

GRE Tunnel Interface Commands

This module describes the command line interface (CLI) commands for configuring GRE tunnel interfaces on the Cisco 8000 Series Routers.

For information on configuring GRE tunnels, see the *Interface and Hardware Component Configuration Guide for Cisco 8000 Series Routers*.

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cef platform load-balancing nvgre payload exclude

To configure the NVGRE hash field selection feature, use the **cef platform load-balancing nvgre payload exclude** command in XR Config mode.

To remove this configuration, use the no prefix of the command.

cef platform load-balancing nvgre payload exclude

Table 1: Command Description

Keyword	Description
cef	Refers to Cisco Express Forwarding, a high-performance, scalable packet forwarding technology.
platform	Indicates the command applies to the hardware platform level, allowing configuration specific to the router.
load-balancing	Controls how traffic is distributed across multiple equal-cost paths to optimize resource use and prevent congestion.
nvgre	Specifies the Network Virtualization using Generic Routing Encapsulation (NVGRE) protocol, which encapsulates Layer 2 frames within Layer 3 packets.
payload	Refers to the encapsulated data portion of the NVGRE packet, excluding the header.
exclude	Instructs the system to exclude the NVGRE payload field from the load-balancing hash calculation, improving traffic distribution by focusing on relevant header fields.

Command Default

None

Command Modes

XR Config

Command History

Release	Modification
Release 26.2.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Example

The following example shows how you can configure NVGRE hash field selection.

```
Router# configure
Router(config)# cef platform load-balancing nvgre payload exclude
Router(config)# commit
Router(config)# end
```

hw-module profile cef ttl tunnel-ip decrement disable

To disable the decrement of TTL value of inner payload header of an IP-in-IP packet, use the **hw-module profile cef ttl tunnel-ip decrement disable** command in XR Config mode.

hw-module profile cef ttl tunnel-ip decrement disable

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

XR Config

Command History

Release	Modification
Release 7.0.14	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Example

The following example shows how you can disable the decrement of TTL value of inner payload header of an IP-in-IP packet.

```
Router# configure
Router(config)# hw-module profile cef ttl tunnel-ip decrement disable
Router(config)# commit
Thu Jun 11 08:43:52.343 UTC
LC/0/0/CPU0:Jun 11 08:43:52.505 UTC: npu_drvr[204]:
%FABRIC-NPU_DRVR-3-HW_MODULE_PROFILE_TTL_CHASSIS_CFG_CHANGED : Hw-module profile ttl config
 changed. Behaviour of IPinIP tunnel's inner header ttl decrement will be changed.
```

hw-module profile gue

To configure unique GUE port numbers to decapsulate IPv4, IPv6, and MPLS packets using UDP, use the **hw-module profile gue udp-dest-port ipv4 <port number> ipv6 <port number> mpls <port number>** command in XR Config mode on the destination router.

hw-module profile gue udp-dest-port ipv4 *<port number>* **ipv6** *<port number>* **mpls** *<port number>*

Table 2: Command Description

Keyword	Description
gue	The UDP destination port configuration of the GUE decapsulation tunnel.
udp-dest-port	Configure separate UDP port numbers for IPv4, IPv6, and MPLS.
ipv4	Configure unreserved UDP port numbers for IPv4 payload. The supported range is from 1000 through 64000.
ipv6	Configure unreserved UDP port numbers for IPv6 payload. The supported range is from 1000 through 64000.
mpls	Configure unreserved UDP port numbers for MPLS payload. The supported range is from 1000 through 64000.

To remove this configuration, use the no prefix of the command:

```
no hw-module profile gue udp-dest-port ipv4 <port number> ipv6 <port number> mpls <port number>
```

Command Default

None

Command Modes

XR Config

Command History

Release	Modification
Release 25.4.1	This command was deprecated.
Release 7.3.3	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Example

The following example shows how you can configure unique GUE port numbers to decapsulate IPv4, IPv6, and MPLS packets using UDP.

```
Router(config)#hw-module profile gue udp-dest-port ipv4 1001 ipv6 1002 mpls 1003
```

hw-module profile gue underlay-hash enable

To use only the outer IP header (L3 and L4) for calculating the hashing for incoming GUE packets, use the **hw-module profile gue underlay-hash enable** command in mode.

hw-module profile gue underlay-hash *enable*

Syntax Description

enable	To enable only the outer IP header (L3 and L4) for calculating the hashing.

Command Default

By default, both outer IP header (L3 and L4) and inner IP header (L3 and L4) are considered for calculating the hashing for incoming GUE packets.

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.11.1	This command was introduced.

Usage Guidelines

This command is currently supported only on Q200-based ASICs.

Example

The following example shows how to enable only the outer IP header (L3 and L4) for calculating the hashing:

```
RP/0/RP0/CPU0:R2#configure
RP/0/RP0/CPU0:R2(config)#hw-module profile gue underlay-hash enable
RP/0/RP0/CPU0:R2(config)#commit
RP/0/RP0/CPU0:R2(config)#end
```

interface tunnel-ip

Configures an IP-in-IP tunnel interface.

