

OMP Commands

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advertise

To advertise additional paths for a BGP peer policy template based on the best path selection, use the **advertise** command in address family configuration mode at the specific VPN or VRF level.

Route advertisements that you configure with the **advertise** command apply to all VPNs configured on the router. The advertise command can be issued for either a VPN, or for all VPNs on a device.

advertise [**bgp**] [**connected**] [**ospf** *type*] [**static**]

no advertise [**bgp**] [**connected**] [**ospf** *type*] [**static**]

Syntax Description

bgp	BGP Routes: Advertise all BGP routes learned by the Cisco IOS XE Catalyst SD-WAN devices to OMP.
connected	Connected Routes: Advertise all connected routes on the Cisco IOS XE Catalyst SD-WAN devices to OMP. The connected routes are advertised by default. To disable advertisement, use the **no advertise connected** command.

ospf *type*	OSPF Routes: Advertise all OSPF routes learned by the local Cisco IOS XE Catalyst SD-WAN devices to OMP. For the global OMP configuration, *type* can be **external**, to advertise routes learned from external ASs. For the VPN-specific OMP configuration, *type* can be **external**, to advertise routes learned from the local AS. For the global OMP configuration, OSPF external routes are advertised by default.
static	Static Routes: Advertise all static routes configured on the Cisco IOS XE Catalyst SD-WAN devices to OMP. Static routes are advertised by default. To disable advertisement, use the **no advertise static** command.

Command Default

This command has no default behavior.

Command Modes

OMP configuration (config-omp)

Address family configuration (config-af)

Command History

Release	Modification
Cisco IOS XE Catalyst SD-WAN Release 17.6.1a	Command qualified for use in Cisco SD-WAN Manager CLI templates.

Example

The following example shows how to advertise to Cisco Catalyst SD-WAN Controller, the routes that a Cisco IOS XE Catalyst SD-WAN device has learned from the local network in a branch network that is running static, connected, and OSPF protocols.

```
config-transaction
sdwan
omp
address-family ipv4
advertise static
advertise connected
advertise ospf external
```

Advertise routes to OMP:

```
show running-config vpn 1
omp
 no shutdown
 graceful-restart
distance 100
 timers
  holdtime 15
  graceful-restart-timer 120
 exit
 advertise static
 advertise connected
 advertise ospf external
!
```

distance

To configure the OMP administrative distance, use the **distance** command in router configuration mode or address-family configuration mode. To reset the value to its defaults, use the **no** form of this command.

distance *kilometers*
no distance

Syntax Description

kilometers	Administrative distance for OMP routes. The Cisco vSmart Controllers learn the topology of the overlay network and the services available in the network using OMP routes. The distance can be a value between 1–255.

Command Default

The default administrative distances are based on a protocol.

Command Modes

OMP configuration (config-omp)

Command History

Release	Modification
Cisco IOS XE Catalyst SD-WAN Release 17.6.1a	Command qualified for use in Cisco SD-WAN Manager CLI templates.

Examples

The following example shows how to set the OMP administrative distance to 165:

```
Device# config-transaction
Device(config)# sdwan
Device(config-sdwan)# omp
Deviced(config-omp)# distance 165
```

ecmp-limit (omp)

To configure the maximum number of OMP paths that can be installed in the vEdge router's route table (on vEdge routers only), use the **ecmp-limit** command in OMP configuration mode. To remove the maximum number of OMP routes that can be installed in the vEdge router's route table, use the **no** form of this command.

ecmp-limit *number-of-paths*
no ecmp-limit *number-of-paths*

Syntax Description

number-of-paths	Maximum number of OMP paths that can be installed in the vEdge router's route table. Each TLOC consists of a IP address and color. You can specify between 1 to 16 routes.

Command Default

4 paths are advertised.

Command Modes

OMP configuration (config-omp)

Command History

Release	Modification
Cisco IOS XE Catalyst SD-WAN Release 17.2.1v	Command qualified for use in Cisco vManage CLI templates.

Examples

The following example shows how to configure OMP on a router:

```
sdwan
 omp
  no shutdown
  overlay-as 4294967295
  send-path-limit 16
  ecmp-limit 16
  graceful-restart
  no as-dot-notation
  timers
   holdtime 65535
   advertisement-interval 65535
   graceful-restart-timer 43200
   eor-timer 3600
  !
  address-family ipv4
   advertise bgp
   advertise ospf external
   advertise connected
   advertise static
   advertise eigrp
   advertise lisp
   advertise isis
  !
  address-family ipv6
   advertise bgp
   advertise connected
   advertise static
   advertise eigrp
   advertise lisp
   advertise isis
```

graceful-restart (omp)

To control graceful restart for OMP, use the **graceful-restart** command in OMP configuration mode. To remove graceful restart for OMP, use the **no** form of this command.

graceful-restart
no graceful-restart

Command Default

Graceful restart for OMP is enabled on all routers.

