



Static Route Object Tracking

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Feature History for Static Route Object Tracking

This table provides release and platform support information for the features explained in this module.

These features are available in all the releases subsequent to the one they were introduced in, unless noted otherwise.

Release	Feature Name and Description	Supported Platform
Cisco IOS XE 17.18.1	Static Route Object Tracking: Static routing support with enhanced object tracking allows a device to use ICMP pings to detect when a pre-configured static route or a DHCP route becomes unavailable.	Cisco C9350 Series Smart Switches Cisco C9610 Series Smart Switches

Static Route Object Tracking

Static routing support with enhanced object tracking allows a device to use ICMP pings to detect when a pre-configured static route or a DHCP route becomes unavailable. When tracking is enabled, the system monitors the status of the route and notifies the client whenever there is a change in state. This functionality leverages IP SLAs to generate ICMP pings, enabling continuous monitoring of the connection to the primary gateway and ensuring timely updates if the route goes down.

Configure Static Route Object Tracking

Follow these tasks to configure static route object tracking.

Procedure

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Configure a primary interface for static routing

Perform this task to configure a primary interface for static routing.

Procedure

-
- Step 1** **enable**
Example:

```
Device> enable
```

Enables privileged EXEC mode.
Enter your password, if prompted.
 - Step 2** **configure terminal**
Example:

```
Device# configure terminal
```

Enters global configuration mode.
 - Step 3** **interface *interface-id***
Example:

```
Device(config)# interface vlan10
```

Selects a primary or secondary interface and enters interface configuration mode.
 - Step 4** **description *string***
Example:

```
Device(config-vlan)# description ip-sla
```

Adds a description to the interface.
 - Step 5** **ip address *ip-address mask* [*secondary*]**
Example:

```
Device(config-vlan)# ip address 192.168.1.2 255.255.255.0
```

Sets the primary or secondary IP address for the interface.

Step 6 **exit****Example:**

```
Device(config-vlan)# exit
```

Returns to global configuration mode.

Configure a primary interface for DHCP

Perform this task to configure a primary interface for DHCP.

Procedure

Step 1 **enable****Example:**

```
Device> enable
```

Enables privileged EXEC mode.

Enter your password, if prompted.

Step 2 **configure terminal****Example:**

```
Device# configure terminal
```

Enters global configuration mode.

Step 3 **interface *interface-id*****Example:**

```
Device(config)# interface vlan10
```

Selects a primary or secondary interface and enters interface configuration mode.

Step 4 **description *string*****Example:**

```
Device(config-vlan)# description ip-sla
```

Adds a description to the interface.

Step 5 **ip dhcp client route track *number*****Example:**

```
Device(config-vlan)# ip dhcp client route track 2
```

Configures the DHCP client to associate any added routes with the specified track number.

The range is from 1 to 500.

Step 6 **exit****Example:**

```
Device(config-track)# exit
```

Returns to global configuration mode.

Configure IP SLAs monitoring agent

You can configure an IP SLAs agent to ping an IP address using a primary interface and a track object to monitor the state of the agent.

Perform this task to configure IP SLAs monitoring agent.

Procedure

Step 1 **enable**

Example:

```
Device> enable
```

Enables privileged EXEC mode.

Enter your password, if prompted.

Step 2 **configure terminal**

Example:

```
Device# configure terminal
```

Enters global configuration mode.

Step 3 **ip sla operation-number**

Example:

```
Device(config)# ip sla 1
```

Starts IP SLAs operation and enters IP SLA configuration mode.

Step 4 **icmp-echo** {*destination ip-address* | *destination hostname* [**source - ipaddr** {*ip-address* | *hostname* **source-interface** *interface-id*}]

Example:

```
Device(config-ip-sla)# icmp-echo 172.16.1.1 source-ip 10.0.0.1
```

Configures a Cisco IP SLAs end-to-end ICMP echo response time operation and enter IP SLAs ICMP echo configuration mode.

Step 5 **timeout milliseconds**

Example:

```
Device(config-ip-sla)# timeout 1000
```

Sets the amount of time for which the operation waits for a response from its request packet.

Step 6 **frequency seconds**

Example:

```
Device(config-ip-sla)# frequency 5
```

Sets the rate at which the operation is sent into the network.

Step 7 **threshold** *milliseconds***Example:**

```
Device(config-ip-sla)# threshold 1000
```

Sets the rising threshold (hysteresis) that generates a reaction event and stores history information for the operation.

