

هئاطخأ فاشككتساو راسملا يف مكحتلا مهف رادجل SD-WAN رشن تايلمع يف اهحالصاو نمآلا ةياملحلا

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قم دقمللا

هيجوتلا ىلإ ةدنتسملا VPN تاكبشل BGP يف هيجوتلا يف مكحتلا دنتسملا اذه فصى نمآلا ةياملحلا رادجل ىلع Cisco SD-WAN مادختساب.

ةيساسألا تابلطتملا

تابلطتملا

ةيلالتلا عيضاوملاب ةفرعم كي دل نوكت نأب Cisco ي صوت:

- IKEv2
- راسملا ىلإ دنتست VPN ةكبش
- (VTI) ةيرهاظلا قافنألا تاهجاو

- IPsec
- BGP
- راسم السكاعو وعمتجم السامالس لثم BGP تامس
- نمالس السامالس رالس لس SD-WAN سزم

ةمدختسم السانوكمالس

سلس دننسمالس اذه س ف ةدراول تامولعمالس دننست

- Cisco Secure Firewall Threat Defense 7.7.10
- Cisco Secure Firewall Management Center 7.7.10

ةصاخ ةسلمعم ةسب س ف ةدوجومالس ةزءالس نم دننسمالس اذه س ف ةدراول تامولعمالس ءاشنإ م تناك اذإ. (سضارنفا) حوسمم سوكنن دننسمالس اذه س ف ةمدختسمالس ةزءالس ءسج تأسب رمأ سالس لمحتمالس رسثأسلل كمهف نم دكأسف، لسغشالس دسق كككش

ةزمالس تامولعم

سلس ءقوم نم راسمالس سلس ةدننسمالس VPN ةكبشلس ةدسلس SD-WAN ةكبش رشن لالس نم ةسسالس BGP تامس لس لس Cisco زكرن، ةسشغللل BGP لوكوورب سكمم عم ءقوم ةسسالس تالكبشالس ءاقب نمضس مم، راركنالس نم سلسالس نمآالس سرفالس هسوسنل سفسنل سوسل لسدنن سلس ءاحالس مدع اسس رشنالس اذه نمضس و. ططخمالس ربع ءلصفنم ةسشغنلالس ءلصل تاذ تامسالس لسدننل

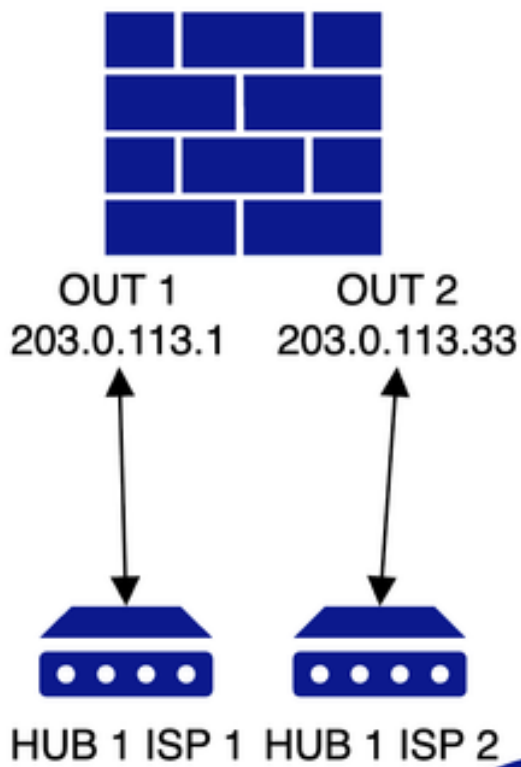
رشنالس وسرانس

هنالس اذه رفوس. ءدحمالس ءرصلالس سب eBGP و iBGP تالاصنل نم الك نمضنن اسوسوب طدح لس نم ءزكن اهذسفنن مئس سئالس هسوسنل س ف مكحنلالس رصانع س ف ةسورل نم سسقال دحل Cisco نم ءنمالس السامالس ناردج لس SD-WAN

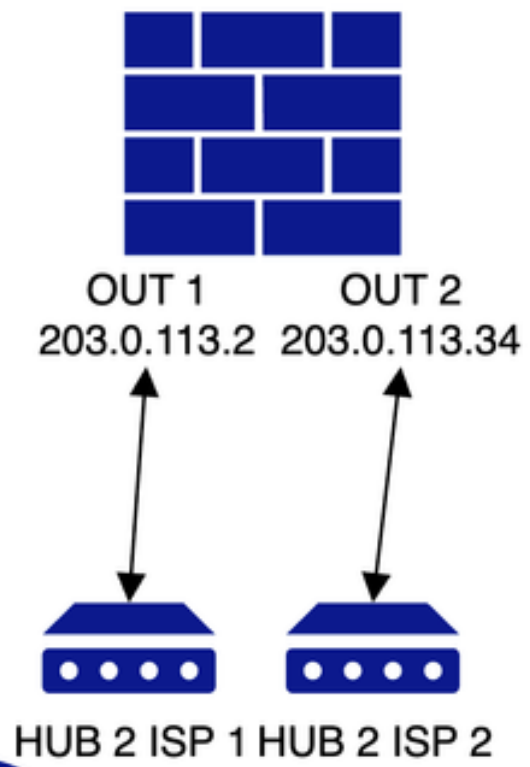
جودزمالس (ISP) تنرنالس ءمدخ دوزم عم ثدننلالس جودزمالس ءزومالس

