

# Controleer SPAN en ERSPAN op Catalyst 9000 Series Switches

## Inhoud

[Inleiding](#)

[Voorwaarden](#)

[Vereisten](#)

[Gebruikte componenten](#)

[Controleer de overloop](#)

[Netwerkdigram](#)

[Configuratie SPAN](#)

[Controleer ERSPAN](#)

[Netwerkdigram](#)

[ERSPAN-configuratie](#)

[bronapparaat](#)

[ERSPAN-doelapparaat](#)

[Relevante debugs en tracersingen](#)

[Gerelateerde informatie](#)

## Inleiding

Dit document beschrijft hoe u SPAN en ERSPAN op Catalyst 9000 Series Switches kunt verifiëren.

## Voorwaarden

### Vereisten

Er zijn geen specifieke vereisten van toepassing op dit document.

### Gebruikte componenten

De informatie in dit document is gebaseerd op de volgende software- en hardware-versies:

- Catalyst 9300 (Cisco IOS®-XE 17.3.5)
- Catalyst 9500 (Cisco IOS®-XE 17.3.5)

De informatie in dit document is gebaseerd op de apparaten in een specifieke laboratoriumomgeving. Alle apparaten die in dit document worden beschreven, hadden een opgeschoonde (standaard)configuratie. Als uw netwerk live is, moet u zorgen dat u de potentiële impact van elke opdracht begrijpt.

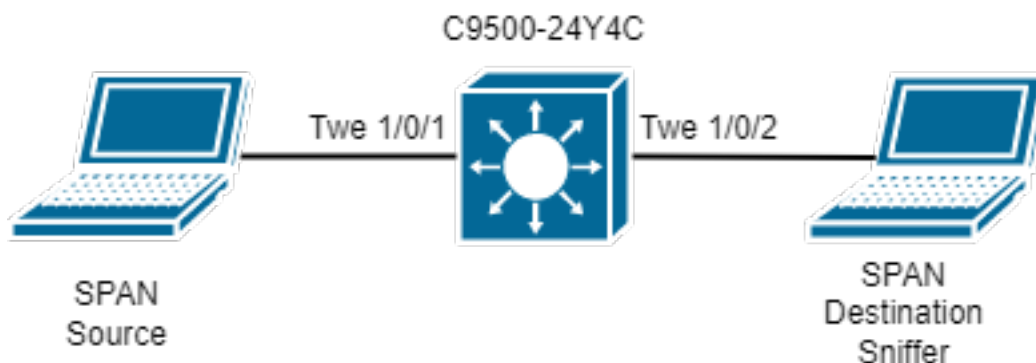
## Verwante producten

Dit document kan ook worden gebruikt voor de volgende hardware- en softwareversies:

- Catalyst 9200
- Catalyst 9300
- Catalyst 9500
- Catalyst 9400
- Catalyst 9600

## Controleer de overloop

### Netwerkdigram



### Configuratie SPAN

```
monitor session 1 source interface Twe1/0/1
monitor session 1 destination interface Twe1/0/2
```

**Controleer de SPAN-softwareconfiguratie.** Neem nota van de interfaces van de bron en van de bestemming SPAN en de richting van de SPAN-opname.

```
C9500-SPAN#show monitor session all
Session 1
-----
Type                : Local Session
Source Ports        :
  Both              : Twe1/0/1
Destination Ports   : Twe1/0/2
Encapsulation       : Native
  Ingress           : Disabled
```

**Controleer de SPAN-hardwaregegevens.** Gebruik de FED Session ID dat uniek is per SPAN-configuratie. Er kunnen maximaal acht FED-sessies tegelijkertijd worden geconfigureerd (van FED-sessies 0 tot 7).

```
C9500-SPAN# show platform software monitor session 1
Span Session 1 (FED Session 0):
  Type:          Local SPAN
  Prev type:    Local SPAN
  Ingress Src Ports: Twe1/0/1    <-- Hardware entry for source interface.
  Egress Src Ports:  Twe1/0/1    <-- Hardware entry for source interface.
  Ingress Local Src Ports: (null)
  Egress Local Src Ports: (null)
```

```

Destination Ports: Twel/0/2 <-- Hardware entry for destination interface.
Ingress Src Vlans:
Egress Src Vlans:
Ingress Up Src Vlans: (null)
Egress Up Src Vlans: (null)
Src Trunk filter Vlans:
RSPAN dst vlan: 0
RSPAN src vlan: 0
RSPAN src vlan sav: 0
Dest port encap = 0x0000
Dest port ingress encap = 0xFFFFFFFFFFFFFFFF
Dest port ingress vlan = 0x0
SrcSess: 1 DstSess: 0 DstPortCfgd: 1 RspnDstCfg: 0 RspnSrcVld: 0
DstCliCfg: 0 DstPrtInit: 1 PsLclCfgd: 0
Flags: 0x00000031 PSPAN
Remote dest port: 0 Dest port group: 0
FSPAN disabled
FSPAN not notified

```

**Verzamel ASIC-, Core- en poortnummers voor de geconfigureerde SPAN-poorten voor bron en bestemming. Het poortnummer is vereist om te bevestigen of de Source SPAN interface goed is geprogrammeerd en of de SPAN is gericht op de juiste Bestemming SPAN interface.**

**Tip:** Gebruik de juiste nomenclatuur standalone apparaat **show platform software / hardware gevoed actieve** of stack apparaat **show platform software / hardware gevoed switch <number>**.

```

C9500-SPAN# show platform software fed active ifm mappings
Interface          IF_ID      Inst Asic Core Port SubPort Mac  Cntx LPN  GPN  Type Active
TwentyFiveGigE1/0/1  0x8        1  0  1  20  0    16   4   1   101  NIF  Y
TwentyFiveGigE1/0/2  0x9        1  0  1  21  0    17   5   2   102  NIF  Y

