

9000 ةزافح ةدام ىلع EtherChannels تي رحت حات فم

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ةمدقم

9000 sery ةزافح ةدام ىلع EtherChannels ءاطخا فاش كتس او مه في نا فيك ةقيث و اذه فص ي
حات فم.

ةيساس الابل طتم

تابل طتم

ةي لال ا عيضاوم لابل ةفر عم كي دل نوكت نا ب Cisco ي صوت:

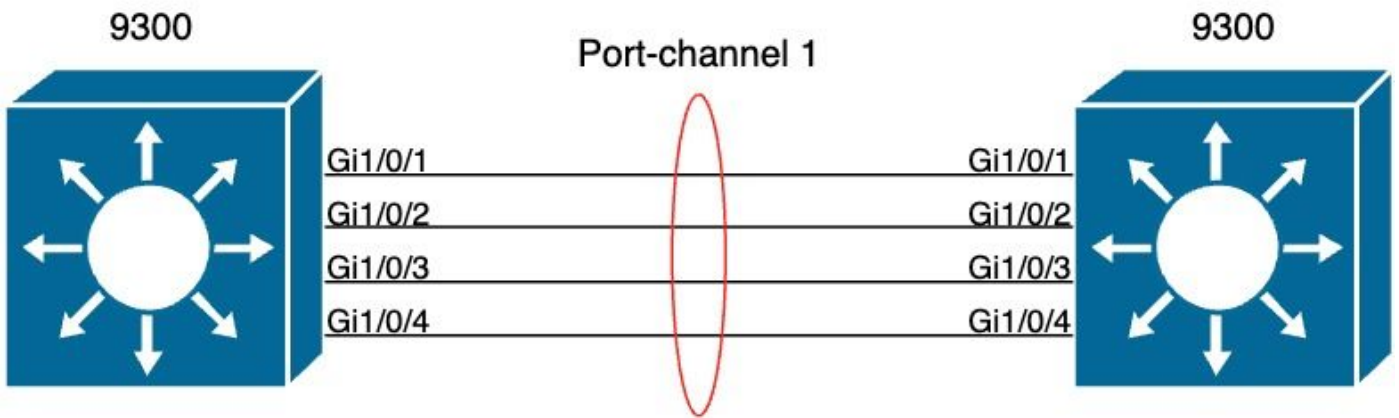
- Catalyst 9000 Series Switches تالو حمل ةي ن ب

	طشن لعضول = 1
ةلهم ىلإ ريشي: LACP ةلهم ةم لتسم ل/ة لسرمل LACP	0 = ةل يوط ةلهم 30 × 3 1 = ةل يوط ةلهم 1 × 3 (ل دعم ل LACP)
عيمحت ل	0 = يدرف طاب ترا 1 = عيمحت ل لم تحم ح شرم (عيمحت ل ل باق)
نمازت ل	0 = (ةديج ريغ ةلاج) طاب ترا لة نمازت ل ج راخ 1 = (ةديج ةلاج) نمازت م طاب ترا ل
عيمحت	0 = تاراط ل ةجل اع م/يق ل لتل زهاج ريغ 1 = تاراط ل ةجل اع م/يق ل لتل زهاج
عيزوت	0 = تاراط ل ل اسر ل/اسر ل زهاج ريغ 1 = تاراط ل ل اسر ل/اسر ل زهاج
ةيضارتفا	0 = عيزوت تادحو ي ةدو و م ل تامول عمل م دختسي هنأ ك ي رشل ل ةم لتسم ل ة قاط ل 1 = ك ي رشل ل ةيضارتفا ل تامول عمل م دختسي هنأ
مهأ تب) ةي ح الص ل ةيه تنم	0 = (PDU) ة قاط ل عيزوت تادحو و ةي ح الص اءاتنا 1 = ح ل اص PDU

P ةلاج ىل ل وصولل (ي ئانث) 011101 وأ 0x3D (hex) يه LACP تامال عمل ة ع قوت م ل ة مي قل ل (ءان ي م ل ةانق ي ف نم ضم).

