

Exemplo de configuração do BGP Prefix-Based Outbound Route Filtering do IPv6

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[Introdução](#)

Este documento fornece uma configuração de exemplo usando o IPv6 que o ajuda a configurar o BGP Prefix-Based Outbound Route Filtering. Esta característica usa o filtro da rota externa BGP (ORF) envia e recebe as capacidades que minimizam o número de atualizações BGP enviadas entre roteadores de peer. A configuração desta característica pode ajudar em filtrar para fora atualizações de roteamento indesejáveis na fonte.

[Pré-requisitos](#)

[Requisitos](#)

Certifique-se de que você cumpre estas exigências antes que você tente esta configuração:

- Tenha uma compreensão do protocolo de roteamento BGP e da sua operação
- Tenha uma compreensão do método de endereçamento do IPv6

[Componentes Utilizados](#)

Este documento não se restringe a versões de software e hardware específicas.

As configurações neste documento são baseadas no Cisco 7200 Series Router com liberação do Cisco IOS ® Software 15.0(1).

[Convenções](#)

Consulte as [Convenções de Dicas Técnicas da Cisco](#) para obter mais informações sobre convenções de documentos.

[Configurar](#)

Neste exemplo, o r1 do roteador é anunciar-prefixo configurado baseado ORF envia capacidades ao roteador R2. No roteador da outra extremidade o R2 é configurado para anunciar o ORF com base no prefixo recebe capacidades ao r1 do roteador. Antes que a característica do BGP Prefix-Based Outbound Route Filtering possa ser permitida de enviar ou receber anúncios com base no prefixo ORF, as sessões de peer BGP devem ser em serviço e as capacidades BGP ORF devem ser permitidas em cada roteador participante antes de um roteador.

Este documento usa o comando do prefixo-[filtro orf do vizinho](#) a fim permitir a capacidade da lista de prefixo ORF no roteador. Este comando foi introduzido no Cisco IOS Software Release 12.0(11)ST.

Nota: Use a [ferramenta de consulta de comandos \(clientes registrados somente\)](#) a fim encontrar mais informação nos comandos usados neste documento.

[Diagrama de Rede](#)

Este documento utiliza a seguinte configuração de rede:

[Configurações de exemplo](#)

Este documento utiliza as seguintes configurações:

- [R1 do roteador](#)
- [Roteador R2](#)

R1 do roteador

```
!  
hostname R1  
!  
ipv6 unicast-routing  
ipv6 cef  
!  
!  
interface Loopback1  
no ip address  
ipv6 address 1111::1/128  
!  
!  
interface Loopback2  
no ip address  
ipv6 address 2222::1/128  
!  
!
```

```
interface Serial1/0
  no ip address
  ipv6 address 2011:11:11:11::1/64
  serial restart-delay 0
!
!
router bgp 6501
  no synchronization
  no bgp default ipv4-unicast
  bgp router-id 1.1.1.1
  bgp log-neighbor-changes
  neighbor 2011:11:11:11::2 remote-as 6502
  neighbor 2011:11:11:11::2 ebgp-multihop 255
  no auto-summary
  !
  address-family ipv6
    neighbor 2011:11:11:11::2 activate
    neighbor 2011:11:11:11::2 capability orf prefix-list
send
    neighbor 2011:11:11:11::2 prefix-list FILTER_IPv6 in
  exit-address-family
  !
  !
  ipv6 prefix-list FILTER_IPv6 seq 10 permit 1111::1/128
  ipv6 prefix-list FILTER_IPv6 seq 20 permit 2222::1/128
  !
  !
end
```

Roteador R2

```
!
hostname R2
!
!
no ip domain lookup
ipv6 unicast-routing
ipv6 cef
!
interface Loopback1
  no ip address
  ipv6 address 1010::1/128
  !
!
interface Loopback2
  no ip address
  ipv6 address 2020::1/128
  !
interface Serial1/0
  no ip address
  ipv6 address 2011:11:11:11::2/64
  serial restart-delay 0
  !
  !
router bgp 6502
  no synchronization
  bgp router-id 2.2.2.2
  bgp log-neighbor-changes
  neighbor 2011:11:11:11::1 remote-as 6501
  neighbor 2011:11:11:11::1 ebgp-multihop 255
  no auto-summary
  !
  address-family ipv6

    network 1010::1/128
```

```
network 2020::1/128
neighbor 2011:11:11:11::1 activate
neighbor 2011:11:11:11::1 capability orf prefix-list
receive neighbor 2011:11:11:11::1 prefix-list R2_list in
exit-address-family ! ipv6 prefix-list R2_list seq 10
permit 1010::1/128 ipv6 prefix-list R2_list seq 20
permit 2020::1/128 ! end
```

Cenário 1: Rotas de filtro baseadas na lista de prefixos com expressões

Nesta encenação, um endereço de loopback **1000::1/45** é configurado no r1 sob o loopback de interface 0. Uma lista de prefixos é criada a fim permitir todas as rotas que forem maiores do que o comprimento de prefixo:: /64.