```

Het **IlePortLeSpanBitMapTable** Doppler-register wordt gebruikt om te definiëren of een poort in de toegangsrichting (RX) onderhevig is aan SPAN. Om te bevestigen dat de geconfigureerd bron-SPAN-poort (ASIC-poort 20) is toegewezen aan de juiste **FED-sessie** (sessie 0):

```

C9500-SPAN# show platform hardware fed active fwd-asic register read register-name
IlePortLeSpanBitMapTable-20 asic 0 core 1
For asic 0 core 1

```

```
Module 0 - IlePortLeSpanBitMapTable[0][20]
```

```
ssbm          : 0x1 <-- Convert from Hexadecimal to Binary: 0b00000001. Bit 0 is set.
```

De SPAN Session Bit Map is een 8-bits register. Elke bit komt overeen met een FED-sessie: Het minst significante bit komt overeen met FED-sessie 0, het meest significante bit komt overeen met FED-sessie 7. Het maximale aantal ondersteunde SPAN-sessies is dus 8, zoals eerder vermeld.

Als een interface is geconfigureerd als SPAN-bronpoort voor meerdere SPAN-sessies, moeten alle FED-sessies in het SBM-register verschijnen. Bijvoorbeeld SSBM met de waarde 0x5 (0b00000101) betekent dat de interface een SPAN-bron is voor zowel FED-sessie 0 als FED-sessie 2.

Op dezelfde manier bepaalt Doppler register **ElePortLeSpanBitMapTable** register of een poort onderhevig is aan SPAN in uitgaande (TX) richting. De analyse is hetzelfde als IlePortLeSpanBitTable register. Om te bevestigen dat de geconfigureerd bron-SPAN-poort (ASIC-poort 20) is toegewezen aan de juiste **FED-sessie** (sessie 0):

```
C9500-SPAN# show platform hardware fed active fwd-asic register read register-name
ElePortLeSpanBitMapTable-20 asic 0 core 1
For asic 0 core 1
```

```
Module 0 - ElePortLeSpanBitMapTable[0][20]
```

```
ssbm : 0x1
```

Dit bevestigt dat de bron-SPAN-interface aan de juiste FED-sessie is toegewezen voor zowel RX- als TX-richting.

Met de **FED sessie-ID** vinden we de bestemmingspoorten voor de SPAN in het **AqmRepSpanPortMap** Doppler register. Om de FED-sessie te bevestigen, wijst 0 punten naar de juiste SPAN-bestemmingshaven (ASIC-poort 21):

```
C9500-SPAN# show platform hardware fed active fwd-asic register read register-name
AqmRepSpanPortMap-0 asic 0 core 1
For asic 0 core 1
```

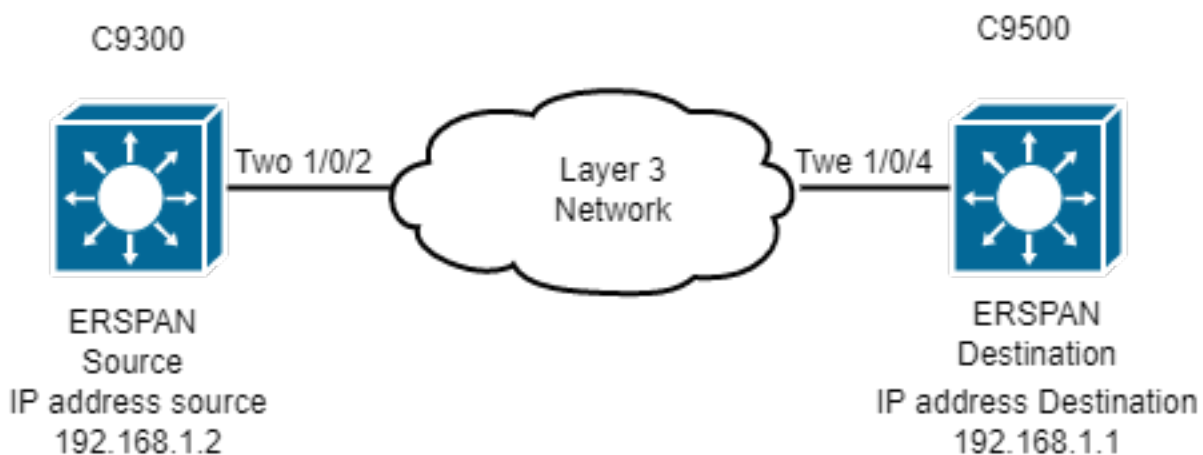
```
Module 0 - AqmRepSpanPortMap[0][0]
```

```
cpuQueueNum : 0x0
cpuSpanValid : 0x0
indirectApPortMap : 0x0
portMap0 : 0x200000 <-- Convert from Hexadecimal to Binary:
0b00100000000000000000000000000000. Bit 21 is set.
rcpPortMap : 0x0
spanCtiLo : 0x0
```

Dit bevestigt dat de met SPAN opgenomen pakketten moeten worden gerepliceerd vanuit interface Tw1/0/2 (ASIC-poort 21). Als er meer SPAN-doelpoorten geconfigureerd zijn, worden deze weergegeven in het **AqmRepSpanPortMap**-register.

## Controleer ERSPAN

### Netwerkdigram



**Opmerking:** Catalyst C9200 ondersteunt ERSPAN niet.

Opmerking: DNA-Advantage licentie is vereist.