- 1 = LACP Activity (less significant bit)
- 0 = LACP Timeout
- 1 = Aggregation
- 1 = Synchronization
- ...1 = Collecting
- ..1. = Distributing
- .0.. = Defaulted
- 0... = Expired (most significant bit)

ةكبش ل ل يطي طخت ل م س ر ل ا



LACP ةي لم ع ن م ق ق ح ت ل ا

LACP ل و ك و ت و ر ب ل ة ح ي ح ص ل ا ة ي ل م ع ل ا و ة ل ا ح ل ن م ق ق ح ت ل ا ة ي ف ي ك م س ق ل ا ا ذ ه ح ض و ي

ة ي س ا س ا ت ا ص و ح ف

ة ي ل ا ت ل ر م ا و ا ل ا م ا د خ ت س ا ب LACP ت ا ج ر خ م ت ص ح ف

```
<#root>
```

```
show lacp sys-id
```

```
show lacp <channel-group number> neighbor
```

```
show lacp <channel-group number> counters
```

```
show interfaces <interface ID> accounting
```

```
debug lacp [event|packet|fsm|misc]
```

```
debug condition <condition>
```

(LACP) ه ت ي و ل و ا و ل و ح م ل ا م ا ط ن ف ر ع م ل و ا ل ر م ا ل ا ج ا ر خ ا ض ر ع ي

```
<#root>
```

```
switch#
```

```
show lacp sys-id
```

32768,

f04a.0206.1900 <-- Your system MAC address

هتي ول و او رواج ملاما ظن لار ي و ط ت فر ع م و ل ي غ ش ت ل ا ع ض و ل ث م ، LACP راج ل ي ص ا ف ت ن م ق ق ح ت

<#root>

switch#

show lacp 1 neighbor

Flags: S - Device is requesting Slow LACPDUs
F - Device is requesting Fast LACPDUs
A - Device is in Active mode P - Device is in Passive mode

Channel group 1 neighbors

Port	Flags	LACP port Priority	Admin	Oper	Port	Port
------	-------	-----------------------	-------	------	------	------

Dev ID

Age	key	Key	Number	State
Gi1/0/1	SA	32768		

f04a.0205.d600

12s 0x0 0x1 0x102 0x3D

<-- Dev ID: Neighbor MAC Address

Gi1/0/2	SA	32768		
---------	----	-------	--	--

f04a.0205.d600

24s 0x0 0x1 0x103 0x3D

<-- Dev ID: Neighbor MAC Address

Gi1/0/3	SA	32768		
---------	----	-------	--	--

f04a.0205.d600

16s 0x0 0x1 0x104 0x3D

<-- Dev ID: Neighbor MAC Address

Gi1/0/4	SA	32768		
---------	----	-------	--	--

f04a.0205.d600

24s 0x0 0x1 0x105 0x3D

<-- Dev ID: Neighbor MAC Address

مزح فاش ت ك ا م ت ا ذ ا . ه ه ج ا و ل ك ة ط س ا و ب ا ه ل ا ب ق ت س ا و ا ه ل ا س ر ا م ت ي ي ت ل ا LACP مز ح ن م ق ق ح ت ل ا

LACP أطخ دادع دادزي، ةفلالات ل LACP.

<#root>

switch#

show lacp 1 counters

Port	LACPDUs		Marker		Marker Response		LACPDUs	
	Sent	Recv	Sent	Recv	Sent	Recv	Pkts	Err

Channel group: 1

Gi1/0/1

3111 3085

0 0 0 0

0

Gi1/0/2

3075 3057

0 0 0 0

0

Gi1/0/3

3081 3060

0 0 0 0

0

Gi1/0/4

3076 3046

0 0 0 0

0

LACP ل بسحي نراقلا ققحتي نأ راخي اضيأ كانه

<#root>

switch#

show interface gigabitEthernet1/0/1 accounting

GigabitEthernet1/0/1

Protocol	Pkts In	Chars In	Pkts Out	Chars Out
----------	---------	----------	----------	-----------

Other	0	0	10677	640620
PAgP	879	78231	891	79299
Spanning Tree	240	12720	85	5100
CDP	2179	936495	2180	937020
DTP	3545	170160	3545	212700
LACP	3102	384648	3127	387748

ءاطخأل احيصت

لئاسرءاشنإ م تي ، LACP ل دي عب ل ا ريظنل ل ا ليغشت مدع دن ع وأ LACP ةنمازم دوجو مدع دن ع syslog.

```
%ETC-5-L3DONTBNDL2: Gig1/0/1 suspended: LACP currently not enabled on the remote port.
%ETC-5-L3DONTBNDL2: Gig/1/0/1 suspended: LACP currently not enabled on the remote port.
```

رمأ اذه نملامعتسإل ا عم احيصت LACP تنكم

```
<#root>
```

```
debug lacp [event|packet|fsm|misc]
```

```
debug condition <condition>
```

ببس ل ا ليحت ل LACP ءاطخأل احيصت نيكم تب مق ف ، LACP ضوافت لكاشم تظحال اذإ.

```
<#root>
```

```
switch#
```

```
debug lacp event
```

```
Link Aggregation Control Protocol events debugging is on
switch#
```

```
debug lacp packet
```

```
Link Aggregation Control Protocol packet debugging is on
switch#
```

```
debug lacp fsm
```

```
Link Aggregation Control Protocol fsm debugging is on
```

```
switch#
```

```
debug lacp misc
```

```
Link Aggregation Control Protocol miscellaneous debugging is on
```