Command Modes

OMP configuration (config-omp)

Command History

Release	Modification
Cisco IOS XE Catalyst SD-WAN Release 17.2.1v	Command qualified for use in Cisco vManage CLI templates.

Examples

The following example shows how to configure OMP on a router:

```
sdwan
 omp
  no shutdown
  overlay-as 4294967295
  send-path-limit 16
  ecmp-limit 16
  graceful-restart
  no as-dot-notation
  timers
   holdtime 65535
   advertisement-interval 65535
   graceful-restart-timer 43200
   eor-timer 3600
  !
  address-family ipv4
   advertise bgp
   advertise ospf external
   advertise connected
   advertise static
   advertise eigrp
   advertise lisp
   advertise isis
  !
  address-family ipv6
   advertise bgp
   advertise connected
   advertise static
   advertise eigrp
   advertise lisp
   advertise isis
```

no shutdown (omp)

To enable OMP on a router, use the **no shutdown** command in OMP configuration mode. To disable OMP on a router, use **shutdown**.

no shutdown
shutdown

Command Default

OMP is enabled by default on all routers.

Command Modes

OMP configuration (config-omp)

Command History

Release	Modification
Cisco IOS XE Catalyst SD-WAN Release 17.2.1v	Command qualified for use in Cisco vManage CLI templates.

Examples

The following example shows how to configure OMP on a router:

```
sdwan
```

```
omp
 no shutdown
 overlay-as 4294967295
 send-path-limit 16
 ecmp-limit 16
 graceful-restart
 no as-dot-notation
 timers
  holdtime 65535
  advertisement-interval 65535
  graceful-restart-timer 43200
  eor-timer 3600
 !
 address-family ipv4
  advertise bgp
  advertise ospf external
  advertise connected
  advertise static
  advertise eigrp
  advertise lisp
  advertise isis
 !
 address-family ipv6
  advertise bgp
  advertise connected
  advertise static
  advertise eigrp
  advertise lisp
  advertise isis
```

omp

To configure Cisco SD-WAN Overlay Management Protocol (OMP) for a router, use the **omp** command in SD-WAN configuration mode. To remove OMP configuration from a router, use the **no** form of this command.

omp
no omp

Command Default

OMP is enabled on all Cisco Catalyst SD-WAN routers and Cisco Catalyst SD-WAN Controllers.

Command Modes

SD-WAN configuration (config-sdwan)

Command History

Release	Modification
Cisco IOS XE Catalyst SD-WAN Release 17.2.1v	Command qualified for use in Cisco vManage CLI templates.

Examples

The following example shows how to configure OMP on a router:

```
sdwan
 omp
  no shutdown
  overlay-as       4294967295
  send-path-limit  16
  ecmp-limit       16
```

```
graceful-restart
no as-dot-notation
timers
 holdtime               65535
 advertisement-interval 65535
 graceful-restart-timer 43200
 eor-timer              3600
!
address-family ipv4
 advertise bgp
 advertise ospf external
 advertise connected
 advertise static
 advertise eigrp
 advertise lisp
 advertise isis
!
 address-family ipv6
 advertise bgp
 advertise connected
 advertise static
 advertise eigrp
 advertise lisp
 advertise isis
```

outbound tloc-color

To enable Cisco SD-WAN Controller route filtering by TLOC color, use the **outbound tloc-color** command in filter route configuration mode. To disable route filtering, use the **no** form of the command.

outbound tloc-color

no outbound tloc-color

Command Default

The command is disabled.

Command Modes

filter route configuration (config-filter-route)

Command History

Release	Modification
Cisco IOS XE Catalyst SD-WAN Release 17.11.1a	This command was introduced.

Example

```
vsmart# config
Entering configuration mode terminal
vsmart(config)# omp
vsmart(config-omp)# filter-route
vsmart(config-filter-route)# outbound tloc-color
vsmart(config-filter-route)# exit
vsmart(config-omp)# exit
vsmart(config)#
```

The following example shows the same configuration using a CLI template in Cisco SD-WAN Manager:

```
omp
 filter-route
  outbound tloc-color
!
```

overlay-as (omp)

To configure a BGP Autonomous System (AS) number that OMP advertises to the BGP neighbors of a router, use the **overlay-as** command in OMP configuration mode. To remove a BGP AS number that OMP advertises to the BGP neighbors of a router, use the **no** form of this command.

overlay-as *as-number*
no overlay-as

Syntax Description

as-number	Local AS number to advertise to the router's BGP neighbors. You can specify the AS number in 2-byte ASDOT notation (1 through 65535) or in 4-byte ASDOT notation (1.0 through 65535.65535).