## ERSPAN-configuratie

### ### Source ESRPAN Device ###

```
C9300-ERSPAN# show run | section monitor
monitor session 1 type erspan-source
  source vlan 10
  destination
    erspan-id 3 <-- ERSpan id must be identical on source and destination.
    ip address 192.168.1.1 <-- GRE tunnel destination IP (IP addr configured on ERSpan
destination switch).
    origin ip address 192.168.1.2 <-- GRE tunnel source IP (IP addr configured on ERSpan source
switch).
```

```
C9300-ERSPAN# show ip interface brief | exclude unassigned
Interface IP-Address OK? Method Status Protocol
<snip>
Loopback0 192.168.1.2 YES NVRAM up up
```

### ### Destination ERSpan Device ###

```
C9500-ERSPAN# show run | section monitor
monitor session 1 type erspan-destination
destination interface Twel1/0/3
source
erspan-id 3 <-- ERSpan id must be identical on source and destination.
ip address 192.168.1.1 <-- GRE tunnel destination IP (IP addr configured on ERSpan destination
switch).
```

```
C9500-ERSPAN# show ip interface brief | exclude unassigned
Interface IP-Address OK? Method Status Protocol
<snip>
Loopback0 192.168.1.1 YES NVRAM up up
```

## bronapparaat

Controleer de bereikbaarheid tussen het IP-adres van de oorsprong en het IP-adres van de bestemming.

```
C9300-ERSPAN#ping 192.168.1.1 source 192.168.1.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
Packet sent with a source address of 192.168.1.2
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/1/2 ms
```

## Cisco IOS-softwareprogrammering

Controleer in Cisco IOS-software het item voor de ERSpan-sessie.

```
C9300-ERSPAN#show monitor session 1
Session 1
-----
Type : ERSpan Source Session
```

```
Status : Admin Enabled
Source VLANs :
  Both : 10
Destination IP Address : 192.168.1.1
Destination ERSPAN ID : 3
Origin IP Address : 192.168.1.2
```

## SHIM-programmering

Controleer welke software naar de hardware van het programma stuurt (SHIM-object).

```
C9300-ERSPAN#show platform software monitor session 1
```

```
Span Session 1 (FED Session 0):
```

```
Type: ERSPAN Source
Prev type: Unknown
Ingress Src Ports:
Egress Src Ports:
Ingress Local Src Ports: (null)
Egress Local Src Ports: (null)
Destination Ports:
Ingress Src Vlans: 10 <-- Replicate Traffic.
Egress Src Vlans: 10 <-- Replicate Traffic.
Ingress Up Src Vlans: 10
Egress Up Src Vlans: 10
Src Trunk filter Vlans:
RSPAN dst vlan: 0
RSPAN src vlan: 0
RSPAN src vlan sav: 0
Dest port encap = 0x0000
Dest port ingress encap = 0x0000
Dest port ingress vlan = 0x0
SrcSess: 1 DstPortCfgd: 0 RspnDstCfg: 0 RspnSrcVld: 0 <-- Monitor session number.
DstCliCfg: 0 DstPrtInit: 0 PsLclCfgd: 0
Flags: 0x00000002 VSPAN
Remote dest port: 0 Dest port group: 0
FSPAN disabled
FSPAN not notified
ERSPAN Id : 3 <-- Value match with the software setting.
ERSPAN Org Ip: 192.168.1.2 <-- Value match with the software setting.
ERSPAN Dst Ip: 192.168.1.1 <-- Value match with the software setting.
ERSPAN Ip Ttl: 255
ERSPAN State : Enabled
ERSPAN Tun id: 77
```

## Routeprocessor voor Forwarding Manager

Controleer welke software naar de hardware van het programma stuurt (FMAN RP Layer).

```
C9300-ERSPAN#show platform software swspan switch active R0 source
```

```
Showing SPAN source table summary info
```

Sess-id	IF-type	IF-id	Sess-type	Dir
0	VLAN	10	ERSPAN SRC	Ingress
0	VLAN	10	ERSPAN SRC	Egress

```
C9300-ERSPAN#show platform software swspan switch active R0 source sess-id 0
```

```
Showing SPAN source detail info
```

```
Session ID : 0 Intf Type : VLAN Vlan id : 10 <-- Vlan entry
```

```
PD Sess ID : 0
```

Session Type : ERSPAN SRC  
Direction : Ingress  
Filter Enabled : No  
ACL Configured : No  
ERSPAN Enable : Yes

Session ID : 0  
Intf Type : VLAN  
Vlan id : 10 <-- Match with the Vlan/Interface SPAN.  
PD Sess ID : 0  
Session Type : ERSPAN SRC  
Direction : Egress  
Filter Enabled : No  
ACL Configured : No  
ERSPAN Enable : Yes

## Forwarding Manager-Forwarding Processor

Controleer welke software naar de hardware van het programma stuurt (FMAN FP Layer).

C9300-ERSPAN#**show platform software swspan switch active F0 source**  
Showing SPAN source table summary info

Sess-id	IF-type	IF-id	Sess-type	Dir
0	VLAN	10	ERSPAN SRC	Ingress
0	VLAN	10	ERSPAN SRC	Egress

C9300-ERSPAN#**show platform software swspan switch active F0 source sess-id 0**  
Showing SPAN source detail info

Session ID : 0  
Intf Type : VLAN  
Vlan id : 10  
PD Sess ID : 0  
Session Type : ERSPAN SRC <-- Source Interface.  
Direction : Ingress  
Filter Enabled : No  
ACL Configured : No  
AOM Object id : 519  
AOM Object Status : Done  
Parent AOM object Id : 30  
Parent AOM object Status : Done

Session ID : 0  
Intf Type : VLAN  
Vlan id : 10  
PD Sess ID : 0  
Session Type : ERSPAN SRC <-- Source Interface.  
Direction : Egress  
Filter Enabled : No  
ACL Configured : No  
AOM Object id : 520  
AOM Object Status : Done  
Parent AOM object Id : 30  
Parent AOM object Status : Done