ساسالس اسوسوب

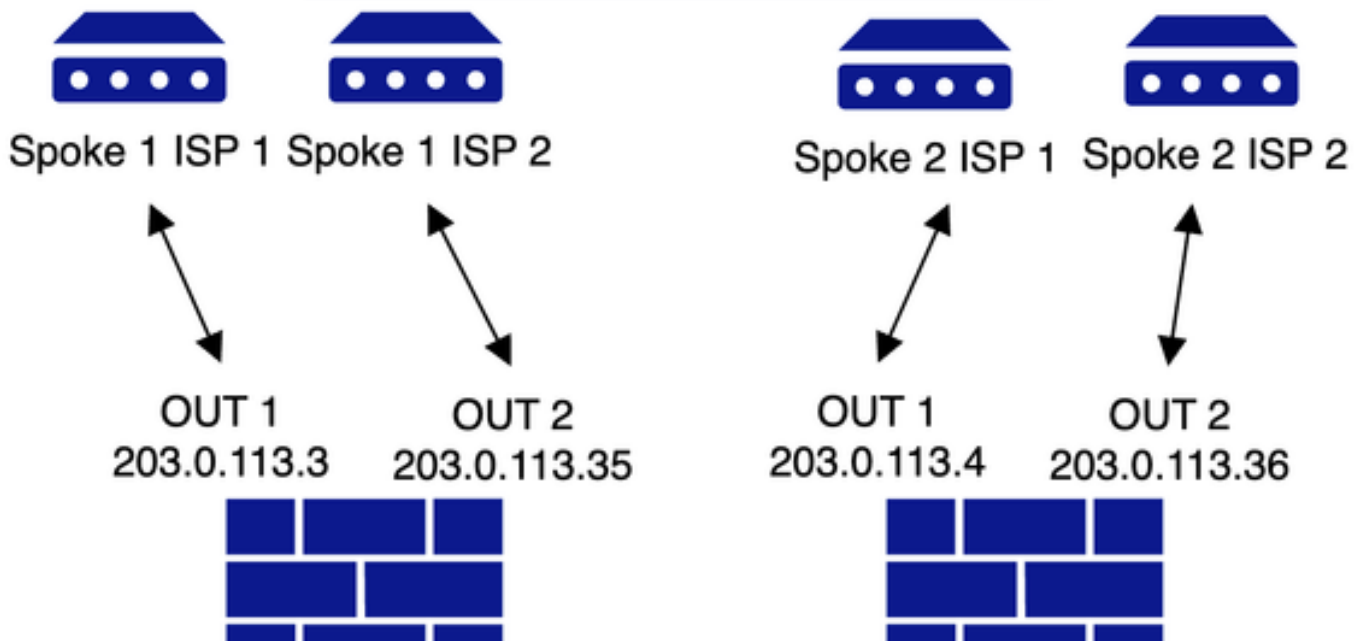
AS65500



AS65510



Internet



```
community-list standard FMC_VPN_COMMUNITY_101010 permit 101010
```

```
<<<<<<<<<
```

```
community-list standard FMC_VPN_COMMUNITY_202020 permit 202020
```

```
<<<<<<<<<
```

نأ نم مغرلا ىلع ططخم لكل ةرداصل او ةدراول تاراسملا طئارخ نم دح او جوز دوجو ةطخال مءاجرلا
في . ططخم لكل ديرف ةيمستلا حالطصا نأ الا ، ايحولوبوطلال نم لكل ةقباطتم تانيوكتلا
FMC_VPN_RMAP_COMMUNITY_IN_8589939614 ، انب صاخلا ويراني سلا
امني ب 1 ططخملا لجأ نم امه FMC_VPN_RMAP_COMMUNITY_OUT_8589939614 و
FMC_VPN_RMAP_COMMUNITY_IN_858942200 و FMC_VPN_rmap_community_out_8589942200
2. ططخملا لله

```
<#root>
```

```
firepower# show running-config route-map
```

Topology 1

Inbound

route-map

FMC_VPN_RMAP_COMMUNITY_IN_8589939614

```
permit 10
match community FMC_VPN_COMMUNITY_101010 exact-match

set community 202020
```

route-map

FMC_VPN_RMAP_COMMUNITY_IN_8589939614

```
permit 20
match community FMC_VPN_COMMUNITY_202020 exact-match
```

