GET
- /nos/api/cfg/vlag/isl PUT
- /nos/api/info/vlag/health\_check GET
- /nos/api/cfg/vlag/health\_check PUT
- /nos/api/cfg/vlag/instance POST
- /nos/api/cfg/vlag/instance/<instance\_id> GET, PUT, DELETE
- /nos/api/info/vlag/instance/<instance\_id> GET

The following vLAG commands are available:

- [Get vLAG Configuration](#)
- [Update vLAG Configuration](#)
- [Get Global vLAG Information](#)
- [Get vLAG ISL Information](#)
- [Configure vLAG ISL](#)
- [Get vLAG Health Check Information](#)
- [Configure vLAG Health Check Parameters](#)
- [Create vLAG Instance](#)
- [Update vLAG Instance](#)
- [Delete vLAG Instance](#)
- [Get vLAG Instance Configuration](#)
- [Get vLAG Instance Information](#)

## Get vLAG Configuration

Gets the Virtual Link Aggregation Group (vLAG) global configuration.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vlag
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "status": "&lt;status&gt;",   "tier_id": "&lt;tier_id&gt;",   "priority": "&lt;priority&gt;",   "auto_recover" : "&lt;auto_recover&gt;",   "startup_delay": "&lt;startup_delay&gt;", }</pre>
-------------------------	---

where:

Element	Description
status	Whether the vLAG is enabled or disabled; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
tier_id	vLAG tier ID value; an integer from 1-512. Default value: 0.
priority	vLAG priority value; an integer from 0-65535. Default value: 0.
auto_recover	Time interval, in seconds; an integer from 240-3600. Default value: 300.
startup_delay	Delay time, in seconds; an integer from 0-3600. Default value: 120.

## Update vLAG Configuration

Updates the Virtual Link Aggregation Group (vLAG) global configuration.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/vlag
Request Body (JSON)	{ "status": "<status>", "tier_id": "<tier_id>", "priority": "<priority>", "auto_recover" : "<auto_recover>", "startup_delay": "<startup_delay>", }

where:

Element	Description
status	Whether the vLAG is enabled or disabled; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
tier_id	vLAG tier ID value; an integer from 1-512. Default value: 0.
priority	vLAG priority value; an integer from 0-65535. Default value: 0.
auto_recover	Time interval, in seconds; an integer from 240-3600. Default value: 300.
startup_delay	Delay time, in seconds; an integer from 0-3600. Default value: 120.

**Note:** At least one parameter must be specified in the request body.

### Response

Response Body (JSON)	{ "status": "<status>", "tier_id": "<tier_id>", "priority": "<priority>", "auto_recover" : "<auto_recover>", "startup_delay": "<startup_delay>", }
-------------------------	--

where:

Element	Description
status	Whether the vLAG is enabled or disabled; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
tier_id	vLAG tier ID value; an integer from 1-512. Default value: 0.

Element	Description
priority	vLAG priority value; an integer from 0-65535. Default value: 0.
auto_recover	Time interval, in seconds; an integer from 240-3600. Default value: 300.
startup_delay	Delay time, in seconds; an integer from 0-3600. Default value: 120.

## Get Global vLAG Information

Gets global vLAG information.

### Request

Method Type	GET
Request URI	/nos/api/info/vlag
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "status": "&lt;status&gt;",   "system_mac": "&lt;system_mac&gt;",   "fdb_refresh": "&lt;fdb_refresh&gt;",   "fdb_synch": "&lt;fdb_synch&gt;",   "auto_recovery":   {     "interval": "&lt;interval&gt;"     "state": "&lt;state&gt;",   }   "startup_delay":   {     "interval": "&lt;interval&gt;"     "state": "&lt;state&gt;",   }   "local":   {     "tier_id": "&lt;tier_id&gt;",     "sys_type": "&lt;sys_type&gt;",     "os_version": "&lt;os_version&gt;",     "admin_role": "&lt;admin_role&gt;",     "oper_role": "&lt;oper_role&gt;",     "priority": "&lt;priority&gt;",     "system_mac": "&lt;system_mac&gt;",     "match": "&lt;match&gt;"   }   "peer":   {     "tier_id": "&lt;tier_id&gt;",     "sys_type": "&lt;sys_type&gt;",     "os_version": "&lt;os_version&gt;",     "admin_role": "&lt;admin_role&gt;",     "oper_role": "&lt;oper_role&gt;",     "priority": "&lt;priority&gt;",     "system_mac": "&lt;system_mac&gt;",     "match": "&lt;match&gt;"   } }</pre>
-------------------------	---

where:

Element	Description
status	Whether the vLAG is enabled or disabled; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .
system_mac	Unique vLAG system MAC used for LACP negotiation on the vLAG ports so the access switch forms a single LAG. The vLAG <i>tier_id</i> is used to form this vLAG system MAC.
fdb_refresh	Whether FDB refresh is configured; one of <i>yes</i> , <i>no</i> .
fdb_synch	Whether FDB is synchronized; one of <i>yes</i> , <i>no</i> .
auto_recovery	A dictionary consisting of the following values: <ul style="list-style-type: none"> <li>• <i>interval</i>: Time interval, in seconds; an integer from 240-3600. Default value: 300.</li> <li>• <i>state</i>: Auto-recovery state; one of <i>unstarted</i>, <i>running</i>, <i>finished</i>.</li> </ul>
startup_delay	A dictionary consisting of the following values: <ul style="list-style-type: none"> <li>• <i>interval</i>: Delay time, in seconds; an integer from 0-3600. Default value: 120.</li> <li>• <i>state</i>: Startup delay state; one of <i>unstarted</i>, <i>running</i>, <i>finished</i>.</li> </ul>
local	Dictionary containing the following values: <ul style="list-style-type: none"> <li>• <i>tier_id</i>: vLAG tier ID of the local switch.</li> <li>• <i>sys_type</i>: Lenovo hardware model number.</li> <li>• <i>os_version</i>: CNOS version.</li> <li>• <i>admin_role</i>: One of <i>Primary</i>, <i>Secondary</i>, <i>Unselected</i>.</li> <li>• <i>oper_role</i>: One of <i>Primary</i>, <i>Secondary</i>, <i>Unselected</i>,</li> <li>• <i>priority</i>: The local vLAG priority</li> <li>• <i>system_mac</i>: Local switch MAC.</li> <li>• <i>match</i>: Whether there is an ISL local match or mismatch; one of <i>Match</i>, <i>Mis-Match</i>.</li> </ul>
peer	Dictionary containing the following values: <ul style="list-style-type: none"> <li>• <i>tier_id</i>: vLAG tier ID of the peer switch.</li> <li>• <i>sys_type</i>: Lenovo hardware model number.</li> <li>• <i>os_version</i>: CNOS version.</li> <li>• <i>admin_role</i>: One of <i>Primary</i>, <i>Secondary</i>, <i>Unselected</i>.</li> <li>• <i>oper_role</i>: One of <i>Primary</i>, <i>Secondary</i>, <i>Unselected</i>,</li> <li>• <i>priority</i>: The peer vLAG priority</li> <li>• <i>system_mac</i>: Peer switch MAC.</li> <li>• <i>match</i>: Whether there is an ISL local match or mismatch; one of <i>Match</i>, <i>Mis-Match</i>.</li> </ul>

## Get vLAG ISL Information

Gets Virtual Link Aggregation Group (vLAG) Inter-Switch Link (ISL) information.

