

# Configure eBGP HA with SFTD/ASA and Cloud Service Provider

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## Introduction

This document describes the high availability of using External Border Routing Protocol (eBGP) for connection with Cloud Service Provider (CSP).

## Prerequisites

## Requirements

Cisco recommends that you have knowledge of this topic:

- [BGP Path Selection](#)

## Configure

You have two eBGP peers on the firewall for high availability to the Cloud Service Provider. Since CSPs are limited to BGP manipulation, the election of primary and secondary peers is not possible from the CSP side.

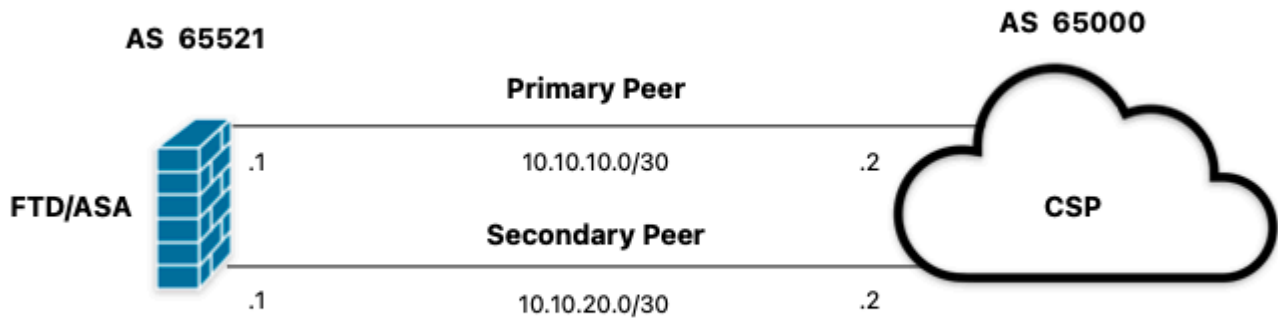


Image 1. Diagram

## Procedure

**Step 1.** Before starting with the firewall configuration, define which peer use as the primary one.

**Step 2.** Use a local preference of 150 (the default local preference is 100) for the incoming traffic in the primary peer.

**Step 3.** Use AS path prepend for the outgoing traffic in the secondary peer.

## Configuration on ASA

Local preference for the incoming traffic in primary peer:

```
route-map primary_peer_in permit 10
set local-preference 150
```

```
router bgp 65521
address-family ipv4 unicast
neighbor 10.10.10.2 route-map primary_peer_in in
```

AS path prepend for the outgoing traffic in secondary peer:

```
route-map secondary_peer_out permit 10
set as-path prepend 65521 65521
```

```
router bgp 65521
address-family ipv4 unicast
neighbor 10.10.20.2 route-map secondary_peer_out out
```

## Configuration on SFMC

Local preference for the incoming traffic in primary peer:

Select the route map you have assigned to the BGP peer where to apply the local preference or add a new route map by clicking **Add Route Map**.

**Step 3.** Configure the name of the route map, then click **Add** under the **Entries** section.

Edit Route Map Object ?

Name  
Local\_Preference\_RM

▼ Entries (0) Add

Sequence No ▲	Redistribution
No records to display	

Allow Overrides

Cancel Save

Image 2. Add route map on SFMC

**Step 4.** Configure at least the next basic settings:

- **Sequence No.** Select the number of the sequence.
- **Redistribution.** Select **Allow**.

Add Route Map Entry ?

---

Sequence No:

Redistribution:

Match Clauses    **Set Clauses**

---

Security Zones

- IPv4**
- IPv6
- BGP
- Others

Address (0)    Next Hop (0)    Route Source (0)

---

Select addresses to match as access list or prefix list addresses of route.

Access List  
 Prefix List

Available Access Lists :

Available Standard Access List

Image 3. Basic route map configuration on SFMC

**Step 5.** Click **Set Clauses**, then **BGP Clauses**, then **Others**. Set the local preference of 150 in the **Local Preference** section.

## Add Route Map Entry



Sequence No:

10

Redistribution:

Allow

Match Clauses

Set Clauses

Metric Values

BGP Clauses

AS Path

Community List

Others

Set Automatic Tag

Local Preference : 150

Range: 1-4294967295

Set Weight :

Range: 0-65535

Origin:

Local IGP

Incomplete

IPv4 settings:

Next Hop:

Specific IP :

Use comma to separate multiple values

Prefix List:

IPv6 settings:

Use comma to separate multiple values

Cancel

Add

Image 4. Local preference configuration on SFMC

**Step 6.** Click **Add**, then **Save**.

**Step 7.** Click **Device**, then **Device Management**, and select the device you want to apply the local preference.

**Step 8.** Click **Routing**, then **IPv4** in the BGP section, then **Neighbor**.

**Step 9.** Click the edit icon for the primary neighbor, then on the **Filtering Routes** section, select the route map from the dropdown menu in the **Incoming** traffic in the **Route Map** section.

