

在Cisco Nexus交换机的BGP中配置sdew-igp-metric

目录

[简介](#)

[先决条件](#)

[要求](#)

[使用的组件](#)

[配置](#)

[网络图](#)

[配置](#)

[验证](#)

[故障排除](#)

简介

本文档介绍运行NX-OS操作系统的Cisco Nexus系列交换机的边界网关协议(BGP)中sneke-igp-metric命令的用途。

先决条件

要求

Cisco 建议您了解以下主题：

- Nexus NX-OS 软件。
- BGP路由协议。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- 思科N9K-C9508
- NXOS版本7.0(3)I7(6)

本文档不限于特定的软件和硬件版本。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

配置

默认情况下，Nexus系列交换机在BGP配置部分将命令sdene-igp-metric 设置为默认值600秒。

这会影​​响BGP处理为重分发路由报告的内部网关协议(IGP)度量更改的方式。BGP在以批处理方​​式处理这些更改时，延迟为10分钟。

此命令允许您调整该延迟或将其完全删除，以便更快地响应这些更改。

计时器到期后，BGP MED (多送出鉴别器) 属性将使用重分发的IGP路由的新开销更新。

Nexus - Nexus NX-OS

```
Nexus# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Nexus(config)# router bgp 65535
Nexus(config-router)# address-family ipv4 unicast
Nexus(config-router-af)# dampen-igp-metric ?
  <20-3600> Time interval in seconds
             *Default value is 600

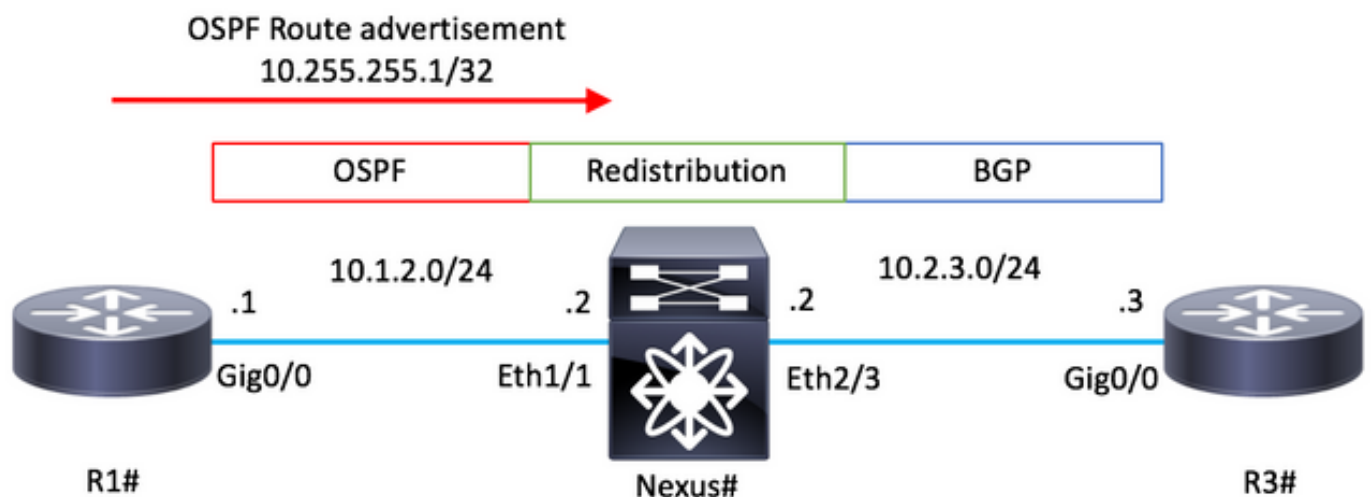
Nexus(config-router-af)# no dampen-igp-metric
```