C9300-ERSPAN#**show platform software swspan switch active F0 counters <-- Check for any err  
counters that increment on PI/PD/HW**

Dump Switch SPAN FP operation counters <-- **Operational Counters.**

**Source SPAN** Config Counters

PI: Create 2 (err 0), Modify 0 (err 0), Delete 0 (err 0) <-- **PI = platform independent (Software/IOS).**

PD: Create 2 (err 0), Modify 0 (err 0), Delete 0 (err 0) <-- **PD = platform dependent (SHIM/FMAN/FED).**

HW: Create 2 (err 0), Modify 0 (err 0), Delete 0 (err 0) <-- **HW = hardware (FED/ASIC).**

**Destination SPAN** Config Counters

PI: Create 1 (err 0), Modify 0 (err 0), Delete 0 (err 0)

PD: Create 1 (err 0), Modify 0 (err 0), Delete 0 (err 0)

HW: Create 1 (err 0), Modify 0 (err 0), Delete 0 (err 0)

**Filter SPAN** Config Counters

PI: Create 0 (err 0), Modify 0 (err 0), Delete 0 (err 0)

PD: Create 0 (err 0), Modify 0 (err 0), Delete 0 (err 0)

HW: Create 0 (err 0), Modify 0 (err 0), Delete 0 (err 0)

## Forwarding Engine Driver

Controleer de laag die de ASIC (FED) programmeert.

C9300-ERSPAN#**show platform software fed switch active monitor 0**

Session 0

-----

```
Session Type           : ERSpan Source Session
Source Ports           : RX: None TX: None
Destination Ports      : None
Source VLANs           : VLAN-10
Destination VLANs      : VLAN-10
Source RSPAN VLAN      : 0
DST RSPAN VLAN         : 0
Encap                  : Native
Ingress Forwarding     : Disabled
Filter VLANs           : None
ERSPAN Enable          : 1           <-- 1 = On/Completed.
ERSPAN Hw Programmed   : 1           <-- 1 = On/Completed.
ERSPAN Mandatory Cfg   : 1           <-- 1 = On/Completed.
ERSPAN Id              : 3
Gre Prot               : 88be
MTU                    : 9000
Ip Tos                 : 0
Ip Ttl                 : 255
Cos                    : 0
Vrf Id                 : 0
Dst Ip                 : 192.168.1.1
```

Org Ip : 192.168.1.2

Dst Ipv6 : ::

Org Ipv6 : ::

SGT count : 0

SGT Tag(s) :

Controleer de hardwaretunnelprogramming (FED).

C9300-ERSPAN#**show platform software fed switch active ifm interfaces tunnel**

Interface	IF_ID	State
-----------	-------	-------





```
priv_r/priv_si Handle: (nil)Hardware Indices/Handles: index0:0x27 mtu_index/l3u_ri_index0:0x5
sm handle [ASIC 0]: 0x7f00e0a56d08 index1:0x27 mtu_index/l3u_ri_index1:0x5
```

=====  
**Decapsulation LE**

```
C9300-ERSPAN#show platform hardware fed switch active fwd-asic abstraction print-resource-handle
0x00007f00e0a50a28 0 <-- DECAP.
```

```
Handle:0x7f00e0a50bd8 Res-Type:ASIC_RSC_L3IF_LE Res-Switch-Num:255 Asic-Num:255 Feature-
ID:AL_FID_IFM Lkp-ftr-id:LKP_FEAT_INVALID ref_count:1
```

```
priv_r/priv_si Handle: (nil)Hardware Indices/Handles: index0:0x28 mtu_index/l3u_ri_index0:0x0
sm handle [ASIC 0]: 0x7f00e0a559c8 index1:0x28 mtu_index/l3u_ri_index1:0x0
```

=====  
switch **Start** ingesloten pakketvastlegging op de uitgangspoort naar de bestemmingshaven. Een filter kan worden toegepast, gebruik de bron en de bestemming IP van de GRE-tunnel (het pakket is een ingesloten pakket).

```
Frame 1: 110 bytes on wire (880 bits), 110 bytes captured (880 bits) on interface 0
<snip>
```

```
Internet Protocol Version 4, Src: 192.168.1.2, Dst: 192.168.1.1 <-- ERSPAN IP HEADER.
```

```
0100 .... = Version: 4
.... 0101 = Header Length: 20 bytes (5)
Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
0000 00.. = Differentiated Services Codepoint: Default (0)
.... ..00 = Explicit Congestion Notification: Not ECN-Capable Transport (0)
```

```
Total Length: 96
Identification: 0x1018 (4120)
Flags: 0x00
0... .... = Reserved bit: Not set
.0.. .... = Don't fragment: Not set
..0. .... = More fragments: Not set
```

```
Fragment offset: 0
Time to live: 255
```

```
Protocol: Generic Routing Encapsulation (47) <-- GRE tunnel encapsulation.
```

```
Header checksum: 0x9c56 [validation disabled]
[Good: False]
[Bad: False]
Source: 192.168.1.2 <-- Source GRE IP tunnel.
Destination: 192.168.1.1 <-- Destination GRE IP tunnel.
```

```
Generic Routing Encapsulation (ERSPAN)
```

```
Flags and Version: 0x1000
0... .... = Checksum Bit: No
.0.. .... = Routing Bit: No
..0. .... = Key Bit: No
...1 .... = Sequence Number Bit: Yes
.... 0... = Strict Source Route Bit: No
.... .000 = Recursion control: 0
.... .... 0000 0... = Flags (Reserved): 0
.... .... .... .000 = Version: GRE (0)
```

```
Protocol Type: ERSPAN (0x88be) <--ERSPAN enable.
Sequence Number: 0
```

