

# 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](#)

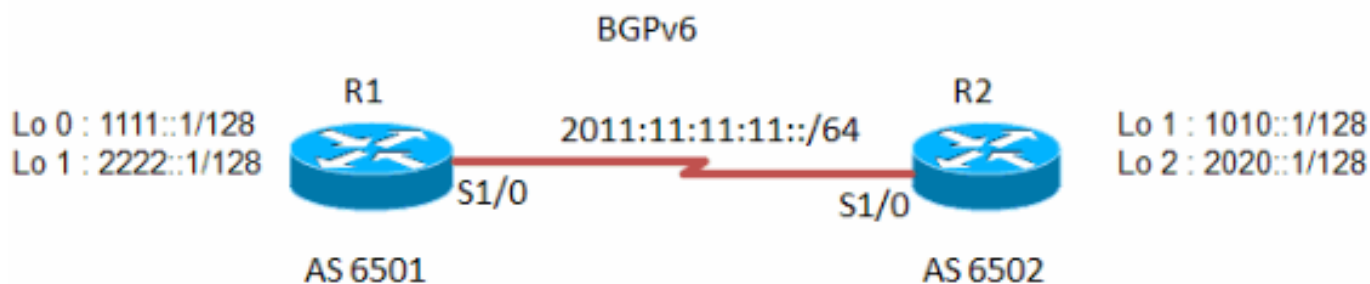
Neste exemplo, o r1 do roteador é anunciar-prefixo configurado baseado ORF envia capacidades ao roteador R2. No roteador da outra extremidade o R2 é configurado para anunciar o ORF com base no prefixo recebe capacidades ao r1 do roteador. Antes que a característica do BGP Prefix-Based Outbound Route 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.

**Note:** 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 Serial11/0
  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.

**Note:** 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 multisession with 2 sessions (2 established), first
up for 01:31:26
  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
!--- 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 output, 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](#)