此命令同样可以在BGP配置部分针对地址系列ipv6单播和每个VRF实例进行配置。

注意：当IGP路由使用BGP泄露到其他VRF时，命令**sned-igp-metric**还控制更新其他BGP属性（如下一跳属性）的延迟时间。

网络图

在此场景中，Nexus交换机已配置为将开放最短路径优先(OSPF)路由从路由表重分发到BGP表。



配置

R1 - Cisco IOS

```
configure terminal
!
hostname R1
```

```
!  
router ospf 1  
  router-id 10.255.255.1  
!  
interface Loopback0  
  ip address 10.255.255.1 255.255.255.255  
  ip ospf 1 area 0  
!  
interface GigabitEthernet0/0  
  ip address 10.1.2.1 255.255.255.0  
  ip ospf network point-to-point  
  ip ospf 1 area 0  
no shutdown ! end
```

Nexus - NX-OS

```
configure terminal  
!  
hostname Nexus  
!  
feature ospf  
feature bgp !  
route-map ALL  
! router ospf 1 router-id 10.255.255.2 ! router bgp 65535 router-id 10.255.255.2 address-family ipv4 un  
redistribute ospf 1 route-map ALL neighbor 10.2.3.3 remote-as 65535 address-family ipv4 unicast !  
interface Ethernet1/1  
  ip address 10.1.2.2/24  
  ip ospf network point-to-point  
  ip router ospf 1 area 0.0.0.0  
no shutdown ! interface Ethernet1/2 ip address 10.2.3.2/24 no shutdown
```

R3 - Cisco IOS

```
configure terminal  
!  
hostname R3  
!  
router bgp 65535  
  bgp log-neighbor-changes  
  neighbor 10.2.3.2 remote-as 65535  
!  
interface GigabitEthernet0/0  
  ip address 10.2.3.3 255.255.255.0  
  no shutdown  
!  
end
```

验证

运行命令**show bgp internal af**。确保IGP Metric Dampening Interval行指示所需的值。

默认值为600 (秒)。

Nexus - NX-OS

```
Nexus# show bgp internal af
. . .

BGP Address Family Information for VRF: default
  Import Pending           : No
  Import Pending           : never
  Import Pending Reset     : never

Table Context Address : 0xcfa08bf4

Address family: IPv4 Unicast
. . .
IGP Metric Dampening Interval : 600
```

如果路由表中的OSPF路由更新其开销，则在BGP MED路径属性中会有延迟来反映此新值。

Nexus - NX-OS

```
Nexus# show ip route 10.255.255.1
IP Route Table for VRF "default"
 '*' denotes best ucast next-hop
 '**' denotes best mcast next-hop
 '[x/y]' denotes [preference/metric]
 '%<string>' in via output denotes VRF <string>

10.255.255.1/32, ubest/mbest: 1/0
   *via 10.1.2.1, Eth1/1, [110/41], 01:58:41, ospf-1, intra
Nexus#
```

* There is an update in the Cost of the OSPF route 10.255.255.1/32

```
Nexus# show ip route 10.255.255.1 IP Route Table for VRF "default" '*' denotes best ucast next-hop '**'
denotes best mcast next-hop '[x/y]' denotes [preference/metric] '%<string>' in via output denotes VRF
<string> 10.255.255.1/32, ubest/mbest: 1/0 *via 10.1.2.1, Eth1/1, [110/190], 00:00:02, ospf-1, intra
Nexus#
```

```
Nexus# show bgp ipv4 unicast
BGP routing table information for VRF default, address family IPv4 Unicast
BGP table version is 4, Local Router ID is 10.255.255.2
Status: s-suppressed, x-deleted, S-stale, d-dampened, h-history, *-valid, >-best
Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I-i
njected
Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup
```

Network	Next Hop	Metric	LocPrf	Weight	Path
*>r10.255.255.1/32	0.0.0.0	41	100	32768	?