Outbound

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589939614

```
permit 10
match community FMC_VPN_COMMUNITY_101010 exact-match
set metric 1
```

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589939614

```
permit 20
match community FMC_VPN_COMMUNITY_202020 exact-match
set metric 100
```

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589939614

deny 100

Topology 2

Inbound

route-map

FMC_VPN_RMAP_COMMUNITY_IN_8589942200

permit 10

match community FMC_VPN_COMMUNITY_101010 exact-match

set community 202020

route-map

FMC_VPN_RMAP_COMMUNITY_IN_8589942200

permit 20

match community FMC_VPN_COMMUNITY_202020 exact-match

Outbound

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589942200

permit 10

match community FMC_VPN_COMMUNITY_101010 exact-match

set metric 1

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589942200

permit 20

match community FMC_VPN_COMMUNITY_202020 exact-match

set metric 100

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589942200

deny 100

Common Across All The Hubs & Spokes Wherever Redistribution Of Inside Network Is Present

route-map

FMC_VPN_CONNECTED_DIST_RMAP_101010

permit 10

match interface inside

set community 101010

ططخمل ي ف ةزهجال رب ع BGP ن ي وكت ضر ع م تي

TALK1 و 2 (IBGP ع م HUB1 و EBGP ع م HUB2)

<#root>

```
firepower# show running-config router bgp
```

```
router bgp 65500
bgp log-neighbor-changes
address-family ipv4 unicast
neighbor 198.51.100.1 remote-as 65500

<<<<< tunnel from spokes to HUB 1 via ISP1
```

```
neighbor 198.51.100.1 activate
neighbor 198.51.100.1 send-community
neighbor 198.51.100.1 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589939614 in
neighbor 198.51.100.1 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589939614 out
neighbor 198.51.100.2 remote-as 65510
```

```
<<<<< tunnel from spokes to HUB 2 via ISP1
```

```
neighbor 198.51.100.2 ebgp-multihop 2
neighbor 198.51.100.2 activate
neighbor 198.51.100.2 send-community
neighbor 198.51.100.2 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589939614 in
neighbor 198.51.100.2 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589939614 out
neighbor 198.51.100.3 remote-as 65500
```

```
<<<<< tunnel from spokes to HUB 1 via ISP2
```

```
neighbor 198.51.100.3 activate
neighbor 198.51.100.3 send-community
neighbor 198.51.100.3 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589942200 in
neighbor 198.51.100.3 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589942200 out
neighbor 198.51.100.4 remote-as 65510
```

```
<<<<< tunnel from spokes to HUB 2 via ISP2
```

```
neighbor 198.51.100.4 ebgp-multihop 2
neighbor 198.51.100.4 activate
neighbor 198.51.100.4 send-community
neighbor 198.51.100.4 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589942200 in
neighbor 198.51.100.4 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589942200 out
redistribute connected route-map FMC_VPN_CONNECTED_DIST_RMAP_101010
```

```
<<<<<< route-map to redistribute inside network into BGP
```

```
maximum-paths 8
maximum-paths ibgp 8
no auto-summary
no synchronization
exit-address-family
```

Hub1 (IBGP Peering عمورفلا عم)

```
<#root>
```

```
firepower# show running-config router bgp
```

```
router bgp 65500
bgp log-neighbor-changes
address-family ipv4 unicast
neighbor 198.51.100.10 remote-as 65500
```

<<<< tunnel from HUB 1 to Spoke 1 via ISP 1

```
neighbor 198.51.100.10 activate
neighbor 198.51.100.10 send-community
neighbor 198.51.100.10 route-reflector-client
neighbor 198.51.100.10 next-hop-self
neighbor 198.51.100.10 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589939614 in
neighbor 198.51.100.10 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589939614 out
neighbor 198.51.100.11 remote-as 65500
```

<<<< tunnel from HUB 1 to Spoke 2 via ISP 1

```
neighbor 198.51.100.11 activate
neighbor 198.51.100.11 send-community
neighbor 198.51.100.11 route-reflector-client
neighbor 198.51.100.11 next-hop-self
neighbor 198.51.100.11 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589939614 in
neighbor 198.51.100.11 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589939614 out
neighbor 198.51.100.70 remote-as 65500
```

<<<< tunnel from HUB 1 to Spoke 1 via ISP 2

```
neighbor 198.51.100.70 activate
neighbor 198.51.100.70 send-community
neighbor 198.51.100.70 route-reflector-client
neighbor 198.51.100.70 next-hop-self
neighbor 198.51.100.70 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589942200 in
neighbor 198.51.100.70 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589942200 out
neighbor 198.51.100.71 remote-as 65500
```