جارخإلا ةيفصت ب مقو ةني عم ةهجاول ءاطخألا حيحصت ةلاح نيكم تب اضيأ مقف ،رمألا مزلا إذا .

```
<#root>
```

```
switch#
```

```
debug condition interface gigabitEthernet 1/0/1
```



ةددعت م ةساسأ ةمظناأ يه LACP ءاطخألا حيحصت :ةظحالم

ةيفصتلا لم او عو حيحصتلا ةحص نم ققحتلا دادعإ مت

```
<#root>
```

```
switch#
```

```
show debugging
```

```
Packet Infra debugs:
```

```
Ip Address
```

```
Port
```

```
-----|-----
```

```
LACP:
```

```
Link Aggregation Control Protocol
```

```
miscellaneous
```

```
debugging is
```

```
on
```

```
Link Aggregation Control Protocol
```

```
packet
```

```
debugging is
```

```
on
```

```
Link Aggregation Control Protocol
```

```
fsm
```

```
debugging is
```

```
on
```


Link Aggregation Control Protocol

events

debugging is

on

Condition 1: interface Gi1/0/1 (1 flags triggered)

Flags: Gi1/0/1

رغاً ءاطخألأ حئحصت جارخإ رهظي. اهضرعل show logging رمألأ مدختساو، LACP ءاطخأ حئحصت للح
ذفنملا ءانق ءهجاو رهظت نأ لقب LACP تاراطإ:

<#root>

switch#

show logging

<omitted output>

LACP :lacp_bugpak: Send LACP-PDU packet via Gi1/0/1

LACP : packet size: 124

LACP: pdu: subtype: 1, version: 1

LACP: Act: tlv:1, tlv-len:20, key:0x1, p-pri:0x8000, p:0x102, p-state:0x3D, s-pri:0x8000, s-mac:f04a.020

LACP: Part: tlv:2, tlv-len:20, key:0x1, p-pri:0x8000, p:0x102, p-state:0xF, s-pri:0x8000, s-mac:f04a.020

LACP: col-tlv:3, col-tlv-len:16, col-max-d:0x8000

LACP: term-tlv:0 termr-tlv-len:0

LACP: HA: Attempt to sync events -- no action (event type 0x1)

LACP :lacp_bugpak: Receive LACP-PDU packet via Gi1/0/1

LACP : packet size: 124

LACP: pdu: subtype: 1, version: 1

LACP: Act: tlv:1, tlv-len:20, key:0x1, p-pri:0x8000, p:0x102, p-state:0x3D, s-pri:0x8000, s-mac:f04a.020

LACP: Part: tlv:2, tlv-len:20, key:0x1, p-pri:0x8000, p:0x102, p-state:0x3D, s-pri:0x8000, s-mac:f04a.020

LACP: col-tlv:3, col-tlv-len:16, col-max-d:0x8000

LACP: term-tlv:0 termr-tlv-len:0

LACP: Gi1/0/1 LACP packet received, processing <-- beginning to process LACP PDU

lacp_rx Gi1/0/1 - rx: during state CURRENT, got event 5(recv_lacpdu)

@@@ lacp_rx Gi1/0/1 - rx: CURRENT -> CURRENT

LACP: Gi1/0/1 lacp_action_rx_current entered

LACP: recordPDU Gi1/0/1 LACP PDU Rcvd. Partners oper state is hex F <-- operational state

LACP: Gi1/0/1 partner timeout mode changed to 0

lacp_ptx Gi1/0/1 - ptx: during state FAST_PERIODIC, got event 2(long_timeout)

@@@ lacp_ptx Gi1/0/1 - ptx: FAST_PERIODIC -> SLOW_PERIODIC

LACP: Gi1/0/1 lacp_action_ptx_fast_periodic_exit entered

LACP: lacp_p(Gi1/0/1) timer stopped

LACP: Gi1/0/1 lacp_action_ptx_slow_periodic entered

LACP: timer lacp_p_s(Gi1/0/1) started with interval 30000.

```

LACP: recordPDU Gi1/0/1 Partner in sync and aggregating <-- peer is in sync
LACP: Gi1/0/1 Partners oper state is hex 3D <-- operational state update

LACP: timer lacp_c_l(Gi1/0/1) started with interval 90000.
LACP: Gi1/0/1 LAG_PARTNER_UP.
LACP: Gi1/0/1 LAG unchanged
lacp_mux Gi1/0/1 - mux: during state COLLECTING_DISTRIBUTING, got event 5(in_sync) (ignored)
lacp_handle_standby_port_internal called, depth = 1
LACP: lacp_handle_standby_port_internal: No Standby port found for LAG 1
lacp_handle_standby_port_internal called, depth = 1
LACP: lacp_handle_standby_port_internal: No Standby port found for LAG 1
lacp_handle_standby_port_internal called, depth = 1
LACP: lacp_handle_standby_port_internal: No Standby port found for LAG 1
LACP: lacp_t(Gi1/0/1) timer stopped
LACP: lacp_t(Gi1/0/1) expired

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet1/0/4, changed state to up

%LINK-3-UPDOWN: Interface Port-channel1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel1, changed state to up