Nota: A configuração do roteador R2 permanece a mesma que como mostrado previamente dada e do r1 alterações de configuração aqui. Os endereços IP de Um ou Mais Servidores Cisco ICM NT neste Roteadores permanecem os mesmos.

R1 do roteador

```
!--- Output omitted. ! interface Loopback0 no ip address
ipv6 address 1000::1/45 ! -- Output omitted. router
bgp 6501 no synchronization bgp router-id 1.1.1.1 bgp
log-neighbor-changes neighbor 2011:11:11:11::2 remote-as
6502 neighbor 2011:11:11:11::2 ebgp-multihop 255 no
auto-summary ! address-family ipv6 network 1000::1/45
network 1111::1/128 network 2222::1/128 neighbor
2011:11:11:11::2 activate neighbor 2011:11:11:11::2
prefix-list IPV6-LONG in !--- Applies the prefix-list
and filters !--- the incoming updates from the neighbor
2011:11:11:11::2. exit-address-family ! ipv6 prefix-list
IPV6-LONG description Match any prefix longer than /64
ipv6 prefix-list IPV6-LONG seq 1 permit ::/0 ge 64 !---
seq 1 permit ::/0 ge 64 permits anything !--- that is ge
/64 subnet mask. ! end
```

Verificar

Use esta seção para confirmar se a sua configuração funciona corretamente.

A [Output Interpreter Tool \(apenas para clientes registrados\)](#) (OIT) suporta determinados comandos show. Use a OIT para exibir uma análise da saída do comando show.

Estes comandos show são usados verificar a configuração:

- show running-config | implore o BGP
- [vizinhos do unicast do show bgp ipv6](#)

Verifique o BGP Prefix-Based Outbound Route Filtering do IPv6 configurado no modo de emissão

No r1 do roteador:

```
show running-config | implore o BGP
```

```

router bgp 6501
  no synchronization
  bgp router-id 1.1.1.1
  bgp log-neighbor-changes
  neighbor 2011:11:11:11::2 remote-as 6502
  neighbor 2011:11:11:11::2 ebgp-multihop 255
  no auto-summary
  !
  address-family ipv6
    neighbor 2011:11:11:11::2 activate
    neighbor 2011:11:11:11::2 capability orf prefix-list
send !--- Indicates that the neighbor 2011:11:11:11::2
!--- is configured with the prefix-based !--- ORF
feature in send mode.

```

vizinhos do unicast do show bgp ipv6

```

R1#show bgp ipv6 unicast neighbors 2011:11:11:11::2 BGP
neighbor is 2011:11:11:11::2, remote AS 6502, external
link BGP version 4, remote router ID 2.2.2.2 Session
state = Established, up for 01:30:36 Last read 00:00:44,
last write 00:00:42, hold time is 180, keepalive
interval is 60 seconds BGP multiseession with 2 sessions
(2 established), first up for 01:31:26 Neighbor
sessions: 2 active, is multiseession capable Neighbor
capabilities: Route refresh: advertised and
received(new) on session 1, 2 Four-octets ASN
Capability: advertised and received on session 1, 2
Address family IPv4 Unicast: advertised and received
Address family IPv6 Unicast: advertised and received !---
- Output omitted. For address family: IPv6 Unicast
Session: 2011:11:11:11::2 session 2 BGP table version 1,
neighbor version 1/0 Output queue size : 0 Index 2
session 2 member 2 update-group member AF-dependant
capabilities: Outbound Route Filter (ORF) type (128)
Prefix-list: !--- Shows that the neighbor
2011:11:11:11::2 !--- is configured with the prefix-
based !--- ORF feature in send mode. Send-mode:
advertised Receive-mode: received Outbound Route Filter
(ORF): sent; Incoming update prefix filter list is
FILTER_IPv6 Sent Rcvd Prefix activity: ---- ----
Prefixes Current: 2 4 Prefixes Total: 0 0 Implicit
Withdraw: 1 0 Explicit Withdraw: 1 0 Used as bestpath:
n/a 0 Used as multipath: n/a 0 Outbound Inbound Local
Policy Denied Prefixes: ----- !--- Output
omitted.

