



# ASR 9000 SecGW without Connectedapps-OnePk

This chapter provides configuration support for ASR 9000 SecGW handling of Inter chassis WSG-Service High Availability and Reverse Route Injection without using Connectedapps-onePK communication. Connectedapps is SecGW function and OnePK is a supervisor function.

For more information on OnePK, refer *IOS-XR Guide*.

- [L2 Interchassis HA Configuration without Connectedapps - OnePK, on page 1](#)
- [RRI workaround without ConnectedApps – OnePK, on page 5](#)

## L2 Interchassis HA Configuration without Connectedapps - OnePK

### Configuration Overview

This section provides a sample interchassis wsg-service High Availability (HA) configuration for SecGW functionality between four VPC-VSM instances (StarOS VMs) running on VSMs in separate ASR 9000 chassis without connectedapps – OnePK usage.

Interchassis Layer 2 redundancy supports hot standby redundancy between two VPC-VSM instances in different ASR 9000 chassis. The standby instance is ready to become active when switchover is triggered.

SA re-negotiation is not required and traffic loss is minimal. The route database on the standby VSM must contain only the routes that were successfully injected by the active VSM.

Because of the asymmetric assignment of VSM resources among StarOS VMs, operator should configure one-to-one mapping between StarOS VMs across active/standby VSMs in different ASR 9000 chassis.

**Table 1: Recommended Mapping of Interchassis StarOS VMs**

Active VSM	Standby VSM
VM1-SecGW1	VM1-SecGW1
VM2-SecGW2	VM2-SecGW2
VM3-SecGW3	VM3-SecGW3

Active VSM	Standby VSM
VM4-SecGW4	VM4-SecGW4

Each VM is monitored through SRP and each Chassis is monitored through HSRP configurations and BGP is used for Chassis to VM communication.

## How Chassis Failover Happens

When an ASR 9000 interface in RSP goes down, a BGP notification is sent from that RSP to its SecGW stating the same. Immediately, SecGW will send SRP HELLO packet to its SecGW peer with its state changed to "ActivePendingStandby" from "Active". When standby SecGW receives the hello packet it becomes New Active and sends HELLO response with its state changed from "standby" to "Active".

### ASR 9000 Chassis RSP Configuration (IOS-XR)

This section provides sample RSP configuration for chassis failover (active) without OnePK.

```
.
.
.
router bgp 20
  bfd minimum-interval 150
  bfd multiplier 3
  bgp router-id 2.2.2.1
  address-family ipv4 unicast
    maximum-paths ebgp 2
  !
  neighbor 172.27.54.12
    remote-as 220
    bfd fast-detect
    description SecGW1-clear
    address-family ipv4 unicast
      route-policy pass-all in
      route-policy pass-all out
    soft-reconfiguration inbound always
.
.
neighbor 172.27.54.44
  remote-as 220
  bfd fast-detect
  description SecGW2-ike
  address-family ipv4 unicast
    route-policy pass-all in
    route-policy pass-all out
  soft-reconfiguration inbound always
.
.
.
router hsrp
  interface BVI1871
    hsrp delay minimum 1 reload 240
    address-family ipv4
      hsrp 3 version 2
        timers msec 300 1
        preempt
        priority 100
        address 172.27.54.35
        track object WsgIPsla
```

```

.
.
.
interface BVI1881
  hsrp delay minimum 1 reload 240
  address-family ipv4
    hsrp 1 version 2
      timers msec 300 1
    preempt
    priority 100
    address 172.27.54.3
    track object WsgIPsla
.
.
.