Command Default

No AS number is configured.

Command Modes

OMP configuration (config-omp)

Command History

Release	Modification
Cisco IOS XE Catalyst SD-WAN Release 17.2.1v	Command qualified for use in Cisco vManage CLI templates.

Usage Guidelines

When OMP routes are redistributed into BGP, the confgured AS number is prepended to the BGP AS path.

Examples

The following example shows how to configure OMP on a router:

```
sdwan
 omp
  no shutdown
  overlay-as 4294967295
  send-path-limit 16
  ecmp-limit 16
  graceful-restart
  no as-dot-notation
  timers
   holdtime 65535
   advertisement-interval 65535
   graceful-restart-timer 43200
   eor-timer 3600
  !
  address-family ipv4
   advertise bgp
   advertise ospf external
   advertise connected
```

```
 advertise static
 advertise eigrp
 advertise lisp
 advertise isis
!
address-family ipv6
 advertise bgp
 advertise connected
 advertise static
 advertise eigrp
 advertise lisp
 advertise isis
```

send-path-limit (omp)

To configure the maximum number of equal-cost routes that are advertised per prefix, use the **send-path-limit** command in OMP configuration mode. To remove the maximum number of equal-cost routes that are advertised per prefix, use the **no** form of this command.

send-path-limit *number-of-routes*
no send-path-limit *number-of-routes*

Syntax Description

number-of-routes	Maximum number of equal-cost routes that a router advertises to a Cisco SD-WAN Controller or that a Cisco SD-WAN Controller redistributes to routers. A route is a route–TLOC tuple. Each TLOC consists of an IP address, color, and encap. Beginning with Cisco Catalyst SD-WAN Control Components Release 20.8.x, for a Cisco SD-WAN Controller operating within a Hierarchical SD-WAN architecture, the controller can provide up to 32 routes to edge devices. When an edge device installs the routes, it uses the OMP algorithm to select the best 16 routes, and forwards traffic on those routes. Range: 1 to 32 routes. In releases earlier than Cisco Catalyst SD-WAN Control Components Release 20.9.x, the range was 1 to 16.

Command Default

4 routes are advertised.

Command Modes

OMP configuration (config-omp)

Command History

Release	Modification
Cisco IOS XE Catalyst SD-WAN Release 17.2.1v	Command qualified for use in Cisco vManage CLI templates.
Cisco SD-WAN Controller, Cisco Catalyst SD-WAN Control Components Release 20.8.x	Increased the route limit to 32 when used for a Cisco SD-WAN Controller operating within a Hierarchical SD-WAN architecture.

Examples

The following example shows how to configure OMP on a router:

```
sdwan
 omp
```

```
no shutdown
overlay-as 4294967295
send-path-limit 16
ecmp-limit 16
graceful-restart
no as-dot-notation
timers
 holdtime 65535
 advertisement-interval 65535
 graceful-restart-timer 43200
 eor-timer 3600
!
address-family ipv4
 advertise bgp
 advertise ospf external
 advertise connected
 advertise static
 advertise eigrp
 advertise lisp
 advertise isis
!
address-family ipv6
 advertise bgp
 advertise connected
 advertise static
 advertise eigrp
 advertise lisp
 advertise isis
```

timers

To configure OMP timers on Cisco IOS XE Catalyst SD-WAN devices and Cisco Catalyst SD-WAN Controllers, use **timers** command. When you change an OMP timer on a device, the BFD sessions on that device go down and then come back up. To disable timers, use the **no** form of this command.

timers [**advertisement-interval** *interval* | **eor-timer** *eor-timer* | **graceful-restart-timer** *restart-timer* | **holdtime** *holdtime*]
no timers

Syntax Description

eor-timer *seconds*	End-of-RIB Timer: Specifies how long to wait after an OMP session has gone down and then come back up to send an end-of-RIB (EOR) marker. After this marker is sent, any routes that weren't refreshed after the OMP session came back up are considered to be stale and are deleted from the route table. Range: 1–3600 seconds (1 hour) Default: 300 seconds (5 minutes)