```

Verifique que BGP Prefix-Based Outbound Route Filtering do IPv6 configurado dentro recebe o modo

No roteador R2:

show running-config | implore o BGP

```

router bgp 6502
  no synchronization
  bgp router-id 2.2.2.2
  bgp log-neighbor-changes
  neighbor 2011:11:11:11::1 remote-as 6501
  neighbor 2011:11:11:11::1 ebgp-multihop 255
  no auto-summary
  !

```

```
address-family ipv6
  network 1010::1/128
  network 2020::1/128
  neighbor 2011:11:11:11::1 activate
  neighbor 2011:11:11:11::1 capability orf prefix-list
receive !--- Indicates that the neighbor
2011:11:11:11::1 !--- is configured with the prefix-
based !--- ORF feature in receive mode.
```

vizinhos do unicast do show bgp ipv6

```
R2#show bgp ipv6 unicast nei 2011:11:11:11::1 BGP
neighbor is 2011:11:11:11::1, remote AS 6501, external
link BGP version 4, remote router ID 1.1.1.1 Session
state = Established, up for 01:47:11 Last read 00:00:44,
last write 00:00:32, hold time is 180, keepalive
interval is 60 seconds multisession with 2 sessions (2
established), first up for 01:48:02 Neighbor sessions: 2
active, is multisession capable Neighbor capabilities:
Route refresh: advertised and received(new) on session
1, 2 Four-octets ASN Capability: advertised and received
on session 1, 2 Address family IPv4 Unicast: advertised
and received Address family IPv6 Unicast: advertised and
received Multisession Capability: advertised and
received !--- Output omitted. For address family: IPv6
Unicast Session: 2011:11:11:11::1 session 2 BGP table
version 3, neighbor version 3/0 Output queue size : 0
Index 3 session 2 member 3 update-group member AF-
dependant capabilities: Outbound Route Filter (ORF) type
(128) Prefix-list: !--- Shows that the neighbor
2011:11:11:11::1 !--- is configured with the prefix-
based !--- ORF feature in receive mode. Send-mode:
received Receive-mode: advertised Outbound Route Filter
(ORF): received (2 entries) Incoming update prefix
filter list is R2_list Sent Rcvd Prefix activity: ---- -
--- Prefixes Current: 2 5 Prefixes Total: 0 0 Implicit
Withdraw: 0 0 Explicit Withdraw: 2 0 !--- Output
omitted.
```

[Verifique a encenação 1: Rotas de filtro baseadas na lista de prefixos com expressões](#)

Emita o comando **bgp do show ipv6 route** no r1 do roteador a fim indicar os índices atuais da tabela de roteamento de BGP do IPv6.

BGP do show ipv6 route

```
No r1 do roteador: R1#show ipv6 route bgp IPv6 Routing
Table - default - 9 entries Codes: C - Connected, L -
Local, S - Static, U - Per-user Static route B - BGP, HA
- Home Agent, MR - Mobile Router, R - RIP I1 - ISIS L1,
I2 - ISIS L2, IA - ISIS interarea, IS - ISIS summary D -
EIGRP, EX - EIGRP external, ND - Neighbor Discovery O -
OSPF Intra, OI - OSPF Inter, OE1 - OSPF ext 1, OE2 -
OSPF ext 2 ON1 - OSPF NSSA ext 1, ON2 - OSPF NSSA ext 2
B 1010::1/128 [20/0] via 2011:11:11:11::2 B 2020::1/128
[20/0] via 2011:11:11:11::2 !--- In this ouput,
1000::1/45 is not !--- displayed because the network is
lesser !--- than ::/64 prefix and its filtered.
```

Use o Exibir informação do comando da **lista de prefixos do IPv6** da mostra sobre entradas de

uma lista de prefixo do IPv6 ou de lista de prefixo do IPv6.

mostre a lista de prefixos do IPv6

No r1 do roteador:

```
R1#show ipv6 prefix-list detail Prefix-list with the
last deletion/insertion: IPV6-LONG ipv6 prefix-list
IPV6-LONG: Description: Match any prefix longer than /64
count: 1, range entries: 1, sequences: 1 - 1, refcount:
3 seq 1 permit ::/0 ge 64 (hit count: 14, refcount: 1)
```

```
R1#show ipv6 prefix-list summary Prefix-list with the
last deletion/insertion: IPV6-LONG ipv6 prefix-list
IPV6-LONG: Description: Match any prefix longer than /64
count: 1, range entries: 1, sequences: 1 - 1, refcount:
3 R1#show ipv6 prefix-list IPV6-LONG ipv6 prefix-list
IPV6-LONG: 1 entries seq 1 permit ::/0 ge 64
```

Informações Relacionadas

- [Página de suporte de BGP](#)
- [Página de suporte do IP versão 6](#)
- [Estudos de caso de BGP](#)
- [Suporte Técnico e Documentação - Cisco Systems](#)