```

## ASR 9000 Backup Chassis Configuration

This section provides sample RSP configuration for chassis failover (standby) without OnePK.

```

.
.
.
router bgp 20
  bfd minimum-interval 150
  bfd multiplier 3
  bgp router-id 2.2.2.2
  address-family ipv4 unicast
    maximum-paths ebgp 2
.
.
.
neighbor 172.27.54.13
  remote-as 220
  bfd fast-detect
  description SecGW2-clear
  address-family ipv4 unicast
    route-policy pass-all in
    route-policy pass-all out
    soft-reconfiguration inbound always
.
.
.
neighbor 172.27.54.45
  remote-as 220
  bfd fast-detect
  description SecGW1-ike
  address-family ipv4 unicast
    route-policy pass-all in
    route-policy pass-all out
    soft-reconfiguration inbound always
.
.
.
router hsrp
  interface BVI1871
    hsrp delay minimum 1 reload 240
    address-family ipv4
      hsrp 3 version 2
        timers msec 300 1
    preempt
    priority 100
    address 172.27.54.35
    track object WsgIPsla

```

```

.
.
.
interface BVI1881
 hsrp delay minimum 1 reload 240
 address-family ipv4
  hsrp 1 version 2
   timers msec 300 1
  preempt
  priority 100
  address 172.27.54.3
  track object WsgIPsla
.
.
.

```

## SecGW1 Configuration on Active Chassis

This section provides sample SecGW configuration for VM failover (active) without OnePk.

```

.
.
.
router bgp 220
 neighbor 172.27.54.33 remote-as 20
 neighbor 172.27.54.33 timers keepalive-interval 1 holdtime-interval 3
 neighbor 172.27.54.33 fall-over bfd
 no neighbor 172.27.54.33 capability graceful-restart
 neighbor 172.27.54.1 remote-as 20
 neighbor 172.27.54.1 timers keepalive-interval 1 holdtime-interval 3
 neighbor 172.27.54.1 fall-over bfd
 no neighbor 172.27.54.1 capability graceful-restart
 address-family ipv4
  neighbor 172.27.54.33 distribute-list PermitLoopbackEncr out
  neighbor 172.27.54.1 distribute-list DenyInRoutes in
  neighbor 172.27.54.1 distribute-list PermitLoopbackClr out
 #exit
.
.
.
service-redundancy-protocol
.
.
.
 monitor bgp context wsg 172.27.54.33 group 3
 monitor bgp context wsg 172.27.54.1 group 1
.
.
.

```

## SecGW1 Configuration on Standby Chassis

This section provides sample SecGW configuration for VM failover (standby) without OnePK.

```

.
.
.
router bgp 220
 neighbor 172.27.54.34 remote-as 20
 neighbor 172.27.54.34 timers keepalive-interval 1 holdtime-interval 3
 neighbor 172.27.54.34 fall-over bfd
 no neighbor 172.27.54.34 capability graceful-restart
 neighbor 172.27.54.2 remote-as 20

```

```

neighbor 172.27.54.2 timers keepalive-interval 1 holdtime-interval 3
neighbor 172.27.54.2 fall-over bfd
no neighbor 172.27.54.2 capability graceful-restart
address-family ipv4
  neighbor 172.27.54.34 distribute-list PermitLoopbackEncr out
  neighbor 172.27.54.2 distribute-list DenyInRoutes in
  neighbor 172.27.54.2 distribute-list PermitLoopbackClr out
#exit
.
.
.
  bfd multihop-peer 172.27.54.106 interval 250 min_rx 250 multiplier 3
#exit
service-redundancy-protocol
.
.
.
  monitor bgp context wsg 172.27.54.34 group 3
  monitor bgp context wsg 172.27.54.2 group 1
.
.
.

```

## RRI workaround without ConnectedApps – OnePK

Reverse route injection can be replaced with static route configuration in RSP. This way, downlink packets will be appropriately routed from RSP to the corresponding SecGW VM.

### Sample show route output

Show Output displays RRI installed routes.

```

#show route ipv4 application
a   160.0.0.3/32 [254/641547737] via 172.27.54.17, 05:49:20
a   160.0.0.4/32 [254/641547737] via 172.27.54.17, 05:49:20

```

Sample Static Route configuration replacing RRI:

```

router static
address-family ipv4 unicast
  160.0.0.0/29 172.27.54.17

```