### Request

Method Type	GET
Request URI	/nos/api/info/vlag/isl
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "port_aggregator": "&lt;port_aggregator&gt;",   "if_index": "&lt;if_index&gt;",   "state": "&lt;state&gt;",   "prev_state" : "&lt;prev_state&gt;", }</pre>
-------------------------	---

where:

Element	Description
port_aggregator	LAG identifier; an integer from 1-4096.
if_index	ISL interface index.
state	ISL state; one of <i>Down</i> , <i>Inactive</i> , <i>Active</i> .
prev_state	Previous ISL state; one of <i>Down</i> , <i>Inactive</i> , <i>Active</i> .

## Configure vLAG ISL

Configures the port aggregator for the vLAG ISL.

### *Request*

Method Type	PUT
Request URI	/nos/api/cfg/vlag/isl
Request Body (JSON)	{ "port_aggregator": "<port_aggregator>", }

where:

Element	Description
port_aggregator	Port aggregator for the vLAG ISL.

### *Response*

Response Body (JSON)	
-------------------------	--



## Get vLAG Health Check Information

Gets vLAG health check information.

### Request

Method Type	GET
Request URI	/nos/api/info/vlag/health_check
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "status" : "&lt;status&gt;",   "peer_ip": "&lt;peer_ip&gt;",   "vrf": "&lt;vrf&gt;",   "local_ip": "&lt;local_ip&gt;",   "retry_interval": "&lt;retry_interval&gt;",   "keepalive_attempts" : "&lt;keepalive_attempts&gt;",   "keepalive_interval" : "&lt;keepalive_interval&gt;", }</pre>
-------------------------	---

where:

Element	Description
status	vLAG health check status; one of <i>up</i> , <i>down</i> .
peer_ip	IP address of peer switch. This can be the management IP address of the peer switch.
vrf	VRF context string.
local_ip	IP address of local switch. This can be the management IP address of the local switch.
retry_interval	Time interval, in seconds; an integer from 1-300. Default value: 30.
keepalive_attempts	Number of keepalive attempts made before declaring the peer is down; an integer from 1-24. Default value: 3.
keepalive_interval	Time interval, in seconds; an integer from 2-300. Default value: 5.

## Configure vLAG Health Check Parameters

Configures vLAG health check parameters.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/vlag/health_check
Request Body (JSON)	<pre>{   "peer_ip": "&lt;peer_ip&gt;",   "vrf": "&lt;vrf&gt;",   "retry_interval": "&lt;retry_interval&gt;",   "keepalive_attempts" : "&lt;keepalive_attempts&gt;",   "keepalive_interval" : "&lt;keepalive_interval&gt;", }</pre>

where:

Element	Description
peer_ip	IP address of peer switch. This can be the management IP address of the peer switch.
vrf	VRF context string.
retry_interval	Time interval, in seconds; an integer from 1-300. Default value: 30.
keepalive_attempts	Number of keepalive attempts made before declaring the peer is down; an integer from 1-24. Default value: 3.
keepalive_interval	Time interval, in seconds; an integer from 2-300. Default value: 5.

### Response

Response Body (JSON)	<pre>{   "status" : "&lt;status&gt;",   "peer_ip": "&lt;peer_ip&gt;",   "vrf": "&lt;vrf&gt;",   "local_ip": "&lt;local_ip&gt;",   "retry_interval": "&lt;retry_interval&gt;",   "keepalive_attempts" : "&lt;keepalive_attempts&gt;",   "keepalive_interval" : "&lt;keepalive_interval&gt;", }</pre>
-------------------------	---

where:

Element	Description
peer_ip	IP address of peer switch. This can be the management IP address of the peer switch.
vrf	VRF context string.

Element	Description
retry_ interval	Time interval, in seconds; an integer from 1-300. Default value: 30.
keepalive_ attempts	Number of keepalive attempts made before declaring the peer is down; an integer from 1-24. Default value: 3.
keepalive_ interval	Time interval, in seconds; an integer from 2-300. Default value: 5.

## Create vLAG Instance

Creates a Virtual Link Aggregation Group (vLAG) instance.

### Request

Method Type	POST
Request URI	/nos/api/cfg/vlag/instance
Request Body (JSON)	{ "inst_id": "<inst_id>", "port_aggregator": "<port_aggregator>", "status": "<status>", }

where:

Element	Description
inst_id	vLAG instance ID number; an integer from 1-64.
port_aggregator	LAG identifier; an integer from 1-4096.
status	vLAG status; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .

### Response

Response Body (JSON)	
-------------------------	--

## Update vLAG Instance

Updates a Virtual Link Aggregation Group (vLAG) instance.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/vlag/instance/<instance_id>
Request Body (JSON)	{ "port_aggregator": "<port_aggregator>", "status": "<status>", }

where:

Element	Description
<i>instance_id</i>	vLAG instance ID number; an integer from 1 - 64.
port_aggregator	LAG identifier; an integer from 1-4096.
status	vLAG status; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .

### Response

Response Body (JSON)	
-------------------------	--

## Delete vLAG Instance

Deletes a vLAG instance.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/vlag/instance/<instance_id>
Request Body (JSON)	

where:

Element	Description
<i>instance_id</i>	vLAG instance ID number; an integer from 1-64.

### *Response*

True if the operation succeeded; otherwise False.

## Get vLAG Instance Configuration

Gets configuration parameters for the specified vLAG instance.

**Note:** An *instance\_id* value of *NONE* returns configuration parameters for all vLAG instances.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vlag/instance/<instance_id>
Request Body (JSON)	

where:

Element	Description
<i>instance_id</i>	vLAG instance ID; either <i>NONE</i> or an integer from 1-64.

### Response

Response Body (JSON)	{ "port_aggregator": 6, "status": "enable", "inst_id": 2 }
-------------------------	--

where:

Element	Description
<i>inst_id</i>	vLAG instance ID number; an integer from 1-64.
<i>port_aggregator</i>	LAG identifier; an integer from 1-4096.
<i>status</i>	vLAG status; one of <i>enable</i> , <i>disable</i> . Default value: <i>disable</i> .

## Get vLAG Instance Information

Gets information about a vLAG instance.

**Note:** An *instance\_id* value of *NONE* returns information about all vLAG instances.

### Request

Method Type	GET
Request URI	/nos/api/info/vlag/instance/<instance_id>
Request Body (JSON)	

where:

Element	Description
<i>instance_id</i>	vLAG instance ID; either <i>NONE</i> or an integer from 1-64.

### Response

Response Body (JSON)	{ "port_aggregator": "<port_aggregator>", "inst_id": "<inst_id>", "state": "<state>", "prev_state" : "<prev_state>", }
-------------------------	---

where:

Element	Description
port_aggregator	LAG identifier; an integer from 1-4096.
inst_id	ISL interface index.
state	ISL state; one of <i>Down</i> , <i>Inactive</i> , <i>Active</i> .
prev_state	Previous ISL state; one of <i>Down</i> , <i>Inactive</i> , <i>Active</i> .