```

يتل ميهافملا ضعب كانهف ، LACP ءاطخأ ححصت نم نيرطس مهأ ىلع زيكرتلاب تمق اذا
LACP ل (PDU) ةقاطلا عيزوت تادحو ميهافم ضعب فيرعت قحتست

<#root>

LACP:

Act

: tlv:1, tlv-len:20,

key:0x1

, p-pri:0x8000, p:0x102,

p-state:0x3D

, s-pri:0x8000,

s-mac:f04a.0205.d600

LACP:

Part

: tlv:2, tlv-len:20,

key:0x1

, p-pri:0x8000, p:0x102,

p-state:0x3D

, s-pri:0x8000,

s-mac:f04a.0206.1900

موفم	فصولا
لعف	(تنأ) لثمملا لثمې
عزج	(كريظن/كراج) كيرشلا لثمې
ل.كشي ةانق ءانېملا نم مقرلا وه	حاتفملا
ةلود-ف	8 مادختساب اهمېمصت مت دقو. ةيمهأ رثكألا موفملا وه ءانېملا ةلود ىلا زمزت نم ديزم ىلع لوصحلل ةيفللخال تامولعم مسق عجار. (LACP تامالع) تب تادحو تامولعمل.
ك-ام-سا	LACP لبق نم مدختسملا ماظنلل MAC ناونع هنا

✎ ةءارقل. ةيرشع ةيسادس ميق يه ءاطخالا حيحصت ي ف اهتيرم تي يتلا ميقل: ةظحالم ةيئانث و ةيرشع ةمظنا ىلا اهتمرت بجي، حيحص لكشب ميقل

PAgP ةيلمع نم ققحتلا

هلېغشتو PAgP لوكوتوربل ءحيحصلا ءلاجال نم ققحتلا ةيفيك مسقلا اذھ حضوي

ةيساسأ تاصوحف

ةيلالاتل رماوالا مادختساب PAgP تاجرخم نم ققحت

<#root>

show pagp <channel-group number> neighbor

show pagp <channel-group number> counters

show interfaces <interface ID> accounting

فيمملا مساو كيرشلا ماظن فرعمو لېغشتلا عضو لثم، PAgP راج لېصافات نم ققحت ةيولوالاو.

<#root>

switch#

show pagp 1 neighbor

Flags: S - Device is sending Slow hello. C - Device is in Consistent state.
A - Device is in Auto mode. P - Device learns on physical port.

Channel group 1 neighbors
Partner

Partner

Port	Partner Name	Partner Group
------	--------------	---------------

Device ID

Port	Age	Flags	Cap.
------	-----	-------	------

f04a.0205.d600

Gi1/0/1	16s	SC	10001
---------	-----	----	-------

<-- Dev ID: Neighbor MAC Address

Gi1/0/2	switch
---------	--------

f04a.0205.d600

Gi1/0/2	19s	SC	10001
---------	-----	----	-------

<-- Dev ID: Neighbor MAC Address

Gi1/0/3	switch
---------	--------

f04a.0205.d600

Gi1/0/3	17s	SC	10001
---------	-----	----	-------

<-- Dev ID: Neighbor MAC Address

Gi1/0/4	switch
---------	--------

f04a.0205.d600

Gi1/0/4	15s	SC	10001
---------	-----	----	-------

<-- Dev ID: Neighbor MAC Address

تفشك نإ. ةهجاو لك ةطساوب ةملتسملاو ةلسرمل PAgP مزح تاخرم لي صافات نم ققحتلا دادع ديزي أطخ Pkts لا، نوكي طبر PAgP دساف

<#root>

switch#

show pagp 1 counters

Port	Information		Flush		PAgP
	Sent	Recv	Sent	Recv	Err Pkts

Channel group: 1

Gi1/0/1

29 17
 0 0
0

Gi1/0/2

28 17
 0 0
0

Gi1/0/3

28 16
 0 0
0

Gi1/0/4

29 16
 0 0
0

PAGP ل بسحي نراقلا صحفي نأ راخي اضيأ كانه

<#root>

switch#

show int gi1/0/1 accounting

GigabitEthernet1/0/1

Protocol	Pkts In	Chars In	Pkts Out	Chars Out
Other	0	0	10677	640620
PAGP	879	78231	891	79299
Spanning Tree	240	12720	85	5100
CDP	2179	936495	2180	937020
DTP	3545	170160	3545	212700
LACP	3102	384648	3127	387748