IP Address*	<input type="checkbox"/> Enabled address
<input type="text" value="10.10.10.2"/>	<input type="checkbox"/> Shutdown administratively
Remote AS*	<input type="checkbox"/> Configure graceful restart
<input type="text" value="65000"/>	<input type="checkbox"/> Graceful restart(failover/spanned mode)
(1-4294967295 or 1.0-65535.65535)	
BFD Fallover	Description
<input type="text" value="none"/>	<input type="text" value="Primary"/>
<input type="text" value="Filtering Routes"/>	<input type="text" value="Routes"/>
<input type="text" value="Timers"/>	<input type="text" value="Advanced"/>
<input type="text" value="Migration"/>	
Incoming	Outgoing
Access List	Access List
<input type="text" value="Route Map"/>	<input type="text" value="Route Map"/>
<input type="text" value="Local_Preference_RM"/>	<input type="text" value="Prefix List"/>
Prefix List	Prefix List
<input type="text" value="AS path filter"/>	AS path filter
<input type="text" value="AS path filter"/>	
<input type="checkbox"/> Limit the number of prefixes allowed from the neighbor	
Maximum Prefixes*	
<input type="text" value="(1-2147483647)"/>	
Threshold Level	
<input type="text" value="75"/>	<input type="text" value="%"/>
<input type="checkbox"/> Control prefixes received from the peer	
<input type="button" value="Cancel"/>	<input type="button" value="OK"/>

Image 5. Configure local preference on primary peer

**Step 11.** Click **OK**, then **Save**.

AS path prepend for the outgoing traffic in secondary peer:

**Step 1.** Click **Objects**, then click **Route Map**.

**Step 2.** Select the route map you have assigned to the BGP peer to apply the AS path prepend or add a new route map by clicking **Add Route Map**.

**Step 3.** Configure the name of the route map, then click **Add** under the **Entries** section.

## New Route Map Object



Name

▼ Entries (0)

Add

Sequence No ▲	Redistribution	
No records to display		

Allow Overrides

Cancel

Save

Image 6. Add route map on SFMC

**Step 4.** Configure at least the next basic settings:

- **Sequence No.** Select the number of the sequence
- **Redistribution.** Select **Allow**

Add Route Map Entry ?

---

Sequence No:

Redistribution:

Match Clauses    **Set Clauses**

---

Security Zones

- IPv4
- IPv6
- BGP
- Others

Address (0)
Next Hop (0)
Route Source (0)

Select addresses to match as access list or prefix list addresses of route.

Access List  
 Prefix List

Available Access Lists :

Available Standard Access List C

Image 7. Basic route map configuration on SFMC

**Step 5.** Click **Set Clauses**, then **BGP Clauses**, then **AS Path**. Configure the prepend option based on this:

- **Prepend AS Path.** Add the AS you want to add to the path separated by commas.



Add Route Map Entry ?

Sequence No:

Redistribution:

Match Clauses    **Set Clauses**

Metric Values  
**BGP Clauses**

AS Path    Community List    Others

Select AS Path options:  
Prepend AS Path :  
  
Use comma to separate multiple values

Prepend last AS to the AS Path:

Convert Route Tag into AS Path

Image 8. AS path prepending configuration on SFMC

**Step 6.** Click **Add**, then **Save**.

**Step 7.** Click **Device**, then **Device Management**, and select the device you want to apply the AS path prepend.

**Step 8.** Click **Routing**, then **IPv4** in the BGP section, then **Neighbor**.

**Step 9.** Click the edit icon for the secondary neighbor, then on the **Filtering Routes** section, select the route map from the dropdown menu in the **Outgoing** traffic in the **Route Map** section.

**Edit Neighbor**

IP Address\*   Enabled address  
 Shutdown administratively

Remote AS\*   
(1-4294967295 or 1.0-65535.65535)  
 Configure graceful restart  
 Graceful restart(failover/spanned mode)

BFD Fallover  Description

Filtering Routes | Routes | Timers | Advanced | Migration

Incoming Access List  + Outgoing Access List  +

Incoming Route Map  + **Outgoing Route Map  +**

Incoming Prefix List  + Outgoing Prefix List  +

Incoming AS path filter  + Outgoing AS path filter  +

Limit the number of prefixes allowed from the neighbor

Maximum Prefixes\*   
(1-2147483647)

Threshold Level  %  
 Control prefixes received from the peer

Image 9. Configure AS path prepend on secondary peer

**Step 4.** Click **OK**, then **Save**.

## Configuration on FDM

AS path prepend for the outgoing traffic in secondary peer:

**Step 1.** Click **Device**, then click **View Configuration** in the **Advanced Configuration** section.

**Step 2.** Click **Objects** in the **Smart CLI** section, then click the (+) button.

**Step 3.** Configure the CLI object as follows:

**Edit Smart CLI Object**

Name  Description

CLI Template

Template

```

1 route-map AS_Path_Prepnd_RM
2   permit 10
3   configure bgp-set-clause <
4     configure set as-path properties <
5     set as-path prepend 65521 65521

```

Image 10. Configure AS path prepending object on FDM

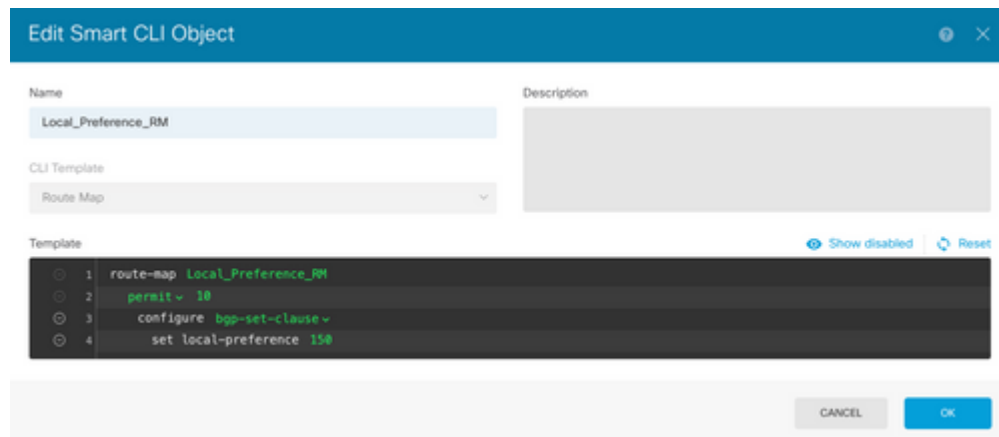
**Step 10.** Click **OK**.

Local preference for the incoming traffic in primary peer:

**Step 1.** Click **Device**, then click **View Configuration** in the **Advanced Configuration** section.

**Step 2.** Click **Objects** in the **Smart CLI** section, then click the (+) button.

**Step 3.** Configure the CLI object as follows:



The screenshot shows a dialog box titled "Edit Smart CLI Object". It has a blue header bar with a close button. Below the header, there are two main sections: "Name" and "Description". The "Name" field contains "Local\_Preference\_RM". The "Description" field is empty. Below these, there is a "CLI Template" dropdown menu set to "Route Map". Underneath is a "Template" section with a list of four items, each with a radio button and a line number: 1. route-map Local\_Preference\_RM, 2. permit 10, 3. configure bgp-set-clause -, 4. set local-preference 150. To the right of the template list are two buttons: "Show disabled" and "Reset". At the bottom right of the dialog are "CANCEL" and "OK" buttons.

Image 11. Configure local preference object on FDM

**Step 4.** Click **OK**.

Configure the route maps into the BGP configuration:

**Step 1.** Click **Device**, then click **View Configuration** in the **Routing** section.

**Step 2.** Click **BGP**, then click the (+) button for a new BGP peer or click the edit button for the existing BGP peer.