To remove this configuration, use the **no** prefix of the command.

interface tunnel-ip *id*
no interface tunnel-ip *id*

Syntax Description

id	Specifies the tunnel interface identifier. Range is from 0 to 131070.

Command Default

None

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Example

The following example shows how you can configure an IP-in-IP tunnel interface.

```
RP/0/RP0/CPU0:router(config)# interface tunnel-ip 10
RP/0/RP0/CPU0:router(config-if)# ipv4 unnumbered loopback 20
RP/0/RP0/CPU0:router(config-if)# tunnel mode ipv4 decap
RP/0/RP0/CPU0:router(config-if)# tunnel source loopback 0
RP/0/RP0/CPU0:router(config-if)# tunnel destination 50.10.1.2/32
```

tunnel mode

Configures the mode of encapsulation for the tunnel interface.

To remove this configuration, use the **no** prefix of the command.

tunnel mode { **gre** { **ipv4** | **ipv6** } [**decap**] | **ipv4** [**decap**] | **ipv6** [**decap**] }
no tunnel mode { **gre** { **ipv4** | **ipv6** } [**decap**] | **ipv4** [**decap**] | **ipv6** [**decap**] }

Syntax Description

tunnel mode gre	Configures IP-over-GRE encapsulation for the tunnel interface.
tunnel mode ipv4	Configures generic packet tunneling over IPv4 encapsulation for the tunnel interface.
tunnel mode ipv6	Configures generic packet tunneling over IPv6 encapsulation for the tunnel interface.
tunnel mode gre ipv4	Configures GRE-over-IPv4 encapsulation for the tunnel interface.
tunnel mode gre ipv6	Configures GRE-over-IPv6 encapsulation for the tunnel interface.
decap	Configures the IP-in-IP or GRE tunnel to be used only for decapsulation.

Command Default

None

Command Modes

Tunnel interface configuration mode

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Example

The following example shows how you can configure the tunnel mode for an IP-in-IP tunnel interface.

```
RP/0/RP0/CPU0:router(config)# interface tunnel-ip 10
RP/0/RP0/CPU0:router(config-if)# ipv4 unnumbered loopback 20
RP/0/RP0/CPU0:router(config-if)# tunnel mode ipv4 decap
RP/0/RP0/CPU0:router(config-if)# tunnel source loopback 0
RP/0/RP0/CPU0:router(config-if)# tunnel destination 50.10.1.2/32
```

tunnel source

Configures the source IP address for a tunnel interface.

To remove this configuration, use the **no** prefix of the command.

tunnel source { *ipv4-address* | *interface-type interface-number* }
no tunnel source { *ipv4-address* | *interface-type interface-number* }

Syntax Description

ipv4-address	Configures the specified IPv4 address as the source IP for the tunnel interface.
interface-type interface-number	Configures the specified interface type as the source for the tunnel interface.

Command Default

None

Command Modes

Tunnel interface configuration mode

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Example

The following example shows how you can configure the Loopback 0 interface as the tunnel source for an IP-in-IP tunnel interface.

```
RP/0/RP0/CPU0:router(config)# interface tunnel-ip 10
RP/0/RP0/CPU0:router(config-if)# ipv4 unnumbered loopback 20
RP/0/RP0/CPU0:router(config-if)# tunnel mode ipv4 decap
RP/0/RP0/CPU0:router(config-if)# tunnel source loopback 0
RP/0/RP0/CPU0:router(config-if)# tunnel destination 50.10.1.2/32
```

tunnel destination

Configures the tunnel destination for the tunnel interface.

To remove this configuration, use the **no** prefix of the command.

tunnel destination { *ipv4-address* | *ipv4 address/subnet-mask* | *ipv6-address* | *object-group-ipv4* | *object-group-ipv6* }
no tunnel destination { *ipv4-address* | *ipv4 address/subnet-mask* | *ipv6-address* | *object-group-ipv4* | *object-group-ipv6* }

Syntax Description

ipv4-address	Configures the specified IPv4 address as the destination IP for the tunnel interface.
ipv4-address/subnet mask	Configures the specified IPv4 address with subnet mask as the destination IP for the tunnel interface.
ipv6-address	Configures the specified IPv6 address as the destination IP for the tunnel interface.
object-group-ipv4	Configures the specified IPv4 object group as the destination IP for the tunnel interface.
object-group-ipv6	Configures the specified IPv6 object group as the destination IP for the tunnel interface.