ءاطخأل احي حصت

PAGP:
Port Aggregation Protocol

miscellaneous

debugging is

on

Port Aggregation Protocol

packet

debugging is

on

Port Aggregation Protocol

fsm

debugging is

on

Port Aggregation Protocol

events

debugging is

on

Condition 1: interface Gi1/0/1 (1 flags triggered)

Flags: Gi1/0/1

ههجاورهظت نأ لبق PAgP تاراطإ رخآءاطخألأحيحصت جارخإ ضرعي. PAgP ءاطخأحيحصت ليلحت
ذفنملا ةانق:

<#root>

PAGP: Receive information packet via Gi1/0/1, packet size: 89

flags: 5, my device ID: f04a.0205.d600, learn-cap: 2, port-priority: 128, sent-port-ifindex: 9, group-cap: 1000
your device ID: f04a.0206.1900, learn-cap: 2, port-priority: 128, sent-port-ifindex: 9, group-cap: 1000

partner count: 1, num-tlvs: 2

device name TLV: switch

port name TLV: Gi1/0/1

PAGP: Gi1/0/1 PAGP packet received, processing <-- Processing ingress PAGP frame

PAGP: Gi1/0/1 proved to be bidirectional <--

PAGP: Gi1/0/1 action_b0 is entered

PAGP: Gi1/0/1 Input = Transmission State, V12 Old State = U5 New State = U5

PAGP: Gi1/0/1 action_a6 is entered

PAGP: Gi1/0/1 action_b9 is entered

PAGP: set hello interval from 1000 to 30000 for port Gi1/0/1 <--

PAGP: Gi1/0/1 Input = Transmission State, V10 Old State = U5 New State = U6

```
PAgP: set partner 0 interval from 3500 to 105000 for port Gi1/0/1
PAgP: Gi1/0/1 Setting hello flag
PAgP: timer pagp_p(Gi1/0/1) started with interval 105000.
PAgP: pagp_i(Gi1/0/1) timer stopped
PAgP: Gi1/0/1 Input = Port State, E5 Old State = S7 New State = S7
PAgP: pagp_h(Gi1/0/1) expired
```

```
PAgP: Send information packet via Gi1/0/1, packet size: 89
flags: 5, my device ID: f04a.0206.1900, learn-cap: 2, port-priority: 128, sent-port-ifindex: 9, group-cap: 1000
your device ID: f04a.0205.d600, learn-cap: 2, port-priority: 128, sent-port-ifindex: 9, group-cap: 1000
```

```
partner count: 1, num-tlvs: 2
device name TLV: switch
port name TLV: Gi1/0/1
PAgP: 89 bytes out Gi1/0/1
```

```
PAgP: Gi1/0/1 Transmitting information packet
```

```
PAgP: timer pagp_h(Gi1/0/1) started with interval 30000 <--
%LINK-3-UPDOWN: Interface Port-channel1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel1, changed state to up
```

EtherChannel ةجمرب نم ققحتلا

EtherChannel ل دادعإ ةي لمع زاهج و ةي جمرب ل ققدي نأ فيك مسق اذه فص ي

جم انرب ل نم ققحتلا

جم انرب ل تال اخدا ةحص نم ققحت

```
<#root>
```

```
show run interface <interface ID>
```

```
show etherchannel <channel-group number> summary
```

ليكشت EtherChannel ل تصحف

```
<#root>
```

```
switch#
```

```
show run interface gigabitEthernet 1/0/1
```

```
<output omitted>
interface GigabitEthernet1/0/1
  channel-group 1 mode active
end
```



```

switch#
show run interface gigabitEthernet 1/0/2
<output omitted> interface GigabitEthernet1/0/2 channel-group 1 mode active end switch#
show run interface gigabitEthernet 1/0/3
<output omitted> interface GigabitEthernet1/0/3 channel-group 1 mode active end switch#
show run interface gigabitEthernet 1/0/4
<output omitted> interface GigabitEthernet1/0/4 channel-group 1 mode active end switch#
show run interface port-channel 1
<output omitted> interface Port-channel1 end

```

ذفنم لة انق ي ف مه عي مجت متي ذفنم لة اضع أ عي مج نأ نم ققحت

```
<#root>
```

```

switch#
show etherchannel 1 summary