**Step 3.** Configure the BGP object as shown:

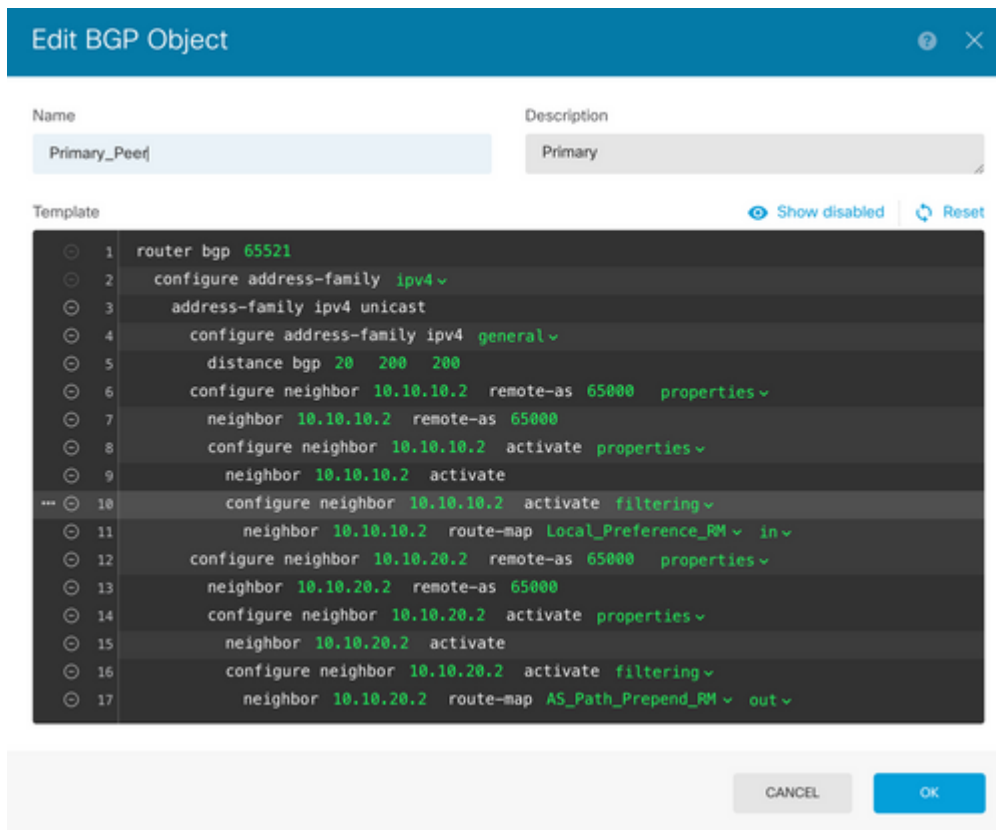


Image 12. Configure BGP peers on FDM

**Step 4.** Click **OK**.

## Validation

Validate the AS path prepend and local preference are configured and assigned to the peers:

```
<#root>
```

```
>
```

```
system support diagnostic-cli
```

```
Attaching to Diagnostic CLI ... Press 'Ctrl+a then d' to detach.
Type help or '?' for a list of available commands.
firepower>
```

```
enable
```

```
Password:
firepower#
firepower#
```

```
show route-map Local_Preference_RM
```

```
route-map Local_Preference_RM, permit, sequence 10
Match clauses:
```

Set clauses:

```
local-preference 150
```

```
firepower#
```

```
show route-map AS_Path_Perepend_RM
```

```
route-map AS_Path_Perepend_RM, permit, sequence 10  
Match clauses:
```

Set clauses:

```
as-path prepend 65521 65521
```

```
firepower#
```

```
show running-config router bgp
```

```
router bgp 65521  
bgp log-neighbor-changes  
bgp router-id 10.10.10.10  
bgp router-id vrf auto-assign  
address-family ipv4 unicast  
neighbor 10.10.10.2 remote-as 65000  
neighbor 10.10.10.2 description Primary  
neighbor 10.10.10.2 transport path-mtu-discovery disable  
neighbor 10.10.10.2 activate  
neighbor 10.10.10.2
```

```
route-map Local_Preference_RM in
```

```
neighbor 10.10.20.2 remote-as 65000  
neighbor 10.10.20.2 description Secondary  
neighbor 10.10.20.2 transport path-mtu-discovery disable  
neighbor 10.10.20.2 activate  
neighbor 10.10.20.2
```

```
route-map AS_Path_Perepend_RM out
```

```
redistribute connected  
no auto-summary  
no synchronization  
exit-address-family
```

Before validating the routing table, clear the BGP peers:

```
clear bgp 10.10.10.2 soft in  
clear bgp 10.10.20.2 soft out
```

---

**Note:** Use the command *soft* to avoid resetting the entire peer, instead, resend the routing updates only.

---

Validate the outgoing traffic on the primary peer using the local preference you set previously:

<#root>

```
firepower# show bgp
BGP table version is 76, local router ID is10.10.10.10
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal,
               r RIB-failure, S Stale, m multipath
Origin codes: i - IGP, e - EGP, ? - incomplete
```

Network	Next Hop	Metric
<b>LocPrf</b>		
Weight Path		
* 10.0.4.0/22	10.10.20.2	0 0 65000 ?
*>		
10.10.10.2		
0		
150		
0 65000 ?		
* 10.2.4.0/24	10.10.20.2	0 0 65000 ?
*>		
10.10.10.2		
0		
150		
0 65000 ?		

Validate the BGP prefixes installed on your routing table are coming from the primary peer:

<#root>

```
firepower#
```

```
show route
```

```
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, V - VPN
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, + - replicated route
```

SI - Static InterVRF  
Gateway of last resort is not set

B

10.0.4.0 255.255.252.0

[20/0] via

10.10.10.2

, 01:04:17

B

10.2.4.0 255.255.255.0

[20/0] via

10.10.10.2

, 01:04:17

## Related Information

- [Cisco Technical Support & Downloads](#)