<<<< tunnel from HUB 1 to Spoke 2 via ISP 2

```
neighbor 198.51.100.71 activate
neighbor 198.51.100.71 send-community
neighbor 198.51.100.71 route-reflector-client
neighbor 198.51.100.71 next-hop-self
neighbor 198.51.100.71 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589942200 in
neighbor 198.51.100.71 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589942200 out
no auto-summary
no synchronization
exit-address-family
```

HUB2 (EBGP Peering with Spokes)

<#root>

firepower# show running-config router bgp

```
router bgp 65510
```

```
bgp log-neighbor-changes
address-family ipv4 unicast
neighbor 198.51.100.40 remote-as 65500
```

<<<< tunnel from HUB 2 to Spoke 1 via ISP 1

```
neighbor 198.51.100.40 ebgp-multihop 2
neighbor 198.51.100.40 activate
neighbor 198.51.100.40 send-community
neighbor 198.51.100.40 next-hop-self
neighbor 198.51.100.40 as-override
neighbor 198.51.100.40 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589939614 in
neighbor 198.51.100.40 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589939614 out
neighbor 198.51.100.41 remote-as 65500
```

<<<< tunnel from HUB 2 to Spoke 2 via ISP 1

```
neighbor 198.51.100.41 ebgp-multihop 2
neighbor 198.51.100.41 activate
neighbor 198.51.100.41 send-community
neighbor 198.51.100.41 next-hop-self
neighbor 198.51.100.41 as-override
neighbor 198.51.100.41 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589939614 in
neighbor 198.51.100.41 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589939614 out
neighbor 198.51.100.100 remote-as 65500
```

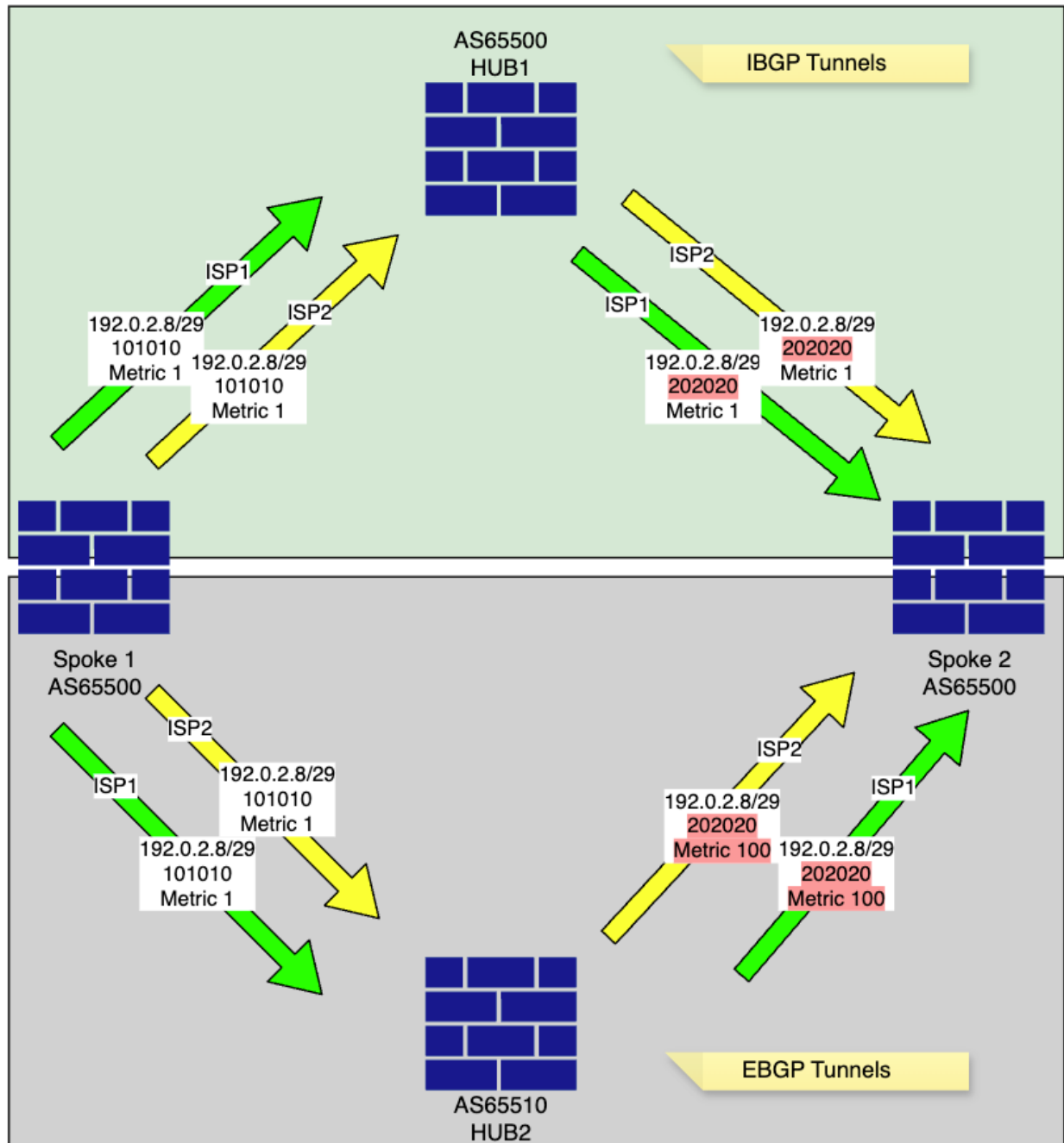
<<<< tunnel from HUB 2 to Spoke 1 via ISP 2

```
neighbor 198.51.100.100 ebgp-multihop 2
neighbor 198.51.100.100 activate
neighbor 198.51.100.100 send-community
neighbor 198.51.100.100 next-hop-self
neighbor 198.51.100.100 as-override
neighbor 198.51.100.100 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589942200 in
neighbor 198.51.100.100 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589942200 out
neighbor 198.51.100.101 remote-as 65500
```