```

```

<output omitted>
Group Port-channel Protocol Ports
-----+-----+-----+-----
1 Po1(SU) LACP Gi1/0/1(P) Gi1/0/2(P)
Gi1/0/3(P) Gi1/0/4(P)

```

ةزه أ ل نم ققحت ل

ةزه أ ل يوتسم يل ع جم ارب لة لة اذ ل نم ققحت ل:

```
<#root>
```

```
show platform software interface switch <switch number or role> r0 br
```

```
show platform software fed switch <switch number or role> etherchannel <channel-group number> group-mask
```

```
show platform software fed switch <switch number or role> ifm mappings etherchannel
```

```
show platform software fed switch <switch number or role> ifm if-id <if ID>
```

ة نم ضم لة لة اذ ل و ذفنم لة انق فرع نم ققحت

<#root>

switch#

show platform software interface switch active r0 br

Forwarding Manager Interfaces Information

Name

ID

QFP ID

<output omitted>

GigabitEthernet1/0/1

9

0

GigabitEthernet1/0/2

10

0

GigabitEthernet1/0/3

11

0

GigabitEthernet1/0/4

12

0

<output omitted> Port-channel1

76

0

مقر (مقر) فرع لة فاك (رشع يسادس ل مقر) م ق ل نأ ن م دك أ و IF فرع م مسق ل ع زك ر ق ب اس ل ر م أ ل ف ظ ح ال م ل (رشع ل

<#root>

switch#

show platform software fed switch active etherchannel 1 group-mask

Group Mask Info

Aggport IIF Id: 000000000000004c <-- IfId Hex 0x4c = 76 decimal

Active Port: : 4

Member Ports

If Name

If Id

Local Group Mask

```
GigabitEthernet1/0/4
000000000000000c
  true  7777777777777777
<-- IfId Hex 0xc = 12 decimal
```

```
GigabitEthernet1/0/3
000000000000000b
  true  bbbbbbbbbbbbbbbb
<-- IfId Hex 0xb = 11 decimal
```

```
GigabitEthernet1/0/2
000000000000000a
  true  dddddddddddddddd
<-- IfId Hex 0xa = 10 decimal
```

```
GigabitEthernet1/0/1
0000000000000009
  true  eeeeeeeeeeeeeeee
<-- IfId Hex 0x9 = 10 decimal
```

عمي قلا قباطت نأ بجي . لالات رمال مادختساب ذفنم لة انقب صاخ لال IF فرعم لعل لصحأ
مدقأ ل رمال نم ةمي قلا عم

<#root>

Switch#

```
show platform software fed switch active ifm mappings etherchannel
```

Mappings Table

Chan Interface IF_ID

1 Port-channel1

0x0000004c

يتل جتاون لل ة قباطم ة ني بم ل تامول عم ل نوك نأ بجي و . لالات رمال ل IF فرعم مدختسأ
قباس تقو يف اه عم م

<#root>

switch#

show platform software fed switch active ifm if-id 0x0000004c

Interface IF_ID : 0x000000000000004c
Interface Name : Port-channel1

Interface Block Pointer : 0x7f0178ca1a28
Interface Block State : READY
Interface State : Enabled
Interface Status : ADD, UPD
Interface Ref-Cnt : 8

Interface Type : ETHERCHANNEL
Port Type : SWITCH PORT
Channel Number : 1

SNMP IF Index : 78
Port Handle : 0xdd000068
Of Active Ports : 4
Base GPN : 1536

Index[2] : 000000000000000c
Index[3] : 000000000000000b
Index[4] : 000000000000000a
Index[5] : 0000000000000009

Port Information

Handle [0xdd000068]

Type [L2-Ethchannel]

Identifier [0x4c]

Unit [1]

DI [0x7f0178c058a8]

Port Logical Subblock

L3IF_LE handle [0x0]
Num physical port . [4]
GPN Base [1536]
Physical Port[2] .. [0x7b000027]
Physical Port[3] .. [0x1f000026]
Physical Port[4] .. [0xc000025]
Physical Port[5] .. [0xb7000024]
Num physical port on asic [0] is [0]
DiBcam handle on asic [0].... [0x0]
Num physical port on asic [1] is [4]
DiBcam handle on asic [1].... [0x7f0178c850a8]
SubIf count [0]