---

## VLAN

The following VLAN-related URIs are available:

- /nos/api/cfg/vlan GET, POST
- /nos/api/cfg/vlan/<vlan\_id> GET, PUT, DELETE
- /nos/api/cfg/vlan\_interface GET
- /nos/api/info/subnetvlan POST
- /nos/api/cfg/subnetvlan POST, PUT
- /nos/api/cfg/vlan\_interface/<if\_name> GET, PUT

The following VLAN commands are available:

- [Get All VLANs](#)
- [Create VLAN](#)
- [Get VLAN](#)
- [Update VLAN](#)
- [Delete VLAN](#)
- [Get VLAN Properties of All Interfaces](#)
- [Get VLAN Interface Properties](#)
- [Update VLAN Interface Properties](#)

## Get All VLANs

Gets properties of all VLANs.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vlan/
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "vlan_name": "&lt;vlan_name&gt;",     "vlan_id": "&lt;vlan_id&gt;",     "admin_state": "&lt;admin_state&gt;",     "mst_inst_id": "&lt;mst_inst_id&gt;",     "interfaces": [       {         "if_name": "&lt;if_name&gt;",         "bridgeport_mode": "&lt;bridgeport_mode&gt;",         "pvid": "&lt;pvid&gt;"       }     ]   } ]</pre>
-------------------------	---

where:

Element	Description
vlan_name	The name of the VLAN.
vlan_id	VLAN number.; an integer from 2-3999.
admin_state	The admin status; one of <i>up</i> , <i>down</i> .
mst_inst_id	MST instance ID; an integer from 0-64. Default value: 0. <b>Note:</b> Instance 0 refers to the CIST.
interfaces	Interface members of a VLAN. <b>Note:</b> The interface members must exist.
if_name	Ethernet interface name (string). <b>Note:</b> The ethernet interface must exist.
bridgeport_mode	Bridge port mode; one of <i>access</i> , <i>trunk</i> .
pvid	Native VLAN for a port (the access VLAN for access ports or the native VLAN for trunk ports); an integer from 1-3999. Default value: 1.

## Create VLAN

Creates a VLAN.

### Request

Method Type	POST
Request URI	/nos/api/cfg/vlan
Request Body (JSON)	{ "vlan_name": "<vlan_name>", "vlan_id": "<vlan_id>", "admin_state": "<admin_state>", }

where:

Element	Description
vlan_name	VLAN name; a string up to 32 characters long. To create a VLAN with the default name, the <i>vlan_name</i> field must be null.
vlan_id	VLAN number.; an integer from 2-3999.
admin_state	The admin status; one of <i>up</i> , <i>down</i> .

### Response

Response Body (JSON)	{ "vlan_name": "vlan10", "interfaces": [], "admin_state": "up", "vlan_id": 10, "mst_inst_id": 1 }
-------------------------	---

where:

Element	Description
vlan_name	The name of the VLAN.
vlan_id	VLAN number.; an integer from 2-3999.
admin_state	The admin status; one of <i>up</i> , <i>down</i> .

## Get VLAN

Gets properties of a VLAN.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vlan/<vlan_id>
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "vlan_name": "&lt;vlan_name&gt;",   "vlan_id": "&lt;vlan_id&gt;",   "admin_state": "&lt;admin_state&gt;",   "mst_inst_id": "&lt;mst_inst_id&gt;",   "interfaces": [     {       "if_name": "&lt;if_name&gt;",       "bridgeport_mode": "&lt;bridgeport_mode&gt;",       "pvid": "&lt;pvid&gt;"     }   ] }</pre>
-------------------------	---

where:

Element	Description
vlan_name	The name of the VLAN.
vlan_id	VLAN number; an integer from 2-3999.
admin_state	The admin status; one of <i>up</i> , <i>down</i> .
mst_inst_id	MST instance ID; an integer from 0-64. Default value: 0. <b>Note:</b> Instance 0 refers to the CIST.
interfaces	Interface members of a VLAN. <b>Note:</b> The interface members must exist.
if_name	Ethernet interface name (string). <b>Note:</b> The ethernet interface must exist.
bridgeport_mode	Bridge port mode; one of <i>access</i> , <i>trunk</i> .
pvid	Native VLAN for a port (the access VLAN for access ports or the native VLAN for trunk ports); an integer from 1-3999. Default value: 1.

## Update VLAN

Updates properties of a VLAN.

**Note:** If an element is not specified in a PUT request, no update for that element will be performed.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/vlan/<vlan_id>
Request Body (JSON)	{ "vlan_name": "<vlan_name>", "admin_state": "<admin_state>", }

where:

Element	Description
vlan_name	VLAN name; a string up to 32 characters long. To change a VLAN name with default name, the <i>vlan_name</i> field must be null.
admin_state	The admin status; one of <i>up</i> , <i>down</i> .

### Response

Response Body (JSON)	{ "vlan_name": "<vlan_name>", "vlan_id": "<vlan_id>", "admin_state": "<admin_state>", "mst_inst_id": "<mst_inst_id>", "interfaces": [ { "if_name": "<if_name>", "bridgeport_mode": "<bridge_port_mode>", "pvid": "<pvid>" } ] }
-------------------------	---

where:

Element	Description
vlan_name	The name of the VLAN.
vlan_id	VLAN number; an integer from 2-3999.
admin_state	The admin status; one of <i>up</i> , <i>down</i> .
mst_inst_id	MST instance ID; an integer from 0-64. Default value: 0. <b>Note:</b> Instance 0 refers to the CIST.

Element	Description
interfaces	Interface members of a VLAN. <b>Note:</b> The interface members must exist.
if_name	Ethernet interface name (string). <b>Note:</b> The ethernet interface must exist.
bridgeport_mode	Bridge port mode; one of <i>access</i> , <i>trunk</i> .
pvid	Native VLAN for a port (the access VLAN for access ports or the native VLAN for trunk ports); an integer from 1-3999. Default value: 1.

## Delete VLAN

Deletes a VLAN.

**Note:** If the specified *vlan\_id* is `all`, all user-created VLANs will be deleted.

### *Request*

Method Type	DELETE
Request URI	<code>/nos/api/cfg/vlan/&lt;vlan_id&gt;</code>
Request Body (JSON)	

## Get VLAN Properties of All Interfaces

Gets VLAN properties for all switch interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vlan_interface
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "if_name": "{if_name}",     "bridgeport_mode": "{bridgeport_mode}",     "pvid": "{pvid}",     "vlans": ["{vlan_id}"],     "egress_type": "{egress_type}",     "egress_type_vlans" : ["{vlan_id}"]   } ]</pre>
----------------------	--

where:

Element	Description
if_name	The name of the switch interface. For example <i>Ethernet1/12</i> .
bridgeport_mode	The bridge port mode; one of <i>access</i> , <i>trunk</i> , or <i>invalid</i> for routed port.
pvid	The Native VLAN ID for switch ports set up as trunk ports, or the Access VLAN ID for switch ports set up as access ports; an integer from 1 - 3999. Default value: 1.
vlans	The VLANs that the switch port is a member of; one of <i>all</i> , <i>none</i> , 1 - 3999.
vlan_id	The VLAN ID; an integer from 1- 3999.
egress_type	Whether traffic is egress tagged when the interface is in Hybrid mode; one of <i>tagged</i> , <i>untagged</i> .
egress_type_vlans	The VLANs on which traffic is egress tagged.



## Get VLAN Interface Properties

Gets VLAN properties for a specific switch interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vlan_interface/<if_name>
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "{if_name}",   "bridgeport_mode": "{bridgeport_mode}",   "pvid": "{pvid}",   "vlans": ["{vlan_id}"],   "egress_type": "{egress_type}",   "egress_type_vlans": ["{vlan_id}"] }</pre>
----------------------	---

where:

Element	Description
if_name	The name of the switch interface. For example: <i>Ethernet1/12</i> .
bridgeport_mode	The bridge port mode; one of <i>access</i> , <i>trunk</i> .
pvid	The Native VLAN ID for switch ports set up as trunk ports, or the Access VLAN ID for switch ports set up as access ports; an integer from 1 - 3999. Default value: 1.
vlans	The VLANs that the switch port is a member of; one of <i>all</i> , <i>none</i> , 1 - 3999.
vlan_id	The VLAN ID; an integer from 1- 3999.
egress_type	Whether traffic is egress tagged when the interface is in Hybrid mode; one of <i>tagged</i> , <i>untagged</i> .
egress_type_vlans	The VLANs on which traffic is egress tagged.