<<<< tunnel from HUB 2 to Spoke 2 via ISP 2

```
neighbor 198.51.100.101 ebgp-multihop 2
neighbor 198.51.100.101 activate
neighbor 198.51.100.101 send-community
neighbor 198.51.100.101 next-hop-self
neighbor 198.51.100.101 as-override
neighbor 198.51.100.101 route-map FMC_VPN_RMAP_COMMUNITY_IN_8589942200 in
neighbor 198.51.100.101 route-map FMC_VPN_RMAP_COMMUNITY_OUT_8589942200 out
no auto-summary
no synchronization
exit-address-family
```

هيچوتلا ططخم



- ددحم عم تجم ةق اطب ب BGP في [192.0.2.8/29](https://www.ietf.org/rfc/rfc2821.txt)، ةيلخادلا مهت ك ب ش ن ع نو ث د ح ت م ل ن ل ع ي و راس م ل ا ة ط ي ر خ ي ف ا ه ن ي و ك ت م ت ا م ك ، 101010 غ ل ب ت FMC_VPN_CONNECTED_DIST_RMAP_101010.

1 ث د ح ت ل ا م ت

<#root>

Spoke1# show bgp community 101010 exact-match <<<< to verify the exact network redistributed into BGP

BGP table version is 4, local router ID is 203.0.113.35
 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	LocPrf	Weight	Path
*> 192.0.2.8/29	0.0.0.0	0		32768	?

<<<<<<<<< local inside network

- إلى اهنع نللعو، [192.0.2.8/29](https://www.ietf.org/rfc/rfc192.0.2.8/29)، ةلخالل هلكبشل ةلرتمل ةلملل ملكتمل لدعل راسمل طئارل ف لكشل امك، رواحمل FMC_VPN_RMAP_COMMUNITY_OUT_8589939614 وFMC_VPN_RMAP_COMMUNITY_OUT_8589942200.

<#root>

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589942200

```
permit 10
match community FMC_VPN_COMMUNITY_101010 exact-match
set metric 1
```

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589942200

```
permit 20
match community FMC_VPN_COMMUNITY_202020 exact-match
set metric 100
```

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589942200

```
deny 100
```

- رلغلو، 1010 عمتململ ةمالع مادلل ساب [192.0.2.8/29](https://www.ietf.org/rfc/rfc192.0.2.8/29) Talk 1 ةلكبشل لعل Hub1 فرعلل رلأااهاجل لىل ههللوت ةلالل لبق ساقللملاب طالللال عم 202020 لىل عمتململ ةمالع، اهنلوكلمل طئلارل ف ددلم وه امك.

1 عزوم

<#root>

Route-Map for ISP1 DVTI

Inbound

route-map

FMC_VPN_RMAP_COMMUNITY_IN_8589939614

```
permit 10
match community FMC_VPN_COMMUNITY_101010 exact-match
set community 202020
```

route-map

FMC_VPN_RMAP_COMMUNITY_IN_8589939614

permit 20
match community FMC_VPN_COMMUNITY_202020 exact-match

Outbound

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589939614

permit 10
match community FMC_VPN_COMMUNITY_101010 exact-match
set metric 1
set ip next-hop 198.51.100.1

<<<<<<<< only next-hop is changed in ISP2 tunnel route-map with ISP2 DVTI IP

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589939614

permit 20
match community FMC_VPN_COMMUNITY_202020 exact-match
set metric 100
set ip next-hop 198.51.100.1

<<<<<<<< only next-hop is changed in ISP2 tunnel route-map with ISP2 DVTI IP

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589939614

deny 100

Route-Map for ISP2 DVTI

Inbound

route-map

FMC_VPN_RMAP_COMMUNITY_IN_8589942200

permit 10
match community FMC_VPN_COMMUNITY_101010 exact-match
set community 202020

route-map

FMC_VPN_RMAP_COMMUNITY_IN_8589942200

permit 20
match community FMC_VPN_COMMUNITY_202020 exact-match

Outbound

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589942200

permit 10
match community FMC_VPN_COMMUNITY_101010 exact-match

```
set metric 1
set ip next-hop 198.51.100.3
```