Port L2 Subblock

Enabled [No]
Allow dot1q [No]
Allow native [No]
Default VLAN [0]
Allow priority tag ... [No]
Allow unknown unicast [No]
Allow unknown multicast[No]
Allow unknown broadcast[No]
Allow unknown multicast[Enabled]
Allow unknown unicast [Enabled]
Protected [No]
IPv4 ARP snoop [No]
IPv6 ARP snoop [No]
Jumbo MTU [0]

```

Learning Mode ..... [0]
Vepa ..... [Disabled]
App Hosting..... [Disabled]
Port QoS Subblock
Trust Type ..... [0x7]
Default Value ..... [0]
Ingress Table Map ..... [0x0]
Egress Table Map ..... [0x0]
Queue Map ..... [0x0]
Port Netflow Subblock
Port Policy Subblock
List of Ingress Policies attached to an interface
List of Egress Policies attached to an interface
Port CTS Subblock
Disable SGACL ..... [0x0]
Trust ..... [0x0]
Propagate ..... [0x0]
Port SGT ..... [0xffff]
Ref Count : 8 (feature Ref Counts + 1)
IFM Feature Ref Counts
FID : 97 (AAL_FEATURE_L2_MULTICAST_IGMP), Ref Count : 1
FID : 119 ((null)), Ref Count : 1
FID : 84 (AAL_FEATURE_L2_MATM), Ref Count : 1
No Sub Blocks Present

```

تاصنم ل تاودأ

اهم ادختسا متي يتم مه ف يدعاسم لل عحاتم ل تازيم ل او تاودال لودجلا اذه حضوي:

ةادأ	يوتسم	هم ادختست يتم
EPC	ةزهجال جماربلال	يلع اه ليزنت مت يتي ل LACP تاراطا ةحص نم ققحتلل هم ادختسا . ةيزكرم ل ةجالعمل ةدحو يلى لصت اهنأ نم ققحتلل وأ ةيدامل ةهجالا
تاصنم ل مامال يلى	ةزهجال	مدختساف ، لوجم ل يلى عاهضو مت يتي ل LACP تاراطا دي كأتب تمق اذا لوجم لل يلخادلا هي جوتل ةداع رارق ةفرعمل ةادال هذه
PSV	ةزهجال	مدختساف ، لوجم ل يلى عاهضو مت يتي ل LACP تاراطا دي كأتب تمق اذا لوجم لل يلخادلا هي جوتل ةداع رارق ةفرعمل ةادال هذه
CoPP	ةزهجال	نم ةيزكرم ل ةجالعمل ةدحو يلى ةمزحلا هي جوت ةداع مت اذا ، كلذ عمو ةجالعمل ةدحو جماربلال يوتسم يلى عاهت يفرم تي مل ف ، ةزهجال روظنم لوط يلى ل LACP راطا تطقسأ دق ةزيم ل هذه نأ ادج جرم ل نم . (ةيزكرم ل ةيزكرم ل ةجالعمل ةدحو و زاوجل نيب راسم ل
طاقتل	جمانربلا	ةدحو يلى هؤاقتنا مت LACP راطا نأ نم ققحتلل اهم ادختسا كنكمي


```
monitor capture <capture name> [control-plane|interface <interface ID>] BOTH
```

```
monitor capture <capture name> match mac [any|host <source MAC address>|<source MAC address>][any|host <destination MAC address>|<destination MAC address>]
```

```
monitor capture <capture name> file location flash:<name>.pcap
```

```
show monitor capture <capture name> parameter
```

```
show monitor capture <capture name>
```


```
monitor capture <capture name> start
```

```
monitor capture <capture name> stop
```

```
show monitor capture file flash:<name>.pcap [detailed]
```

 زایتم ال ا عضو نمض رم او ال ا ل ا خ د ا م ت ی : ة ظ ح ال م

Wireshark طاق ت ال ا د ا د ع ا

 م ق ، ر د ص م ال ا د د ح م MAC ن ا و ن ع و ا / و ة ن ی ع م ة ج م د م ة ه ج ا و ی ل ع ز ی ك ر ت ال ا د ی ر ت ت ن ك ا ذ ا : ح ی م ل ت ة ی س ا س ال ا MAC ت ا م ل ك ة ق ب ا ط م و ة ه ج ا و ال ا ط ب ض ب

```
<#root>
```

```
monitor capture CAP interface GigabitEthernet1/0/1 BOTH
```


```
monitor capture CAP interface GigabitEthernet1/0/2 BOTH
```

```
monitor capture CAP interface GigabitEthernet1/0/3 BOTH
```

```
monitor capture CAP interface GigabitEthernet1/0/4 BOTH
```

```
monitor capture CAP match mac any host 0180.c200.0002
```

```
show monitor capture CAP file location flash:CAP.pcap
```

 في فرصت ىلع طاقتل الال ىلع 0180.c200.002 ةهوجلل MAC ناوع فرعم كدعاسي :ةظالم LACP. تاراطا