## Update VLAN Interface Properties

Updates the VLAN properties for a specific switch interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/vlan_interface/<if_name>
Request Body (JSON)	<pre>{   "if_name": "{if_name}",   "bridgeport_mode": "{bridgeport_mode}",   "pvid": "{pvid}",   "vlans": ["{vlan_id}"],   "egress_type": "{egress_type}",   "egress_type_vlans" : ["{vlan_id}"] }</pre>

where:

Element	Description
if_name	The name of the switch interface. For example <i>Ethernet1/12</i> .
bridgeport_mode	The bridge port mode; one of <i>access, trunk</i> .
pvid	The Native VLAN ID for switch ports set up as trunk ports, or the Access VLAN ID for switch ports set up as access ports; an integer from 1 - 3999. Default value: 1.
vlans	The VLANs that the switch port is a member of; one of <i>all, none, 1 - 3999</i> .
vlan_id	The VLAN ID; an integer from 1- 3999.
egress_type	Whether traffic is egress tagged when the interface is in Hybrid mode; one of <i>tagged, untagged</i> .
egress_type_vlans	The VLANs on which traffic is egress tagged.

## Response

Response Body (JSON)	<pre>{   "if_name": "{if_name}",   "bridgeport_mode": "{bridgeport_mode}",   "pvid": "{pvid}",   "vlans": [{"vlan_id"}],   "egress_type": "{egress_type}",   "egress_type_vlans" : [{"vlan_id"}] }</pre>
----------------------	--

where:

Element	Description
if_name	The name of the switch interface. For example <i>Ethernet1/12</i> .
bridgeport_mode	The bridge port mode; one of <i>access</i> , <i>trunk</i> .
pvid	The Native VLAN ID for switch ports set up as trunk ports, or the Access VLAN ID for switch ports set up as access ports; an integer from 1 - 3999. Default value: 1.
vlans	The VLANs that the switch port is a member of; one of <i>all</i> , <i>none</i> , 1 - 3999
vlan_id	The VLAN ID; an integer from 1- 3999.
egress_type	Whether traffic is egress tagged when the interface is in Hybrid mode; one of <i>tagged</i> , <i>untagged</i> .
egress_type_vlans	The VLANs on which traffic is egress tagged.



---

## VLAN Interface Properties

The following VLAN interface property URI is available:

- /nos/api/cfg/vlan\_interface GET, PUT
- /nos/api/cfg/vlan\_interface/<if\_name> GET, PUT

The following VLAN interface property commands are available:

- [Get VLAN Properties of All Interfaces](#)
- [Get VLAN Interface Properties](#)
- [Update VLAN Interface Properties](#)
- [Update VLAN Interface Allowed VLAN List](#)

## Get VLAN Properties of All Interfaces

Gets the VLAN properties of all Ethernet interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vlan_interface
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "if_name": "&lt;if_name&gt;",     "bridgeport_mode": "&lt;bridgeport_mode&gt;",     "pvid": "&lt;pvid&gt;",     "vlans": [       "&lt;vlan_id&gt;"     ]   } ]</pre>
-------------------------	---

where:

Element	Description
if_name	Ethernet interface name (string). <b>Note:</b> The Ethernet interface must exist.
bridgeport_mode	Bridge port mode; one of <i>access</i> , <i>trunk</i> .
pvid	Native VLAN for a port (the access VLAN for access ports or the native VLAN for trunk ports); an integer from 1-3999. Default value: 1.
vlans	VLAN memberships; either <i>all</i> , <i>none</i> , or an integer from 1-3999.

## Get VLAN Interface Properties

Gets the VLAN properties of an Ethernet interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vlan_interface/<if_name>
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "bridgeport_mode": "&lt;bridge_port_mode&gt;",   "pvid": "&lt;pvid&gt;",   "vlans": ["&lt;vlan_id&gt;"] }</pre>
-------------------------	--

where:

Element	Description
<i>if_name</i>	Ethernet interface name (string). <b>Note:</b> The Ethernet interface must exist.
<i>bridgeport_mode</i>	Bridge port mode; one of <i>access</i> , <i>trunk</i> .
<i>pvid</i>	Native VLAN for a port (the access VLAN for access ports or the native VLAN for trunk ports); an integer from 1-3999. Default value: 1.
<i>vlans</i>	VLAN memberships; either <i>all</i> , <i>none</i> , or an integer from 1-3999.

## Update VLAN Interface Properties

Updates the VLAN properties of an Ethernet interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/vlan_interface/<if_name>
Request Body (JSON)	{ "if_name": "<if_name>", "bridgeport_mode": "<bridgeport_mode>", "pvid": "<pvid>", "vlans": ["<vlan_id>"] }

where:

Element	Description
<i>if_name</i>	Ethernet interface name (string). <b>Note:</b> The Ethernet interface must exist.
<i>bridgeport_mode</i>	Bridge port mode; one of <i>access</i> , <i>trunk</i> .
<i>pvid</i>	Native VLAN for a port (the access VLAN for access ports or the native VLAN for trunk ports); an integer from 1-3999. Default value: 1.
<i>vlans</i>	VLAN memberships; either <i>all</i> , <i>none</i> , or an integer from 1-3999.

**Note:** If an element is not specified in a PUT request, no update for that element will be performed.

### Response

Response Body (JSON)	{ "if_name": "<if_name>", "bridge_port": "<bridge_port>", "bridgeport_mode": "<bridgeport_mode>", "pvid": "<pvid>", "vlans": ["<vlans>"] }
-------------------------	--

where:

Element	Description
<i>if_name</i>	Ethernet interface name (string). <b>Note:</b> The Ethernet interface must exist.
<i>bridge_port</i>	Whether or not the port is a bridge port; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .



Element	Description
bridgeport_ mode	Bridge port mode; one of <i>access</i> , <i>trunk</i> .
pvid	Native VLAN for a port (the access VLAN for access ports or the native VLAN for trunk ports); an integer from 1-3999. Default value: 1.
vlans	(Optional) VLAN memberships; <i>all</i> , <i>none</i> , or an integer from 1-3999.

## Update VLAN Interface Allowed VLAN List

Updates the allowed VLAN list for a specific VLAN interface.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/vlan_interface
Request Body (JSON)	<pre>{   "if_name": "{if_name}",   "bridgeport_mode": "{access trunk hybrid}",   "pvid": "{pvid}",   "vlans":   [     "operation": "{add remove except}",     "vlan_id": "{vlan_id}"   ]   "egress_type": "{tagged untagged}",   "egress_type_vlans": "{vlan_range}" }</pre>

where:

Element	Description
if_name	The name of the switch interface.
bridgeport_mode	The bridge port mode; one of <i>access</i> , <i>trunk</i> , <i>hybrid</i> .
pvid	The access VLAN, if bridge port mode is configured to access. The native VLAN, if bridge port mode is configured to trunk; an integer from 1-3999. Default value: 1.
vlans	The list of allowed VLANs.
operation	The type of operation to perform; one of: <ul style="list-style-type: none"><li>• <i>add</i> - adds the VLAN to the allowed VLAN list</li><li>• <i>remove</i> - removes the VLAN from the allowed VLAN list</li><li>• <i>except</i> - excepts the VLAN from the allowed VLAN list</li></ul>
vlan_id	The VLANs to add, remove, or make an exception for; an integer from 1-3999.
egress_type	Whether the switch tags egress traffic when in hybrid bridge port mode; one of <i>tagged</i> , <i>untagged</i> .
egress_type_vlans	The VLANs on which the switch tags egress traffic; an integer from 1-3999.