<<<<<<<< only next-hop is changed in ISP2 tunnel route-map with ISP2 DVTI IP

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589942200

```
permit 20
match community FMC_VPN_COMMUNITY_202020 exact-match
set metric 100
set ip next-hop 198.51.100.3
```

<<<<<<<< only next-hop is changed in ISP2 tunnel route-map with ISP2 DVTI IP

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589942200

```
deny 100
```

<#root>

HUB1# show bgp community 202020 exact-match <<<< this will confirm if received prefixes have community t

BGP table version is 5, local router ID is 198.51.100.3
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	LocPrf	Weight	Path
* i192.0.2.8/29	198.51.100.70	1	100	0	?
*>i	198.51.100.10	1	100	0	?
* i192.0.2.16/29	198.51.100.71	1	100	0	?
*>i	198.51.100.11	1	100	0	?

<#root>

HUB1# show bgp 192.0.2.8 <<<< this will display available paths in BGP for the network

BGP routing table entry for 192.0.2.8/29, version 4
Paths: (2 available, best #2, table default)
Advertised to update-groups:
1 2
Local, (Received from a RR-client)
198.51.100.70 from 198.51.100.70 (203.0.113.35)

<<<<< spoke 1 ISP 2 tunnel to HUB 1

Origin incomplete, metric 1, localpref 100, valid, internal
Community: 202020

Local, (Received from a RR-client)
198.51.100.10 from 198.51.100.10 (203.0.113.35)

<<<< spoke 1 ISP 1 tunnel to HUB 1

Origin incomplete, metric 1, localpref 100, valid, internal, best
Community: 202020

<<<< community updated as per the route-map configured on spoke side

<#root>

HUB1# show route 192.0.2.8

Routing entry for 192.0.2.8 255.255.255.248
Known via "bgp 65500", distance 200, metric 1, type internal
Last update from 198.51.100.10 0:09:18 ago
Routing Descriptor Blocks:

* 198.51.100.10, from 198.51.100.10, 0:09:18 ago

Route metric is 1, traffic share count is 1
AS Hops 0
MPLS label: no label string provided

<#root>

HUB1# show bgp ipv4 unicast neighbors 198.51.100.10 routes <<<<< to check specific prefixes learnt via

BGP table version is 5, local router ID is 198.51.100.3
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	LocPrf	Weight	Path
*>i192.0.2.8/29	198.51.100.10	1	100	0	?

<<< preferred route

Total number of prefixes 1

<#root>

HUB1# show bgp ipv4 unicast neighbors 198.51.100.70 routes <<<<< to check specific prefixes learnt via

BGP table version is 5, local router ID is 198.51.100.3
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	LocPrf	Weight	Path
* i192.0.2.8/29	198.51.100.70	1	100	0	?

Total number of prefixes 1

- 101010، عمّت جملال ةمالع مادختساب [192.0.2.8/29](https://www.ietf.org/rfc/rfc1920.html) Talk 1 ةكبش ىلع اضيأ Hub2 فرعتي تاهبج ىلإ ههيجوت ةداعإ لبق 100 ىلإ سايقملا ثدحيو 202020 ىلإ عمّت جملال ةمالع ريغيو رييغتلا اذه لوعفم يرسى. اهنىوكت مت يثلا راسملا طئارخ ي ف ددحم وه امك، ىرخأ ةمس يه (ذفانملا ددعتم زيتم) MED نأل كلذو. eBGP لوكتورب عي زجت ببسب يرتمل قيرط نع ةدراول رورملا ةكرح ىلع ريثأتلل مدختست ةيلاق تنا ريغ ةي رايخا BGP لخد iBGP نارقأ نبب ماع لكشب MED رشن متي الو. AS ي ف ةلضفم لوخذ ةطقن حارتقا ي ف نييجراخلا BGP (eBGP) نارقأ ىلإ كلذ نم ال دب اهنع نالعال متي لب AS، سفن ةفلتخملال ةيتاذلا ةمظنألا.

2 عزومل

<#root>

HUB2# show bgp community 202020 exact-match <<<< this will confirm if received prefixes have community

BGP table version is 5, local router ID is 198.51.100.4
 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	LocPrf	Weight	Path
* 192.0.2.8/29	198.51.100.1				

100

0 65500 ?

<<<<< advertised back by spoke 2 ISP1 to HUB2 previously learnt via HUB1 iBGP

* 198.51.100.1

100

0 65500 ?

<<<<< advertised back by spoke 2 ISP2 to HUB2 previously learnt via HUB1 iBGP

* 198.51.100.100 1 0 65500 ?

<<<<< advertised by spoke 2 ISP tunnel

*> 198.51.100.40 1 0 65500 ?