**Encapsulated Remote Switch Packet Analysis**

```
0001 .... = Version: Type II (1)
.... 0000 0001 1000 = Vlan: 10
000. .... = Priority: 0
...1 .... = Unknown2: 1
.... 1... = Direction: Outgoing (1)
.... .0.. = Truncated: Not truncated (0)
.... ..00 0000 0011 = SpanID: 3 <--ERSPAN ID.
```

```
Unknown7: 00000002
```

```
Ethernet II, Src: Xerox_00:02:00 (00:00:08:00:02:00), Dst: Cisco_eb:90:68 (00:9e:1e:eb:90:68)
<snip>
```

**(Internal data packet comes here, output truncated)**

## ERSPAN-doelapparaat

### Cisco IOS-softwareprogrammingering

```
C9500-ERSPAN#show monitor session 1
Session 1
-----
Type                : ERSPAN Destination Session
Status              : Admin Enabled
Destination Ports   : Twe1/0/3
Source IP Address    : 192.168.1.1
Source ERSPAN ID    : 3
```

### SHIM-programmering

Controleer welke software naar de hardware van het programma stuurt (SHIM-object).

```
C9500-ERSPAN#show platform software monitor session 1
Span Session 1 (FED Session 0):
  Type:          ERSPAN Destination
  Prev type: Unknown
  Ingress Src Ports:
  Egress Src Ports:
  Ingress Local Src Ports: (null)
  Egress Local Src Ports: (null)
  Destination Ports:  Twe1/0/3
  Ingress Src Vlans:
  Egress Src Vlans:
  Ingress Up Src Vlans: (null)
  Egress Up Src Vlans: (null)
  Src Trunk filter Vlans:
  RSPAN dst vlan: 0
  RSPAN src vlan: 0
  RSPAN src vlan sav: 0
  Dest port encap = 0x0004
  Dest port ingress encap = 0x0000
  Dest port ingress vlan = 0x0
  SrcSess: 0  DstSess: 1  DstPortCfgd: 1  RspnDstCfg: 0  RspnSrcVld: 0
  DstCliCfg: 0  DstPrtInit: 1  PsLclCfgd: 0
  Flags: 0x00000000
  Remote dest port: 0  Dest port group: 0
  FSPAN disabled
  FSPAN not notified
  ERSPAN Id      : 3
  ERSPAN Dst Ip: 192.168.1.1
  ERSPAN Vrf     : 0
```

### Forwarding Manager-Forwarding Processor

Controleer welke software naar de hardware van het programma stuurt (FMAN FP Layer).

```
C9500-ERSPAN#show platform software swspan switch active r0 destination
Showing SPAN destination table summary info Sess-id IF-type IF-id Sess-type -----
----- 0 PORT 11 Local <-- IF-if 0xb maps to Twe1/0/3 (Check under 'show
platform software fed active ifm mapping').
```

0 ERSPAN ERSPAN DST

C9500-ERSPAN#show platform software swspan R0 destination sess-id 0  
Showing SPAN destination detail info

Session ID : 0  
**Intf Type : PORT**  
**Port dpidx :11** <--Match with IF-id  
PD Sess Id : 0  
**Session Type : Local** <-- Type of monitor session  
Ingress Fwd : No  
Ingress Encap : Disabled  
Ingress Vlan : 0  
Encap Value : Replicate  
RSPAN Vlan : 0

Session ID : 0  
**Intf Type : ERSPAN**  
Vlan id :  
PD Sess Id : 0  
**Session Type : ERSPAN DST**  
**ERSPAN Id : 3**  
**ERSPAN Dst Ip: 192.168.1.1**  
ERSPAN Src Ip: 0.0.0.0  
GRE Prot : 35006  
MTU : 0  
IP Tos : 0  
IP Ttl : 255  
Cos : 0  
Vrf Id : 0  
**Tunnel Ifid: 38** <-- 38 in Decimal is 0x26 in Hex which is the IF\_ID of Tunnel1  
ERSPAN En : TDL\_TRUE

## Forwarding Manager-Forwarding Processor

Controleer welke software naar de hardware van het programma stuurt (FMAN FP Layer).

C9500-ERSPAN#show platform software swspan switch active F0 counters <-- (check for any error counters on PI/PD/HW).  
Dump Switch SPAN FP operation counters

Source SPAN Config Counters

PI: Create 0 (err 0), Modify 0 (err 0), Delete 0 (err 0) <-- **PI = platform independent (Software/IOS).**  
PD: Create 0 (err 0), Modify 0 (err 0), Delete 0 (err 0) <-- **PD = platform dependent (SHIM/FMAN/FED).**  
HW: Create 0 (err 0), Modify 0 (err 0), Delete 0 (err 0) <-- **HW = hardware (FED/ASIC).**

Destination SPAN Config Counters

PI: Create 10 (err 0), Modify 6 (err 0), Delete 4 (err 0)  
PD: Create 4 (err 0), Modify 0 (err 0), Delete 2 (err 0)  
HW: Create 4 (err 0), Modify 0 (err 0), Delete 2 (err 0)

Filter SPAN Config Counters

PI: Create 0 (err 0), Modify 0 (err 0), Delete 0 (err 0)  
PD: Create 0 (err 0), Modify 0 (err 0), Delete 0 (err 0)  
HW: Create 0 (err 0), Modify 0 (err 0), Delete 0 (err 0)

C9500-ERSPAN#**show platform software swspan switch active F0 destination**  
Showing SPAN destination table summary info

Sess-id	IF-type	IF-id	Sess-type
0	PORT	11	Local
0	VLAN	0	ERSPAN DST

## Forwarding Engine Driver

Controleer de laag die de ASIC (FED) programmeert.