Command Default

None

Command Modes

Tunnel interface configuration mode

Command History

Release	Modification
Release 7.5.4	This command was modified to introduce **object-group-ipv4** and **object-group-ipv6** options.
Release 7.0.12	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Example

The following example shows how you can configure an IPv4 address with subnet mask as the tunnel destination for an IP-in-IP tunnel interface.

```
RP/0/RP0/CPU0:router(config)# interface tunnel-ip 10
RP/0/RP0/CPU0:router(config-if)# ipv4 unnumbered loopback 20
RP/0/RP0/CPU0:router(config-if)# tunnel mode ipv4 decap
RP/0/RP0/CPU0:router(config-if)# tunnel source loopback 0
RP/0/RP0/CPU0:router(config-if)# tunnel destination 50.10.1.2/32
```

tunnel ttl disable

Disables the decrement of TTL value of an incoming packet in a interface tunnel before encapsulation for GRE forwarding.

tunnel ttl disable

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

XR Config

Command History

Release	Modification
Release 7.3.2	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Example

The following example shows how you can disable the decrement of TTL an incoming packet before encapsulation for GRE forwarding.

```
Router# configure
Router(config)# interface tunnel-ip30016
Router(config-if)# tunnel ttl disable
Router(config-if)# commit
Thu Sep 11 08:43:52.343 UTC
```

show interface tunnel accounting (encap)

To display accounting information about a tunnel interface in encapsulation mode, use the `show int tunnel accounting` command in XR EXEC mode.

show interface tunnel-ip *<0-131070>* **accounting**

Command Default

No default behavior or values.

Command Modes

XR EXEC

Command History

Release	Modification
7.3.1	This command was introduced.

Example

This example shows how to display accounting information about a tunnel interface in encapsulation mode.

```
RP/0/RP0/CPU0:router#show interface tunnel-ip 1 accounting
Tue Aug 25 06:23:49.405 UTC
tunnel-ip1
  Protocol              Pkts In         Chars In     Pkts Out        Chars Out
  IPV4_UNICAST                0                0         1848           857822
```

show interface tunnel accounting (decap)

To display accounting information about a tunnel interface in decapsulation mode, use the `show int tunnel accounting` command in XR EXEC mode.

show interface tunnel-ip *<0-131070>* **accounting**

Command Default No default behavior or values.

Command Modes XR EXEC

Command History

Release	Modification
7.3.1	This command was introduced.

Example

This example shows how to display accounting information about a tunnel interface in decapsulation mode.

```
RP/0/RP0/CPU0:router#show interface tunnel-ip 2002 accounting
tunnel-ip2002
  Protocol              Pkts In         Chars In     Pkts Out        Chars Out
  IPV4_UNICAST           106908         11759880            0                0
```

show tunnel ip ea database brief

To display tunnel ip ea database parameters in brief, use the **show tunnel ip ea database brief** command in XR EXEC mode.

show tunnel ip ea database brief location *node-id*

Syntax Description

location *node-id*	Displays information about the node location specified as *rack* / *slot* / *module*.

Command Default

No default behavior or values.

Command Modes

XR EXEC

Command History

Release	Modification
24.1.1	This command was introduced.

The following is sample output from the **show tunnel ip ea database brief** command with the **location** keyword:

```
RP/0/RP0/CPU0:router#show tunnel ip ea database brief location 0/1/CPU0
Mon Nov  6 13:04:37.361 IST

----- node0_1_CPU0 -----

Ifhandle        Src                            Dst                              Mode
    Adjacency    Status   Tpt-Vrf-Tbl-ID
0x90           1.1.1.1                       15.15.15.5                      GREoIPv4(lite)
      Up          Up        0xe0000000
0xb0           5.5.5.5                        14.14.14.14                      GREoIPv4
       Up          Up        0xe0000000
0xd0           0.0.0.0                        8.8.8.8                          GREoIPv4
       Down        Down      0xe0000000
0xf0           ::                             2a02:a90:4007:700::192           GREoIPv6
       Down        Down      0xe0800000
```

show tunnel ip ma database brief

To display tunnel ip ma database parameters in brief, use the **show tunnel ip ma database brief** command in XR EXEC mode.

show tunnel ip ma database brief

Syntax Description

This command has no keywords or arguments.

Command Default

No default behavior or values.

Command Modes

XR EXEC

Command History

Release	Modification
24.1.1	This command was introduced.

Example

The following is sample output from the **show tunnel ip ma database brief** command:

```
RP/0/RP0/CPU0:router#show tunnel ip ma database brief
Mon Nov  6 13:04:28.905 IST

Interface       Src                            Dst                            Mode
    Caps         Status     Tpt-Vrf-Name
tunnel-ip100   1.1.1.1                        15.15.15.5                     GREoIPv4(lite)
  ipv4           Up         default
tunnel-ip200   5.5.5.5                         14.14.14.14                    GREoIPv4
   ipv4 ipv6 mpls  Up         default
tunnel-ip300   0.0.0.0                         8.8.8.8                        GREoIPv4
                   Down       default
tunnel-ip500   ::                              2a02:a90:4007:700::192         GREoIPv6
                   Down       default
```