Nexus#

* After 600 seconds.

```
Nexus# show bgp ipv4 unicast BGP routing table information for VRF default, address family IPv4 Unicast
table version is 5, Local Router ID is 10.255.255.2 Status: s-suppressed, x-deleted, S-stale, d-dampene
history, *-valid, >-best Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I
njected Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup Network Next Hop Metr
LocPrf Weight Path *>r10.255.255.1/32 0.0.0.0 190 100 32768 ?
```

在BGP地址系列配置部分下运行no sned-igp-metric命令，以在路由表的OSPF开销更改后立即更新BGP表中的MED属性。

Nexus - NX-OS

```
Nexus# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Nexus(config)# router bgp 65535
Nexus(config-router)# address-family ipv4 unicast
Nexus(config-router-af)# no dampen-igp-metric
```

```
* There is an update in the Cost of the OSPF route 10.255.255.1/32
```

```
Nexus# show ip route 10.255.255.1 IP Route Table for VRF "default" '*' denotes best ucast next-hop '**'
denotes best mcast next-hop '[x/y]' denotes [preference/metric] '%<string>' in via output denotes VRF
<string> 10.255.255.1/32, ubest/mbest: 1/0 *via 10.1.2.1, Eth1/1, [110/190], 00:00:02, ospf-1, intra
```

```
Nexus# show ip bgp BGP routing table information for VRF default, address family IPv4 Unicast BGP table
version is 7, Local Router ID is 10.255.255.2 Status: s-suppressed, x-deleted, S-stale, d-dampened, h-
history, *-valid, >-best Path type: i-internal, e-external, c-confed, l-local, a-aggregate, r-redist, I
njected Origin codes: i - IGP, e - EGP, ? - incomplete, | - multipath, & - backup Network Next Hop Metr
LocPrf Weight Path *>r10.255.255.1/32 0.0.0.0 190 100 32768 ?
```

故障排除

要确认NX-OS上snek-igp-metric命令的功能，请打开下一个调试。

- debug-filter bgp prefix <PREFIX/MASK>
- debug logfile <FILE_NAME>
- debug bgp dampening brib

Nexus - NX-OS

```
Nexus# debug-filter bgp prefix 10.255.255.1/32
Nexus# debug logfile bgpdebug.log
Nexus# debug bgp dampening brib
Nexus#
```

```
Nexus# show debug logfile bgpdebug.log
2019 Jul 23 21:13:27.676328 bgp: [25368] (default) BRIB: [IPv4 Unicast] Setting the update pending flag
10.255.255.1/32
Nexus# show debug logfile bgpdebug.log
2019 Jul 23 21:13:27.676328 bgp: [25368] (default) BRIB: [IPv4 Unicast] Setting the update pending flag
10.255.255.1/32
2019 Jul 23 21:20:47.641987 bgp: [25368] (default) BRIB: [IPv4 Unicast] Clearing the update pending fla
10.255.255.1/32
2019 Jul 23 21:20:47.642013 bgp: [25368] (default) BRIB: [IPv4 Unicast] Originating prefix 10.255.255.1
route type redistrib
2019 Jul 23 21:20:47.642075 bgp: [25368] (default) BRIB: [IPv4 Unicast] Installing prefix 10.255.255.1/
(redist) via 0.0.0.0 (0x0/0x0) into BRIB with extcomm Extcommunity: OSPF RT:0.0.0.0:0:0
2019 Jul 23 21:20:47.642395 bgp: [25368] (default) BRIB: [IPv4 Unicast] Path to 10.255.255.1/32 via 0.0
already exists, dflags=0x80002
2019 Jul 23 21:20:47.642415 bgp: [25368] (default) BRIB: [IPv4 Unicast] (10.255.255.1/32 (local)):
```

```
bgp_brib_add: handling nexthop, path->flags2: 0x1
2019 Jul 23 21:20:47.642447 bgp: [25368] (default) BRIB: [IPv4 Unicast] (10.255.255.1/32 (local)): retu
from bgp_brib_add, reeval=0new_path: 0, change: 1, undelete: 0, history: 0, force: 0, (pflags=0x2408)
rnh_flag_change 0
2019 Jul 23 21:20:47.642475 bgp: [25368] (default) BRIB: [IPv4 Unicast] Cleanup for dest 10.255.255.1/3
exits since it's on newlist
Nexus#
```

完成后，使用下一个命令禁用调试：

- `undebg all`
- `no debug-filter all`
- `clear debug logfile <FILE_NAME>`