C9500-ERSPAN#**show platform software fed switch active monitor 0**  
Session 0

```
-----  
Session Type           : ERSPAN Destination Session  
Source Ports : RX: None TX: Tunnel1000000000 Destination Ports      : TwentyFiveGigE1/0/3  
Source VLANs          : None  
Destination VLANs     : None  
Source RSPAN VLAN     : 0  
DST RSPAN VLAN        : 0  
Encap                  : Replicate  
Ingress Forwarding    : Disabled  
Filter VLANs          : None  
ERSPAN Enable        : 1  
ERSPAN Hw Programmed : 1  
ERSPAN Mandatory Cfg  : 1  
ERSPAN Id           : 3  
Ip Tos                 : 0 (DSCP:0)  
Ip Ttl                : 0  
Cos                   : 0  
Vrf Id                : 0  
Tunnel IfId         : 38                <-- 38 in Decicmal is 0x26 in Hex which is the IF_ID  
of Tunnel1  
Dst Ip              : 192.168.1.1  
Org Ip                : 0.0.0.0  
SGT count             : 0  
SGT Tag(s)           :
```

Controleer de hardwaretunnelprogrammering (FED).

C9500-ERSPAN#**show platform software fed switch active ifm interfaces tunnel**  
Interface IF\_ID State

```
-----  
Tunnel1000000000 0x00000026  READY
```

C9500-ERSPAN#**show platform software fed switch active ifm if-id 0x00000026**

```
Interface IF_ID : 0x0000000000000026  
Interface Name  : Tunnel1000000000  
Interface Block Pointer : 0x7f2cd48e9958  
Interface Block State : READY  
Interface State : Enabled  
Interface Status : ADD  
Interface Ref-Cnt : 5  
Interface Type   : TUNNEL  
Unit : 0 SNMP IF Index : 0 Encap L3If LE Handle : 0x7f2cd4904e08 <-- Hardware handle info
```

(used to check final Hardware program state).

Decap L3if LE Handle : 0x7f2cd48dabc8 <-- Hardware handle info (used to check final Hardware program state).

Tunnel Mode : 0 [gre] <-- Tunnel Protocol Enable.
Hw Support : Yes
Tunnel Vrf : 0
IPv4 MTU : 0
IPv6 MTU : 0
IPv4 VRF ID : 0
IPv6 VRF ID : 0
Protocol flags : 0x0001 [ ipv4 ]
Misc flags : 0x0000 [ None ]
ICMPv4 flags : 0x03 [ unreachable redirect ]
ICMPv6 flags : 0x03 [ unreachable redirect ]

Port Information

Handle ..... [0xd4000043]
Type ..... [L3-Tunnel] Identifier ..... [0x26] Unit ..... [38] Port Logical
Tunnel Subblock Encap-L3ifle.....[0x7f2cd4904e08] <-- Same number as previous highlighted output.

Decap-L3ifle.....[0x7f2cd48dabc8] <-- Same number as previous highlighted output.
decap-portle.....[0x0]
RI-decap.....[0x7f2cd49615d8] <-- Same number as previous highlighted output.
SI-decap.....[0x7f2cd4958dd8] <-- Same number as previous highlighted output.
Decap-Tcam\_handle..[0x7f2cd46eee08] <-- Same number as previous highlighted output.
Tunnel\_capability..[0x3]
Encap-RCP-PMAP.....[0x0]
GPN.....[0]
<snip>

C9500-ERSPAN#show platform software fed switch active ifm mappings l3if-le | include L3IF|Tunnel
L3IF\_LE Interface IF\_ID Type
0x00007f2cd48dabc8 Tunnel1000000000 0x00000026 DECAP\_L3\_LE
<-- L3IF + IF\_ID (DECAP) match here.
0x00007f2cd4904e08 Tunnel1000000000 0x00000026 ENCAP\_L3\_LE
<-- L3IF + IF\_ID (ENCAP) match here.

### Encapsulation LE ###

C9500-ERSPAN#show platform hardware fed switch active fwd-asic abstraction print-resource-handle
0x7f2cd4904e08 0 <--ENCAP
Handle:0x7f2cd4904e08 Res-Type:ASIC\_RSC\_L3IF\_LE Res-Switch-Num:255 Asic-Num:255 Feature-
ID:AL\_FID\_IFM Lkp-ftr-id:LKP\_FEAT\_INVALID ref\_count:1
priv\_ri/priv\_si Handle: (nil)Hardware Indices/Handles: index0:0x27 mtu\_index/l3u\_ri\_index0:0x2
sm handle [ASIC 0]: 0x7f2cd46ece38 index1:0x27 mtu\_index/l3u\_ri\_index1:0x4

### Decapsulation LE ###

C9500-ERSPAN#show platform hardware fed switch active fwd-asic abstraction print-resource-handle
0x7f2cd48dabc8 0 <--DECAP
Handle:0x7f2cd48dabc8 Res-Type:ASIC\_RSC\_L3IF\_LE Res-Switch-Num:255 Asic-Num:255 Feature-
ID:AL\_FID\_IFM Lkp-ftr-id:LKP\_FEAT\_INVALID ref\_count:1
priv\_ri/priv\_si Handle: (nil)Hardware Indices/Handles: index0:0x28 mtu\_index/l3u\_ri\_index0:0x0
sm handle [ASIC 0]: 0x7f2cd46d91c8 index1:0x28 mtu\_index/l3u\_ri\_index1:0x0