## Response

Response Body (JSON)	<pre>{   "if_name": "{if_name}",   "bridgeport_mode": "{access trunk hybrid}",   "pvid": "{pvid}",   "vlans":   [     "operation": "{add remove except}",     "vlan_id": "{vlan_id}"   ]   "egress_type": "{tagged untagged}",   "egress_type_vlans": "{vlan_range}" }</pre>
----------------------	--

where:

Element	Description
if_name	The name of the switch interface.
bridgeport_mode	The bridge port mode; one of <i>access</i> , <i>trunk</i> , <i>hybrid</i> .
pvid	The access VLAN, if bridge port mode is configured to access. The native VLAN, if bridge port mode is configured to trunk; an integer from 1-3999. Default value: 1.
vlans	The list of allowed VLANs.
operation	The type of operation to perform; one of: <ul style="list-style-type: none"> <li>• <i>add</i> - adds the VLAN to the allowed VLAN list</li> <li>• <i>remove</i> - removes the VLAN from the allowed VLAN list</li> <li>• <i>except</i> - excepts the VLAN from the allowed VLAN list</li> </ul>
vlan_id	The VLANs to add, remove, or make an exception for; an integer from 1-3999.
egress_type	Whether the switch tags egress traffic when in hybrid bridge port mode; one of <i>tagged</i> , <i>untagged</i> .
egress_type_vlans	The VLANs on which the switch tags egress traffic; one of 1-3999.



---

## VRF

The following VRF URIs are available:

- /nos/api/cfg/vrf GET, POST
- /nos/api/cfg/vrf/<vrf\_name> GET, PUT, DELETE

The following VRF commands are available:

- [Get All VRFs](#)
- [Create VRF](#)
- [Get VRF](#)
- [Update VRF](#)
- [Delete VRF](#)

## Get All VRFs

Gets properties of all VRFs.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vrf
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "vrf_name": "&lt;vrf_name&gt;",     "interfaces": ["&lt;if_name&gt;"]   } ]</pre>
-------------------------	--

where:

Element	Description
vrf_name	VRF name; a string up to 63 characters long.
interfaces	Interface members of the VRF. <b>Note:</b> The interfaces must exist.

## Create VRF

Creates a new VRF.

### Request

Method Type	POST
Request URI	/nos/api/cfg/vrf
Request Body (JSON)	<pre>{   "vrf_name": "&lt;vrf_name&gt;",   "interfaces": [     "&lt;if_name&gt;"   ] }</pre>

where:

Element	Description
vrf_name	VRF name; a string up to 63 characters long.
interfaces	Interface members of the VRF. <b>Note:</b> The interfaces must exist.

### Response

Response Body (JSON)	<pre>{   "vrf_name": "&lt;vrf_name&gt;",   "interfaces": [     "&lt;if_name&gt;"   ] }</pre>
-------------------------	--

where:

Element	Description
vrf_name	VRF name; a string up to 63 characters long.
interfaces	Interface members of the VRF. <b>Note:</b> The interfaces must exist.

## Get VRF

Gets properties of one VRF.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vrf/<vrf_name>
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, default, all. Default value: default.

### Response

Response Body (JSON)	[ { "vrf_name": "<vrf_name>", "interfaces": ["<if_name>"] } ]
-------------------------	--

where:

Element	Description
<i>vrf_name</i>	VRF name; a string up to 63 characters long.
<i>interfaces</i>	Interface members of the VRF. <b>Note:</b> The interfaces must exist.



## Update VRF

Updates the properties of a VRF.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/vrf/<vrf_name>
Request Body (JSON)	<pre>{   "vrf_name": "&lt;vrf_name&gt;",   "interfaces": [     "&lt;if_name&gt;"   ] }</pre>

where:

Element	Description
vrf_name	VRF name; a string up to 63 characters long.
interfaces	Interface members of the VRF. <b>Note:</b> The interfaces must exist.

### Response

Response Body (JSON)	<pre>{   "vrf_name": "&lt;vrf_name&gt;",   "interfaces": [     "&lt;if_name&gt;"   ] }</pre>
-------------------------	--

where:

Element	Description
vrf_name	VRF name; a string up to 63 characters long.
interfaces	Interface members of the VRF. <b>Note:</b> The interfaces must exist.

## Delete VRF

Deletes a VRF.

**Note:** If the specified *vrf\_name* is `all`, all user-created VRFs will be deleted.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/vrf/< <i>vrf_name</i> >
Request Body (JSON)	

where:

Element	Description
<i>vrf_name</i>	VRF name; one of the VRF name, <code>default</code> , <code>all</code> . Default value: <code>default</code> .

---

## VRRP

The following VRRP URIs are available:

- /nos/api/cfg/vrrp GET
- /nos/api/cfg/vrrp/<if\_name> GET, POST
- /nos/api/cfg/vrrp/<if\_name>/<vr\_id> GET, PUT, DELETE

The following VRRP commands are available:

- [Get VRRP VRs of All Interfaces](#)
- [Get VRRP VRs of One Interface](#)
- [Create VRRP VR](#)
- [Get VRRP VR](#)
- [Update VRRP VR](#)
- [Delete VRRP VR](#)

## Get VRRP VRs of All Interfaces

Gets properties of all VRRP VRs of all interfaces.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vrrp
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>[   {     "if_name": "&lt;if_name&gt;",     "vr_id": "&lt;vr_id&gt;",     "ip_addr": "&lt;ip_addr&gt;",     "ad_intvl": "&lt;ad_intvl&gt;",     "preempt": "&lt;preempt&gt;",     "prio": "&lt;prio&gt;",     "admin_state": "&lt;admin_state&gt;",     "oper_state": "&lt;oper_state&gt;",     "track_if": "&lt;track_if&gt;",     "accept_mode": "&lt;accept_mode&gt;",     "switch_back_delay": "&lt;switch_back_delay&gt;",     "v2_compt": "&lt;v2_compt&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
vr_id	The VRRP session Virtual Router (VR) ID; an integer from 1-255. Default value is 0.
ip_addr	The IP address of the VR; a valid IPv4 address.
ad_intvl	Advertisement interval (The number of centi-seconds between advertisements for VRRPv3); a multiple of 5 from 5-4095. Default value: 100 centi-seconds.
preempt	Enable the preemption of a lower priority master; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
prio	The priority of the VR on the switch; an integer from 1-254. Default value: 100.
admin_state	Enable the VR one of <i>up</i> , <i>down</i> . Default value: <i>up</i> .

Element	Description
oper_state	The operation state of the VR; one of <i>master</i> , <i>backup</i> , <i>init</i> .
track_if	The interface to track by this VR. Default value: <i>none</i> . <b>Note:</b> If an interface is specified, it must exist.
accept_mode	Enables or disables the accept mode for this session; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
switch_back_delay	The switch back delay interval; an integer from <i>1-500000</i> , or <i>0</i> to disable (default).
v2_compt	Enables backward compatibility for VRRPv2 for the VR; one of <i>yes</i> , <i>no</i> . Default value: <i>no</i> .