<<<<< advertised and preferred by spoke 1 ISP 1 tunnel

* 192.0.2.16/29	198.51.100.1	100	0	65500 ?
*	198.51.100.1	100	0	65500 ?
*	198.51.100.101	1	0	65500 ?
*>	198.51.100.41	1	0	65500 ?

<#root>

HUB2# show bgp 192.0.2.8 <<<< this will display available paths in BGP for the network

BGP routing table entry for 192.0.2.8/29, version 4

Paths: (4 available, best #4, table default)

Advertised to update-groups:

1 2

65500

198.51.100.1 (inaccessible) from 198.51.100.41 (203.0.113.36)

<<<<< advertised back by spoke 2 ISP1 to HUB2 previously learnt via HUB1 iBGP

Origin incomplete, metric 100, localpref 100, valid, external

Community:

202020

65500

198.51.100.1 (inaccessible) from 198.51.100.101 (203.0.113.36)

<<<<< advertised back by spoke 2 ISP2 to HUB2 previously learnt via HUB1 iBGP

Origin incomplete, metric 100, localpref 100, valid, external

Community:

202020

65500

198.51.100.100 from 198.51.100.100 (203.0.113.35)

<<<<< advertised by spoke 1 ISP 2 tunnel

Origin incomplete, metric 1, localpref 100, valid, external

Community:

202020

65500

198.51.100.40 from 198.51.100.40 (203.0.113.35)

<<<<< advertised and preferred by spoke 1 ISP 1 tunnel

Origin incomplete, metric 1, localpref 100, valid, external, best

Community:

202020

<#root>

HUB2# show bgp ipv4 unicast neighbors 198.51.100.40 routes <<<<< to check specific prefixes learnt via

BGP table version is 5, local router ID is 198.51.100.4

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	LocPrf	Weight	Path
*> 192.0.2.8/29	198.51.100.40	1		0	65500 ?

<<<< preferred

* 192.0.2.16/29	198.51.100.1	100		0	65500 ?
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Total number of prefixes 2

<#root>

HUB2# show bgp ipv4 unicast neighbors 198.51.100.41 routes <<<<< to check specific prefixes learnt via

BGP table version is 5, local router ID is 198.51.100.4

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	LocPrf	Weight	Path
* 192.0.2.8/29	198.51.100.1	100		0	65500 ?

<<<<<

*> 192.0.2.16/29	198.51.100.41	1		0	65500 ?
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Total number of prefixes 2

<#root>

HUB2# show bgp ipv4 unicast neighbors 198.51.100.100 routes <<<<< to check specific prefixes learnt via

BGP table version is 5, local router ID is 198.51.100.4

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	LocPrf	Weight	Path
* 192.0.2.8/29	198.51.100.100	1		0	65500 ?

<<<<<

* 192.0.2.16/29	198.51.100.1	100		0	65500 ?
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Total number of prefixes 2

<#root>

HUB2# show bgp ipv4 unicast neighbors 198.51.100.101 routes <<<<< to check specific prefixes learnt via

BGP table version is 5, local router ID is 198.51.100.4

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	LocPrf	Weight	Path
* 192.0.2.8/29	198.51.100.1	100		0	65500 ?

<<<<<

* 192.0.2.16/29	198.51.100.101	1		0	65500 ?
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Total number of prefixes 2

- عم قفن HUB1 ISP2 و hub1 isp1 لا الك نم [192.0.2.8/29](https://www.ietf.org/rfc/rfc192.0.2.8/29) ةكبش Talk 1 لا ملتسي Talk 2
عم قفن HUB2 ISP2 و hub2 ISP1 لا نم ةكبش هسفن لا ملتسي وه امنبب 1، سايق
HUB1. نم ةيلاتال ةوطخل ثيدحت

2 قطن

<#root>

Spoke2# show bgp community 202020 exact-match <<<< this will confirm if received prefixes have community

BGP table version is 8, local router ID is 203.0.113.36
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	LocPrf	Weight	Path
*mi192.0.2.8/29	198.51.100.3	1	100	0	?
*					

>

i	198.51.100.1	1	100	0	?
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<<<< HUB1 ISP1 route preferred

*	198.51.100.2	100	0	65510	65510	?
*	198.51.100.4	100	0	65510	65510	?
* 192.0.2.16/29	198.51.100.4	100	0	65510	65510	?
*	198.51.100.2	100	0	65510	65510	?