### Rewrite Index (decapsulation) ###

C9500-ERSPAN#show platform hardware fed switch active fwd-asic abstraction print-resource-handle
0x7f2cd49615d8 1 <-- RI-decap
Handle:0x7f2cd49615d8 Res-Type:ASIC\_RSC\_RI Res-Switch-Num:255 Asic-Num:255 Feature-ID:AL\_FID\_GRE

Lkp-ftr-id:LKP\_FEAT\_INVALID ref\_count:1  
priv\_ri/priv\_si Handle: 0x7f2cd48daf28Hardware Indices/Handles: index0:0x16  
mtu\_index/l3u\_ri\_index0:0x0 index1:0x16 mtu\_index/l3u\_ri\_index1:0x0  
Features sharing this resource:107 (1)]  
Cookie length: 56  
00 00 00 00 00 00 00 00 28 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 6b 33 00  
00 00

Detailed Resource Information (ASIC# 0) -----  
Rewrite Data Table Entry, ASIC#:0 RI:22 Rewrite\_type:AL\_RRM\_REWRITE\_IPV4\_ERSPAN2\_DECAP(61)  
Mapped\_rii:TUNNEL\_IPv4Erspan\_DECAP(83) **L3IF LE Index: 40** <-- 64 in Decimal is 0x40  
**in Hex which matches Decap LE index seen above**

Detailed Resource Information (ASIC# 1)  
-----

Rewrite Data Table Entry,  
ASIC#:1 RI:22 Rewrite\_type:AL\_RRM\_REWRITE\_IPV4\_ERSPAN2\_DECAP(61)  
Mapped\_rii:TUNNEL\_IPv4Erspan\_DECAP(83)

L3IF LE Index: 40 =====

**### Station Index (decapsulation) ###**

C9500-ERSPAN#show platform hardware fed switch active fwd-asic abstraction print-resource-handle  
**0x7f2cd4958dd8 1 <-- SI-decap**

Handle:0x7f2cd4958dd8 Res-Type:ASIC\_RSC\_SI Res-Switch-Num:255 Asic-Num:255 Feature-ID:AL\_FID\_GRE  
Lkp-ftr-id:LKP\_FEAT\_INVALID ref\_count:1  
priv\_ri/priv\_si Handle: 0x7f2cd49615d8Hardware Indices/Handles: index0:0xae  
mtu\_index/l3u\_ri\_index0:0x0 index1:0xae mtu\_index/l3u\_ri\_index1:0x0  
Features sharing this resource:107 (1)]  
Cookie length: 56  
00 00 00 00 00 00 00 00 28 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 6b 36 00  
00 00

Detailed Resource Information (ASIC# 0) ----- Station Index (SI) [0xae]  
RI = 0x16 DI = 0x5012 stationTableGenericLabel = 0 stationFdConstructionLabel = 0x7  
lookupSkipIdIndex = 0x15 rcpServiceId = 0 dejaVuPreCheckEn = 0 Replication Bitmap: LD Detailed  
Resource Information (ASIC# 1) ----- Station Index (SI) [0xae]  
RI = 0x16 DI = 0x5012 stationTableGenericLabel = 0 stationFdConstructionLabel = 0x7  
lookupSkipIdIndex = 0x15 rcpServiceId = 0 dejaVuPreCheckEn = 0 Replication Bitmap: CD  
=====

**### Tunnel Decap (TCAM) ###**

C9500-ERSPAN#show platform hardware fed switch active fwd-asic abstraction print-resource-handle  
**0x7f2cd46eee08 1 <-- Decap-Tcam\_handle.**

Handle:0x7f2cd46eee08 Res-Type:ASIC\_RSC\_HASH\_TCAM Res-Switch-Num:0 Asic-Num:255 Feature-ID:AL\_FID\_GRE  
Lkp-ftr-id:LKP\_FEAT\_TT\_IPV4\_GRE ref\_count:1  
priv\_ri/priv\_si Handle: (nil)Hardware Indices/Handles: handle [ASIC: 0]: 0x7f2cd48db018  
Detailed Resource Information (ASIC# 0) ----- Number of HTM  
Entries: 3 **Entry 0: (handle 0x7f2cd48db018)**  
Labels Port Vlan L3If Group  
M: 0000 0000 0000 0000  
V: 0000 0000 0000 0000

M: ffffffff 00000000 00000000 000003ff 00000000 00000100 01000000 00000fff  
3f000000 V: **c0a80101** 00000000 00000000 00000003 00000000 00000100 01000000 00000000 <--  
**c0a80101 in Hex maps to 192.168.1.1**  
00000000

GREv4 Dst Src Key C S R D E F VRF Fl L3P GreP Misc RCPSVCId  
M: ffffffff 00000000 00000000 0 0 0 0 0 1 000 0 00 0000 00 3f <-- F=1

**Forwarding**

V: **c0a80101** 00000000 00000000 0 0 0 0 0 1 000 0 00 0000 00 00  
Action: 00000100 06000000 00000000 00000000 00000000 00000000 00000000 00000000 **ad** 00000000  
00000000 00000000

RL2 RL3 ACF SPK CLPC LKV PRI STL LPC ADC LKI **SI**

0 1 0 0 0 0 6 0 0 0 0 **ad** <-- Hexadecimal  
**value for Station Index.**

Start/Skip Word: 0x00000003  
Start Feature, Terminate

**Entry 1: (handle 0x7f2cd495c3f8)**

Labels Port Vlan L3If Group  
M: 0000 0000 0000 0000 0000  
V: 0000 0000 0000 0000 0000

M: ffffffff 00000000 00000000 000003ff 00000000 00000100 00000000 000a0000  
3f000000

V: **c0a80101** 00000000 00000000 00000003 00000000 00000100 00000000 00080000  
00000000