## Get VRRP VRs of One Interface

Gets properties of all VRRP VRs under one specified interface.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vrrp/<if_name>
Request Body (JSON)	

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.

### Response

Response Body (JSON)	<pre>[   {     "if_name": "&lt;if_name&gt;",     "vr_id": "&lt;vr_id&gt;",     "ip_addr": "&lt;ip_addr&gt;",     "ad_intvl": "&lt;ad_intvl&gt;",     "preempt": "&lt;preempt&gt;",     "prio": "&lt;prio&gt;",     "admin_state": "&lt;admin_state&gt;",     "oper_state": "&lt;oper_state&gt;",     "track_if": "&lt;track_if&gt;",     "accept_mode": "&lt;accept_mode&gt;",     "switch_back_delay": "&lt;switch_back_delay&gt;",     "v2_compt": "&lt;v2_compt&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
vr_id	Virtual Router (VR) identifier; an integer from 1-255.
ip_addr	The IP address of the VR; a valid IPv4 address.
ad_intvl	Advertisement interval (The number of centi-seconds between advertisements for VRRPv3); a multiple of 5 from 5-4095. Default value: 100 centi-seconds.

Element	Description
preempt	Enable the preemption of a lower priority master; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
prio	The priority of the VR on the switch; an integer from 1-254. Default value: 100.
admin_state	Enable the VR one of <i>up</i> , <i>down</i> . Default value: <i>up</i> .
oper_state	The operation state of the VR; one of <i>master</i> , <i>backup</i> , <i>init</i> .
track_if	The interface to track by this VR. Default value: <i>none</i> . <b>Note:</b> If an interface is specified, it must exist.
accept_mode	Enables or disables the accept mode for this session; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
switch_back_delay	The switch back delay interval; an integer from 1-500000, or 0 to disable (default).
v2_compt	Enables backward compatibility for VRRPv2 for the VR; one of <i>yes</i> , <i>no</i> . Default value: <i>no</i> .

## Create VRRP VR

Creates a VRRP VR.

### Request

Method Type	POST
Request URI	/nos/api/cfg/vrrp/<if_name>
Request Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "vr_id": "&lt;vr_id&gt;",   "ip_addr": "&lt;ip_addr&gt;",   "ad_intvl": "&lt;ad_intvl&gt;",   "preempt": "&lt;preempt&gt;",   "prio": "&lt;prio&gt;",   "admin_state": "&lt;admin_state&gt;",   "track_if": "&lt;track_if&gt;",   "accept_mode": "&lt;accept_mode&gt;",   "switch_back_delay": "&lt;switch_back_delay&gt;",   "v2_compt": "&lt;v2_compt&gt;" }</pre>

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
vr_id	Virtual Router (VR) identifier; an integer from 1-255.
ip_addr	The IP address of the VR; a valid IPv4 address.
ad_intvl	Advertisement interval (The number of centi-seconds between advertisements for VRRPv3); a multiple of 5 from 5-4095. Default value: 100 centi-seconds.
preempt	Enable the preemption of a lower priority master; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
prio	The priority of the VR on the switch; an integer from 1-254. Default value: 100.
admin_state	Enable the VR one of <i>up</i> , <i>down</i> . Default value: <i>up</i> .
oper_state	The operation state of the VR; one of <i>master</i> , <i>backup</i> , <i>init</i> .
track_if	The interface to track by this VR. Default value: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> . <b>Note:</b> If an interface is specified, it must exist.
accept_mode	Enables or disables the accept mode for this session; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .



Element	Description
switch_back_delay	The switch back delay interval; an integer from 1-500000, or 0 to disable (default).
v2_compt	Enables backward compatibility for VRRPv2 for the VR; one of <i>yes</i> , <i>no</i> . Default value: <i>no</i> .

## Response

Response Body (JSON)	<pre>[   {     "if_name": "&lt;if_name&gt;",     "vr_id": "&lt;vr_id&gt;",     "ip_addr": "&lt;ip_addr&gt;",     "ad_intvl": "&lt;ad_intvl&gt;",     "preempt": "&lt;preempt&gt;",     "prio": "&lt;prio&gt;",     "admin_state": "&lt;admin_state&gt;",     "oper_state": "&lt;oper_state&gt;",     "track_if": "&lt;track_if&gt;",     "accept_mode": "&lt;accept_mode&gt;",     "switch_back_delay": "&lt;switch_back_delay&gt;",     "v2_compt": "&lt;v2_compt&gt;"   } ]</pre>
-------------------------	---

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
vr_id	Virtual Router (VR) identifier; an integer from 1-255.
ip_addr	The IP address of the VR; a valid IPv4 address.
ad_intvl	Advertisement interval (The number of centi-seconds between advertisements for VRRPv3); a multiple of 5 from 5-4095. Default value: 100 centi-seconds.
preempt	Enable the preemption of a lower priority master; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
prio	The priority of the VR on the switch; an integer from 1-254. Default value: 100.
admin_state	Enable the VR one of <i>up</i> , <i>down</i> . Default value: <i>up</i> .
oper_state	The operation state of the VR; one of <i>master</i> , <i>backup</i> , <i>init</i> .
track_if	The interface to track by this VR. Default value: <i>none</i> . <b>Note:</b> If an interface is specified, it must exist.
accept_mode	Enables or disables the accept mode for this session; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .

Element	Description
switch_back_delay	The switch back delay interval; an integer from 1-500000, or 0 to disable (default).
v2_compt	Enables backward compatibility for VRRPv2 for the VR; one of <i>yes</i> , <i>no</i> . Default value: <i>no</i> .

## Get VRRP VR

Gets properties of a VRRP VR.

### Request

Method Type	GET
Request URI	/nos/api/cfg/vrrp/<if_name>/<vrid>
Request Body (JSON)	

### Response

Response Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "vr_id": "&lt;vr_id&gt;",   "ip_addr": "&lt;ip_addr&gt;",   "ad_intvl": "&lt;ad_intvl&gt;",   "preempt": "&lt;preempt&gt;",   "prio": "&lt;prio&gt;",   "admin_state": "&lt;admin_state&gt;",   "oper_state": "&lt;oper_state&gt;",   "track_if": "&lt;track_if&gt;",   "accept_mode": "&lt;accept_mode&gt;",   "switch_back_delay": "&lt;switch_back_delay&gt;",   "v2_compt": "&lt;v2_compt&gt;" }</pre>
-------------------------	---

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
vr_id	Virtual Router (VR) identifier; an integer from 1-255.
ip_addr	The IP address of the VR; a valid IPv4 address.
ad_intvl	Advertisement interval (The number of centi-seconds between advertisements for VRRPv3); a multiple of 5 from 5-4095. Default value: 100 centi-seconds.
preempt	Enable the preemption of a lower priority master; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
prio	The priority of the VR on the switch; an integer from 1-254. Default value: 100.
admin_state	Enable the VR one of <i>up</i> , <i>down</i> . Default value: <i>up</i> .
oper_state	The operation state of the VR; one of <i>master</i> , <i>backup</i> , <i>init</i> .

Element	Description
track_if	The interface to track by this VR. Default value: <i>none</i> . <b>Note:</b> If an interface is specified, it must exist.
accept_mode	Enables or disables the accept mode for this session; one of <i>yes, no</i> . Default value: <i>yes</i> .
switch_back_delay	The switch back delay interval; an integer from 1-500000, or 0 to disable (default).
v2_compt	Enables backward compatibility for VRRPv2 for the VR; one of <i>yes, no</i> . Default value: <i>no</i> .