<#root>

route-map

FMC_VPN_RMAP_COMMUNITY_IN_8589939614

permit 10
match community FMC_VPN_COMMUNITY_101010 exact-match

set community 202020

route-map

FMC_VPN_RMAP_COMMUNITY_IN_8589956263

permit 20
match community FMC_VPN_COMMUNITY_202020 exact-match

- ددحم وه امك، HUB2 إلى HUB1 نم اهيلع فرعتال مت يتال تاكبشال نع اضيأ Talk 2 نلعأ

ثدحمل سايقملا عم ،اهنيوكت مت يتلا ةرداصللا راسملا ةطيخ ةطساوب

<#root>

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589939614

permit 10
match community FMC_VPN_COMMUNITY_101010 exact-match
set metric 1

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589939614

permit 20
match community FMC_VPN_COMMUNITY_202020 exact-match
set metric 100

<<<<<

route-map

FMC_VPN_RMAP_COMMUNITY_OUT_8589939614

deny 100

<#root>

Spoke2# show bgp ipv4 unicast neighbors 198.51.100.2 advertised-routes <<<<< to check specific prefixes

BGP table version is 8, local router ID is 203.0.113.36
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	LocPrf	Weight	Path
*>i192.0.2.8/29	198.51.100.1	1	100	0	?

<<<<<<<

*> 192.0.2.16/29	0.0.0.0	0		32768	?
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Total number of prefixes 2

<#root>

Spoke2# show bgp ipv4 unicast neighbors 198.51.100.4 advertised-routes <<<<< to check specific prefixes

BGP table version is 8, local router ID is 203.0.113.36
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	LocPrf	Weight	Path
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*>i192.0.2.8/29 198.51.100.1 1 100 0 ?

<<<<<<<

*> 192.0.2.16/29 0.0.0.0 0 32768 ?

Total number of prefixes 2

رارقلا

رصانع ىلع زيكترتلا عم ،يفلخلال هيچوتلا رشنل رمم ريفوت وه دنتسمل اذه نم ضرغل راركتلاو ئراوطلال نم لك نامضل BGP لخاد اهذيفنت متي يتلا هيچوتلا يف مكحتلا

نع نالعالا دنه عقي رطلال سفن ططخملال يف ىرخأ ةعومجم يأ كلذك و 2 مدختسي ،راصتخاب ةمئاق ةيفصت وه ويرانيسلال اذه يف هيچوت مكحت رصنع مهأو . BGP لاجم يف مهتاكبش ،نيرخأ عارظنل اهنه نالعالال متي طقف ططخملال اذه لخاد تاكبشلال نأ نمضت يتلاو ،عمتجملال دوصقم ريغ لكشب ةكبشلال رشن عنمي امم .

ديحت ىلع ريثأتلل MED يف [ذفانملا ددعت مزييم](#) ةمس مادختسا متي ،كلذل ىلإ ةفاضلابل و ريظن ربع اهيلع فرعتلا مت يتلا تاراسملال ليضفت نمضي امم ، eBGP عارظنل راسملال عزومل نم اهيلع فرعتلا مت يتلا تائدابل ىلع يسيسيئر رومكم هنيوكت مت يتلا iBGP eBGP ربع يوناتلا .

ةلازا كنكمي ،يوناتلا روملل iBGP لوكونورب نيوكت لثم ،ططخملال تاليدعت عارجا لالخنم نالعالا لبق عمتجملال تامالع بلقت يتلا ةدراول راسملال طئارخو MED يف بعالتلا ىلإ ةجالحا ىرخأ ةيعرف تاكبش ىلإ ةكبشلال سفن نع .

ةلص تاذا تاملولعم

- [تاهج](#): حل اص معد دقع مزلي . TAC ب لاصتالا ىجري ،ةيفاضا ةدعاسم ىلع لوصحلل [Cisco](#) نم ةيملعلا معدلا لاصتا .
- لوح تاشقانمو ةيفاضا ىؤر ىلع لوصحلل [Cisco VPN](#) عمتجم ةرايز اضيأ كنكمي . تاهاتالا .

ةمچرتل هذه ل و ح

ةيلآل ا تاي ن ق ت ل ا ن م ة و م ج م ا د خ ت س ا ب د ن ت س م ل ا ا ذ ه Cisco ت م چ ر ت م ل ا ع ل ا ا ح ن ا ع م ج ي ف ن ي م د خ ت س م ل ل م ع د ي و ت ح م م ي د ق ت ل ة ي ر ش ب ل ا و ا م ك ة ق ي ق د ن و ك ت ن ل ة ي ل آ ة م چ ر ت ل ض ف ا ن ا ة ط ح ا ل م ي ج ر ي . ة ص ا خ ل ا م ه ت غ ل ب Cisco ي ل خ ت . ف ر ت ح م م چ ر ت م ا ه م د ق ي ي ت ل ا ة ي ف ا ر ت ح ا ل ا ة م چ ر ت ل ا ع م ل ا ح ل ا و ه ي ل ا ا م ا د ع و ج ر ل ا ب ي ص و ت و ت ا م چ ر ت ل ا ه ذ ه ة ق د ن ع ا ه ت ي ل و ئ س م Systems (ر ف و ت م ط ب ا ر ل ا) ي ل ص ا ل ا ي ز ي ل ج ن ا ل ا د ن ت س م ل ا