Step 8 **exit****Example:**

```
Device(config-ip-sla)# exit
```

Exits IP SLAs ICMP echo configuration mode.

Step 9 **ip sla schedule** *operation-number* [**life** {**forever** | *seconds*}] **start-time** *time* | **pending** | **now** | **after** *time*] **ageout** *seconds*] [**recurring**]**Example:**

```
Device(config)# ip sla schedule 1 life forever start-time now
```

Configures the scheduling parameters for a single IP SLAs operation.

- *object-number*: The range is from 1 to 500.
- *operation-number*: The range is from 1 to 2147483647.

Step 10 **track** *object-number* **rtr** *operation-number* **state** **reachability****Example:**

```
Device(config)# track 10 rtr 1 state reachability
```

Tracks the state of a Cisco IOS IP SLAs operation and enter tracking configuration mode.

Step 11 **end****Example:**

```
Device(config)# end
```

Returns to privileged EXEC mode.

Step 12 **show track** *object-number*

Verifies that the specified objects are being tracked.

Step 13 **copy running-config startup-config****Example:**

```
Device# copy running-config startup-config
```

(Optional) Saves your entries in the configuration file.

Configure a routing policy and a default route

Perform this task to configure a routing policy and a default route.

Procedure

Step 1 **enable****Example:**

```
Device> enable
```

Enables privileged EXEC mode.

Enter your password, if prompted.

Step 2 **configure terminal****Example:**

```
Device# configure terminal
```

Enters global configuration mode.

Step 3 **access-list** *access-list-number***Example:**

```
Device(config)# access-list 101
```

Defines an extended IP access list. Configure any optional characteristics.

Step 4 **route-map** *map tag* [**permit** | **deny**] [*sequence-number*]**Example:**

```
Device(config)# route-map PBR_OUT permit 10
```

Enters route-map configuration mode and define conditions for redistributing routes from one routing protocol to another.

Step 5 **match ip address** {*access-list number* [**permit**| **deny**] [*sequence-number*]**Example:**

```
Device(config-route-map)# match ip address 101
```

Distribute any routes that have a destination network number address that is permitted by a standard or extended access list or performs policy routing on packets. You can enter multiple numbers or names.

Step 6 **set ip next-hop dynamic dhcp****Example:**

```
Device(config-route-map)# set ip next-hop dynamic dhcp
```

For DHCP networks only. Sets the next hop to the gateway that was most recently learned by the DHCP client.

Step 7 **set interface** *interface-id***Example:**

```
Device(config-route-map)# set interface gigabitethernet 1/0/1
```

For static routing networks only. Indicates where to send output packets that pass a match clause of a route map for policy routing.

Step 8 **exit****Example:**

```
Device(config-route-map)# exit
```

Returns to global configuration mode.

Step 9 **ip local policy route-map map tag****Example:**

```
Device(config)# ip local policy route-map PBR_OUT
```

Identifies a route map to use for local policy routing.

Step 10 **ip route prefix mask {ip address | interface-id [ip-address]} [distance] [name] [permanent | track track-number] [tag tag]****Example:**

```
Device(config)# ip route 172.16.1.0 255.255.255.0 10.0.1.2
```

For static routing networks only. Establishes static routes. Entering track track-number specifies that the static route is installed only if the configured track object is up.

Step 11 **end****Example:**

```
Device(config)# exit
```

Returns to privileged EXEC mode.

Step 12 **show ip route track table****Example:**

```
Device# show ip route track table
```

Displays information about the IP route track table.

Step 13 **copy running-config startup-config****Example:**

```
Device# copy running-config startup-config
```

(Optional) Saves your entries in the configuration file

Monitor Enhanced Object Tracking

Use the privileged EXEC or user EXEC commands in the table below, to display enhanced object tracking information.

Table 1: Commands for displaying tracking information

Command	Purpose
show ip route track table	Displays information about the IP route track table.
show track [object-number]	Displays information about the all tracking lists or the specified list.
show track brief	Displays VTP status and configuration for all interfaces or the specified interface.
show track interface [brief]	Displays information about tracked interface objects.
show track ip [object-number] [brief] route	Displays information about tracked IP-route objects
show track resolution	Displays the resolution of tracked parameters.
show track timer	Displays tracked polling interval timers.