## Update VRRP VR

Updates the properties of a VRRP VR.

### Request

Method Type	PUT
Request URI	/nos/api/cfg/vrrp/<if_name>/<vrid>
Request Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "vr_id": "&lt;vr_id&gt;",   "ip_addr": "&lt;ip_addr&gt;",   "ad_intvl": "&lt;ad_intvl&gt;",   "preempt": "&lt;preempt&gt;",   "prio": "&lt;prio&gt;",   "admin_state": "&lt;admin_state&gt;",   "track_if": "&lt;track_if&gt;",   "accept_mode": "&lt;accept_mode&gt;",   "switch_back_delay": "&lt;switch_back_delay&gt;",   "v2_compt": "&lt;v2_compt&gt;" }</pre>

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
vr_id	Virtual Router (VR) identifier; an integer from 1-255.
ip_addr	The IP address of the VR; a valid IPv4 address.
ad_intvl	Advertisement interval (The number of centi-seconds between advertisements for VRRPv3); a multiple of 5 from 5-4095. Default value: 100 centi-seconds.
preempt	Enable the preemption of a lower priority master; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
prio	The priority of the VR on the switch; an integer from 1-254. Default value: 100.
admin_state	Enable the VR; one of <i>up</i> , <i>down</i> . Default value: <i>up</i> .
oper_state	The operation state of the VR; one of <i>master</i> , <i>backup</i> , <i>init</i> .
track_if	The interface to track by this VR. Default value: <i>none</i> . <b>Note:</b> If an interface is specified, it must exist.
accept_mode	Enables or disables the accept mode for this session; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .

Element	Description
switch_back_delay	The switch back delay interval; an integer from 1-500000, or 0 to disable (default).
v2_compt	Enables backward compatibility for VRRPv2 for the VR; one of <i>yes</i> , <i>no</i> . Default value: <i>no</i> .

## Response

Response Body (JSON)	<pre>{   "if_name": "&lt;if_name&gt;",   "vr_id": "&lt;vr_id&gt;",   "ip_addr": "&lt;ip_addr&gt;",   "ad_intvl": "&lt;ad_intvl&gt;",   "preempt": "&lt;preempt&gt;",   "prio": "&lt;prio&gt;",   "admin_state": "&lt;admin_state&gt;",   "oper_state": "&lt;oper_state&gt;",   "track_if": "&lt;track_if&gt;",   "accept_mode": "&lt;accept_mode&gt;",   "switch_back_delay": "&lt;switch_back_delay&gt;",   "v2_compt": "&lt;v2_compt&gt;" }</pre>
-------------------------	---

where:

Element	Description
if_name	Interface name. <b>Note:</b> The interface must exist.
vr_id	Virtual Router (VR) identifier; an integer from 1-255.
ip_addr	The IP address of the VR; a valid IPv4 address.
ad_intvl	Advertisement interval (The number of centi-seconds between advertisements for VRRPv3); a multiple of 5 from 5-4095. Default value: 100 centi-seconds.
preempt	Enable the preemption of a lower priority master; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .
prio	The priority of the VR on the switch; an integer from 1-254. Default value: 100.
admin_state	Enable the VR; one of <i>up</i> , <i>down</i> . Default value: <i>up</i> .
oper_state	The operation state of the VR; one of <i>master</i> , <i>backup</i> , <i>init</i> .
track_if	The interface to track by this VR. Default value: <i>none</i> . <b>Note:</b> If an interface is specified, it must exist.
accept_mode	Enables or disables the accept mode for this session; one of <i>yes</i> , <i>no</i> . Default value: <i>yes</i> .

<b>Element</b>	<b>Description</b>
switch_back_delay	The switch back delay interval; an integer from 1-500000, or 0 to disable (default).
v2_compt	Enables backward compatibility for VRRPv2 for the VR; one of <i>yes</i> , <i>no</i> . Default value: <i>no</i> .

## Delete VRRP VR

Deletes a VRRP VR.

**Note:** If the specified *vrid* is `all`, all VRRP VRs entries in the specified interface will be deleted.

### *Request*

Method Type	DELETE
Request URI	/nos/api/cfg/vrrp/<if_name>/<vrid>
Request Body (JSON)	



---

## Appendix A. Getting Help and Technical Assistance

If you need help, service, or technical assistance or just want more information about Lenovo products, you will find a wide variety of sources available from Lenovo to assist you.

Use this information to obtain additional information about Lenovo and Lenovo products, and determine what to do if you experience a problem with your Lenovo system or optional device.

**Note:** This section includes references to IBM web sites and information about obtaining service. IBM is Lenovo's preferred service provider for the System x, Flex System, and NeXtScale System products.

Before you call, make sure that you have taken these steps to try to solve the problem yourself.

If you believe that you require warranty service for your Lenovo product, the service technicians will be able to assist you more efficiently if you prepare before you call.

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Check for updated software, firmware, and operating-system device drivers for your Lenovo product. The Lenovo Warranty terms and conditions state that you, the owner of the Lenovo product, are responsible for maintaining and updating all software and firmware for the product (unless it is covered by an additional maintenance contract). Your service technician will request that you upgrade your software and firmware if the problem has a documented solution within a software upgrade.
- If you have installed new hardware or software in your environment, check the [Lenovo ServerProven website](#) to make sure that the hardware and software is supported by your product.
- Go to the [Lenovo Support portal](#) to check for information to help you solve the problem.
- Gather the following information to provide to the service technician. This data will help the service technician quickly provide a solution to your problem and ensure that you receive the level of service for which you might have contracted.
  - Hardware and Software Maintenance agreement contract numbers, if applicable
  - Machine type number (if applicable—Lenovo 4-digit machine identifier)
  - Model number
  - Serial number
  - Current system UEFI and firmware levels
  - Other pertinent information such as error messages and logs

- Start the process of determining a solution to your problem by making the pertinent information available to the service technicians. The IBM service technicians can start working on your solution as soon as you have completed and submitted an Electronic Service Request.

You can solve many problems without outside assistance by following the troubleshooting procedures that Lenovo provides in the online help or in the Lenovo product documentation. The Lenovo product documentation also describes the diagnostic tests that you can perform. The documentation for most systems, operating systems, and programs contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

---

## Appendix B. Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area.

Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service.

Lenovo may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

Lenovo (United States), Inc.  
1009 Think Place - Building One  
Morrisville, NC 27560  
U.S.A.

Attention: Lenovo Director of Licensing

LENOVO PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. Lenovo may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

The products described in this document are not intended for use in implantation or other life support applications where malfunction may result in injury or death to persons. The information contained in this document does not affect or change Lenovo product specifications or warranties.

Nothing in this document shall operate as an express or implied license or indemnity under the intellectual property rights of Lenovo or third parties. All information contained in this document was obtained in specific environments and is presented as an illustration. The result obtained in other operating environments may vary.

Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-Lenovo Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this Lenovo product, and use of those Web sites is at your own risk.

Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

---

## Trademarks

Lenovo, the Lenovo logo, Flex System, System x, NeXtScale System, and X-Architecture are trademarks of Lenovo in the United States, other countries, or both.

Intel and Intel Xeon are trademarks of Intel Corporation in the United States, other countries, or both.

Internet Explorer, Microsoft, and Windows are trademarks of the Microsoft group of companies.

Linux is a registered trademark of Linus Torvalds.

Other company, product, or service names may be trademarks or service marks of others.

---

## Important Notes

Processor speed indicates the internal clock speed of the microprocessor; other factors also affect application performance.