graceful-restart-timer *seconds*	Graceful Restart Timer: Specifies how often the OMP information cache is flushed and refreshed. To disable OMP graceful restart, use the **no omp graceful-restart** command. **Note** The **graceful-restart-timer** is peer driven. That is, WAN edge waits for the timer configured on Cisco vSmart to expire before removing the stale routes from the OMP table and Cisco vSmart waits for the timer configured on WAN Edge. Range: 1–604800 seconds (168 hours, or 7 days) Default: 43200 seconds (12 hours)
holdtime *seconds*	Holdtime Interval: Specifies how long to wait before closing the OMP connection to a peer. If the peer doesn't receive three consecutive keepalive messages within the specified hold time, the OMP connection to the peer is closed. (Note that the keepalive timer is one-third the hold time and isn't configurable.) If the local device and the peer have different hold time intervals, the higher value is used. If you set the hold time to 0, the keepalive and hold timers on the local device and the peer are set to 0. The hold time must be at least two times the hello tolerance interval set on the WAN tunnel interface in VPN 0. To configure the hello tolerance interval, use the hello-tolerance command. Range: 0–65535 seconds Defaults, by Cisco Catalyst SD-WAN Control Components release: • 20.18.x and later: 300 seconds • 20.16.x: 5400 seconds • 20.12.1 to 20.15.x: 300 seconds • Before 20.12.1: 60 seconds Defaults, by Cisco IOS XE Catalyst SD-WAN release: • 17.18.1 and later: 300 seconds • 17.16.x: 5400 seconds
advertisement-interval *seconds*	Update Advertisement Interval: Configures the amount of time between OMP Update packets. Range: 0–65535 seconds Default: 1 second

Command Default

Command Modes OMP configuration mode

Command History

Release	Modification
Cisco IOS XE Catalyst SD-WAN Release 17.6.1a	Command qualified for use in Cisco SD-WAN Manager CLI templates.

The following commands configure OMP timers on a Cisco IOS XE Catalyst SD-WAN device.

```
sdwan
omp
no shutdown
graceful-restart
no as-dot-notation
timers
holdtime 65535
advertisement-interval 65535
graceful-restart-timer 43200
eor-timer 3600
exit
!
```

tloc-color-compatibility

To override the default compatibilities of TLOC colors, use the **tloc-color-compatibility** command in system configuration mode. To cancel the configuration, use the **no** form of the command.

tloc-color-compatibility { **compatible** *first-color second-color* | **incompatible** *first-color second-color* }
no tloc-color-compatibility { **compatible** *first-color second-color* | **incompatible** *first-color second-color* }

Syntax Description

compatible *first-color second-color*	Configure two TLOC colors to be compatible, even if they are incompatible by default.
incompatible *first-color second-color*	Configure two TLOC colors to be incompatible, even if they are compatible by default.

Command Default

The command has no default.

Command Modes

system configuration (config-system)

Command History

Release	Modification
Cisco IOS XE Catalyst SD-WAN Release 17.11.1a	This command was introduced.

Usage Guidelines

Using route filtering, Cisco SD-WAN Controllers can reduce the number of routes that they advertise to routers in the network, to exclude routes that are not relevant to a particular device. The filtering is based on the colors of TLOCs on each device: For each individual device, the Cisco SD-WAN Controller does not advertise routes that are not compatible with any of the device's TLOCs. For example, if a router only has a

TLOC with color mpls, which is a private color, then a Cisco SD-WAN Controller does not advertise a route for a TLOC of with the public-internet color, because the router cannot resolve this public route.

Example

This example, executed on a Cisco SD-WAN Controller, does the following:

- Configures the lte and private1 TLOC colors to be compatible
- Configures the private1 and private2 TLOC colors to be compatible
- Configures the lte and default TLOC colors to be incompatible
- Configures the lte and 3g TLOC colors to be incompatible

```
vsmart(config)# system
vsmart(config-system)# host-name vm1
vsmart(config-system)# tloc-color-compatibility
vsmart(config-tloc-color-compatibility)# compatible lte private1
vsmart(config-compatible-lte/private1)# exit
vsmart(config-tloc-color-compatibility)# compatible private1 private2
vsmart(config-compatible-private1/private2)# exit
vsmart(config-tloc-color-compatibility)# incompatible lte default
vsmart(config-incompatible-lte/default)# exit
vsmart(config-tloc-color-compatibility)# incompatible lte 3g
vsmart(config-incompatible-lte/3g)# exit
vsmart(config-tloc-color-compatibility)# exit
vsmart(config-system)# exit
vsmart(config)#
```

The following example shows the same configuration using a CLI template in Cisco SD-WAN Manager:

```
system
 host-name vm1
 tloc-color-compatibility
  compatible lte private1
  !
  compatible private1 private2
  !
  incompatible lte default
  !
  incompatible lte 3g
  !
 !
```

To reverse a **compatible** or **incompatible** command, use the **no** form, as follows:

```
vsmart(config-tloc-color-compatibility)# no compatible lte private1
```