GREv4 Dst Src Key C S R D E F VRF Fl L3P GreP Misc RCPSVCId

M: ffffffff 00000000 00000000 0 0 0 0 0 0 000 a 00 0000 00 3f

V: **c0a80101** 00000000 00000000 0 0 0 0 0 0 000 8 00 0000 00 00

Action: 00000100 06000000 00000000 00000000 00000000 00000000 00000000 00000000 **ad** 00000000  
00000000 00000000

RL2 RL3 ACF SPK CLPC LKV PRI STL LPC ADC LKI **SI**

0 1 0 0 0 0 6 0 0 0 0 **ad**

Start/Skip Word: 0x00000000  
No Start, Terminate

**Entry 2: (handle 0x7f2cd46ef568)**

Labels Port Vlan L3If Group  
M: 0000 0000 0000 0000 0000  
V: 0000 0000 0000 0000 0000

M: ffffffff 00000000 00000000 000003ff 00000000 00000100 00000000 00020fff  
00000000

V: **c0a80101** 00000000 00000000 00000003 00000000 00000100 00000000 00000000  
00000000

GREv4 Dst Src Key C S R D E F VRF Fl L3P GreP Misc RCPSVCId

M: ffffffff 00000000 00000000 0 0 0 0 0 0 000 2 00 0000 00 00

V: **c0a80101** 00000000 00000000 0 0 0 0 0 0 000 0 00 0000 00 00

Action: 00000100 06000000 00000000 00000000 00000000 00000000 00000000 00000000 **ae** 00000000  
00000000 00000000

RL2 RL3 ACF SPK CLPC LKV PRI STL LPC ADC LKI **SI**

0 1 0 0 0 0 6 0 0 0 0 **ae** <-- Hexadecimal  
**value for Station Index.**

Start/Skip Word: 0x00000000  
No Start, Terminate

=====

C9500-ERSPAN#**show platform hardware fed switch active fwd-asic resource asic 0 station-index range 0xab 0xab**

ASIC#0:

Station Index (SI) [0xad]

RI = 0x14

DI = **0x505a** <-- Destination Index



```
stationTableGenericLabel = 0
stationFdConstructionLabel = 0x7
lookupSkipIdIndex = 0x15
rcpServiceId = 0xd
dejaVuPreCheckEn = 0
Replication Bitmap: LD
```

```
C9500-ERSPAN#show platform hardware fed switch active fwd-asic resource asic 0 station-index
range 0xae 0xae
```

```
Station Index (SI) [0xae]
RI = 0x16
DI = 0x5012 <-- Destination Index
stationTableGenericLabel = 0
stationFdConstructionLabel = 0x7
lookupSkipIdIndex = 0x15
rcpServiceId = 0
dejaVuPreCheckEn = 0
Replication Bitmap: LD
```

```
C9500-ERSPAN#show platform hardware fed switch active fwd-asic resource asic 0 destination-index
range 0x505a 0x505a
```

```
Destination index = 0x505a DI_RCP_PORT2
pmap = 0x00000000 0x00000000
cmi = 0x0
```

```
rcp_pmap = 0x2
al_rsc_cmi
CPU Map Index (CMI) [0]
ctiLo0 = 0
ctiLo1 = 0
ctiLo2 = 0
cpuQNum0 = 0
cpuQNum1 = 0
cpuQNum2 = 0
npuIndex = 0
stripSeg = 0
copySeg = 0
```

```
C9500-ERSPAN#show platform hardware fed switch active fwd-asic resource asic 0 destination-index
range 0x5012 0x5012
```

```
ASIC#0:
Destination Index (DI) [0x5012]
portMap = 0x00000000 00000000
cmi1 = 0
rcpPortMap = 0x1
```

```
CPU Map Index (CMI) [0]
ctiLo0 = 0
ctiLo1 = 0
ctiLo2 = 0
cpuQNum0 = 0
cpuQNum1 = 0
cpuQNum2 = 0
npuIndex = 0
stripSeg = 0
copySeg = 0
```

## Relevante debugs en traceringen

### Cisco IOS XE

```
debug monitor all
```

```
debug platform monitor
```

## FMAN-RP

```
set platform software trace forwarding-manager switch <> R0 switch-span verbose  
show platform software trace message forwarding-manager switch <> R0
```

## FMAN-FP

```
set platform software trace forwarding-manager switch <> F0 switch-span verbose  
show platform software trace message forwarding-manager switch <> F0
```

## FED

```
set platform software trace fed switch <> swspan verbose  
set platform software trace fed switch <> asic_spn verbose  
set platform software trace fed switch <> acl verbose (Useful when ip/ipv6 filter is  
configured)  
show platform software trace message fed switch <>
```

## Gerelateerde informatie

- [Technische ondersteuning en documentatie – Cisco Systems](#)
- [Configuratiehandleiding voor netwerkbeheer, Cisco IOS XE Amsterdam 17.3.x \(Catalyst 9500 Switches\) ERSPAN](#)
- [Configuratiehandleiding voor netwerkbeheer, Cisco IOS XE Amsterdam 17.3.x \(Catalyst 9500 Switches\) SPAN](#)
- [Blog: Hoe Cisco TAC documentatie transformeert en zelfservice vereenvoudigt](#)

## Over deze vertaling

Cisco heeft dit document vertaald via een combinatie van machine- en menselijke technologie om onze gebruikers wereldwijd ondersteuningscontent te bieden in hun eigen taal. Houd er rekening mee dat zelfs de beste machinevertaling niet net zo nauwkeurig is als die van een professionele vertaler. Cisco Systems, Inc. is niet aansprakelijk voor de nauwkeurigheid van deze vertalingen en raadt aan altijd het oorspronkelijke Engelstalige document ([link](#)) te raadplegen.