CD or DVD drive speed is the variable read rate. Actual speeds vary and are often less than the possible maximum.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for 1 024 bytes, MB stands for 1 048 576 bytes, and GB stands for 1 073 741 824 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity can vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard-disk-drive bays with the largest currently supported drives that are available from Lenovo.

Maximum memory might require replacement of the standard memory with an optional memory module.

Each solid-state memory cell has an intrinsic, finite number of write cycles that the cell can incur. Therefore, a solid-state device has a maximum number of write cycles that it can be subjected to, expressed as total bytes written (TBW). A device that has exceeded this limit might fail to respond to system-generated commands or might be incapable of being written to. Lenovo is not responsible for replacement of a device that has exceeded its maximum guaranteed number of program/erase cycles, as documented in the Official Published Specifications for the device.

Lenovo makes no representations or warranties with respect to non-Lenovo products. Support (if any) for the non-Lenovo products is provided by the third party, not Lenovo.

Some software might differ from its retail version (if available) and might not include user manuals or all program functionality.

---

## Recycling Information

Lenovo encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Lenovo offers a variety of programs and services to assist equipment owners in recycling their IT products. For information on recycling Lenovo products, go to:

<http://www.lenovo.com/recycling>

---

## Particulate Contamination

**Attention:** Airborne particulates (including metal flakes or particles) and reactive gases acting alone or in combination with other environmental factors such as humidity or temperature might pose a risk to the device that is described in this document.

Risks that are posed by the presence of excessive particulate levels or concentrations of harmful gases include damage that might cause the device to malfunction or cease functioning altogether. This specification sets forth limits for particulates and gases that are intended to avoid such damage. The limits must not be viewed or used as definitive limits, because numerous other factors, such as temperature or moisture content of the air, can influence the impact of particulates or environmental corrosives and gaseous contaminant transfer. In the absence of specific limits that are set forth in this document, you must implement practices that maintain particulate and gas levels that are consistent with the protection of human health and safety. If Lenovo determines that the levels of particulates or gases in your environment have caused damage to the device, Lenovo may condition provision of repair or replacement of devices or parts on implementation of appropriate remedial measures to mitigate such environmental contamination. Implementation of such remedial measures is a customer responsibility..

Contaminant	Limits
Particulate	<ul style="list-style-type: none"><li>• The room air must be continuously filtered with 40% atmospheric dust spot efficiency (MERV 9) according to ASHRAE Standard 52.2<sup>1</sup>.</li><li>• Air that enters a data center must be filtered to 99.97% efficiency or greater, using high-efficiency particulate air (HEPA) filters that meet MIL-STD-282.</li><li>• The deliquescent relative humidity of the particulate contamination must be more than 60%<sup>2</sup>.</li><li>• The room must be free of conductive contamination such as zinc whiskers.</li></ul>
Gaseous	<ul style="list-style-type: none"><li>• Copper: Class G1 as per ANSI/ISA 71.04-1985<sup>3</sup></li><li>• Silver: Corrosion rate of less than 300 Å in 30 days</li></ul>

<sup>1</sup> ASHRAE 52.2-2008 - *Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size*. Atlanta: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

<sup>2</sup> The deliquescent relative humidity of particulate contamination is the relative humidity at which the dust absorbs enough water to become wet and promote ionic conduction.

<sup>3</sup> ANSI/ISA-71.04-1985. *Environmental conditions for process measurement and control systems: Airborne contaminants*. Instrument Society of America, Research Triangle Park, North Carolina, U.S.A.



---

## Telecommunication Regulatory Statement

This product may not be certified in your country for connection by any means whatsoever to interfaces of public telecommunications networks. Further certification may be required by law prior to making any such connection. Contact a Lenovo representative or reseller for any questions.

---

## Electronic Emission Notices

When you attach a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices that are supplied with the monitor.

### Federal Communications Commission (FCC) Statement

**Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used to meet FCC emission limits. Lenovo is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that might cause undesired operation.

### Industry Canada Class A Emission Compliance Statement

This Class A digital apparatus complies with Canadian ICES-003.

### Avis de Conformité à la Réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

### Australia and New Zealand Class A Statement

**Attention:** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## European Union - Compliance to the Electromagnetic Compatibility Directive

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC (until April 19, 2016) and EU Council Directive 2014/30/EU (from April 20, 2016) on the approximation of the laws of the Member States relating to electromagnetic compatibility. Lenovo cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the installation of option cards from other manufacturers.

This product has been tested and found to comply with the limits for Class A equipment according to European Standards harmonized in the Directives in compliance. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

 Lenovo, Einsteinova 21, 851 01 Bratislava, Slovakia

**Warning:** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## Germany Class A Statement

**Deutschsprachiger EU Hinweis:**

**Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit**

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2014/30/EU (früher 2004/108/EC) zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der Klasse A der Norm gemäß Richtlinie.

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der Lenovo empfohlene Kabel angeschlossen werden. Lenovo übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung der Lenovo verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung der Lenovo gesteckt/eingebaut werden.

**Deutschland:**

**Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Betriebsmitteln**

Dieses Produkt entspricht dem „Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln“ EMVG (früher „Gesetz über die elektromagnetische Verträglichkeit von Geräten“). Dies ist die Umsetzung der EU-Richtlinie 2014/30/EU (früher 2004/108/EC) in der Bundesrepublik Deutschland.

**Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln, EMVG vom 20. Juli 2007 (früher Gesetz über die elektromagnetische Verträglichkeit von Geräten), bzw. der EMV EU Richtlinie 2014/30/EU (früher 2004/108/EC ), für Geräte der Klasse A.**

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen. Verantwortlich für die Konformitätserklärung nach Paragraf 5 des EMVG ist die Lenovo (Deutschland) GmbH, Meitnerstr. 9, D-70563 Stuttgart.

Informationen in Hinsicht EMVG Paragraf 4 Abs. (1) 4:

**Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.**

Nach der EN 55022: „Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen.“

Nach dem EMVG: „Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.“ (Auszug aus dem EMVG, Paragraph 3, Abs. 4). Dieses Genehmigungsverfahren ist nach Paragraph 9 EMVG in Verbindung mit der entsprechenden Kostenverordnung (Amtsblatt 14/93) kostenpflichtig.

Anmerkung: Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den Handbüchern angegeben, zu installieren und zu betreiben.

## Japan VCCI Class A Statement

この装置は、クラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI-A

This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI). If this equipment is used in a domestic environment, radio interference may occur, in which case the user may be required to take corrective actions.

## Japan Electronics and Information Technology Industries Association (JEITA) Statement

高調波ガイドライン適合品

Japan Electronics and Information Technology Industries Association (JEITA)  
Confirmed Harmonics Guidelines (products less than or equal to 20 A per phase)

高調波ガイドライン準用品

Japan Electronics and Information Technology Industries Association (JEITA)  
Confirmed Harmonics Guidelines with Modifications (products greater than 20 A per phase).

## Korea Communications Commission (KCC) Statement

이 기기는 업무용(A급)으로 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

This is electromagnetic wave compatibility equipment for business (Type A).  
Sellers and users need to pay attention to it. This is for any areas other than home.

## Russia Electromagnetic Interference (EMI) Class A statement

ВНИМАНИЕ! Настоящее изделие относится к классу А. В жилых помещениях оно может создавать радиопомехи, для снижения которых необходимы дополнительные меры

## People's Republic of China Class A electronic emission statement

中华人民共和国“A类”警告声明

声明

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

## Taiwan Class A compliance statement

警告使用者：  
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