ححص لكش ب Wireshark نيوكت نم ققحت

```
<#root>
```

```
switch#
```

```
show monitor capture CAP parameter
```

```
monitor capture CAP interface GigabitEthernet1/0/1 BOTH
monitor capture CAP interface GigabitEthernet1/0/2 BOTH
monitor capture CAP interface GigabitEthernet1/0/3 BOTH
monitor capture CAP interface GigabitEthernet1/0/4 BOTH
monitor capture CAP match mac any host 0180.c200.0002
monitor capture CAP file location flash:LACP.pcap
```

```
switch#
```

```
show monitor capture CAP
```

Status Information for Capture CAP

Target Type:

Interface: GigabitEthernet1/0/1, Direction: BOTH

Interface: GigabitEthernet1/0/2, Direction: BOTH

Interface: GigabitEthernet1/0/3, Direction: BOTH

Interface: GigabitEthernet1/0/4, Direction: BOTH

Status : Inactive

Filter Details:

MAC

Source MAC: 0000.0000.0000 mask:ffff.ffff.ffff

Destination MAC: 0180.c200.0002 mask:0000.0000.0000

Buffer Details:

Buffer Type: LINEAR (default)

File Details:

Associated file name: flash:CAP.pcap

Limit Details:

Number of Packets to capture: 0 (no limit)

Packet Capture duration: 0 (no limit)

Packet Size to capture: 0 (no limit)

Packet sampling rate: 0 (no sampling)

طاقتل الال ادب:

```
<#root>
```

```
switch#
```

```
monitor capture CAP start
```

Started capture point : CAP

LACP لدم عمل عي رسال تقؤم لال مدخت ست مل اذا ةي ناث 30 (لقأال يلع) دع ب ه فقاؤ

<#root>

switch#

monitor capture CAP stop

Capture statistics collected at software:

Capture duration - 58 seconds

Packets received - 16

Packets dropped - 0

Packets oversized - 0

Bytes dropped in ASIC - 0

Stopped capture point : CAP

ةطق تل مل لال ااراط الال

<#root>

switch#

show monitor capture file flash:CAP.pcap

Starting the packet display Press Ctrl + Shift + 6 to exit

1	0.000000	f0:4a:02:06:19:04	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:06:19:00	P:	261	K
2	2.563406	f0:4a:02:05:d6:01	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:05:d6:00	P:	258	K
3	3.325148	f0:4a:02:05:d6:04	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:05:d6:00	P:	261	K
4	5.105978	f0:4a:02:06:19:01	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:06:19:00	P:	258	K
5	6.621438	f0:4a:02:06:19:02	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:06:19:00	P:	259	K
6	8.797498	f0:4a:02:05:d6:03	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:05:d6:00	P:	260	K
7	13.438561	f0:4a:02:05:d6:02	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:05:d6:00	P:	259	K
8	16.658497	f0:4a:02:06:19:03	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:06:19:00	P:	260	K
9	28.862344	f0:4a:02:06:19:04	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:06:19:00	P:	261	K
10	29.013031	f0:4a:02:05:d6:01	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:05:d6:00	P:	258	K
11	30.756138	f0:4a:02:05:d6:04	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:05:d6:00	P:	261	K
12	33.290542	f0:4a:02:06:19:01	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:06:19:00	P:	258	K
13	36.387119	f0:4a:02:06:19:02	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:06:19:00	P:	259	K
14	37.598788	f0:4a:02:05:d6:03	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:05:d6:00	P:	260	K
15	40.659931	f0:4a:02:05:d6:02	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:05:d6:00	P:	259	K
16	45.242014	f0:4a:02:06:19:03	b^FAR	01:80:c2:00:00:02	LACP	124	v1	ACTOR	f0:4a:02:06:19:00	P:	260	K

ةي ساسأال ةم لك لال مدخت ساف ، ني عم راطل نم لACP لقا نم ققحت لال ال ةاا ب تنك اذا ةي لي صف تلال

<#root>

switch#

show monitor capture file flash:CAP.pcap detailed

Starting the packet display Press Ctrl + Shift + 6 to exit

Frame 1: 124 bytes on wire (992 bits), 124 bytes captured (992 bits)

on interface 0
Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)
Interface name: /tmp/epc_ws/wif_to_ts_pipe
Encapsulation type: Ethernet (1)
Arrival Time: Mar 28, 2023 15:48:14.985430000 UTC
[Time shift for this packet: 0.000000000 seconds]
Epoch Time: 1680018494.985430000 seconds
[Time delta from previous captured frame: 0.000000000 seconds]
[Time delta from previous displayed frame: 0.000000000 seconds]
[Time since reference or first frame: 0.000000000 seconds]
Frame Number: 1
Frame Length: 124 bytes (992 bits)
Capture Length: 124 bytes (992 bits)
[Frame is marked: False]
[Frame is ignored: False]
[Protocols in frame: eth:ethertype:slow:lacp]

Ethernet II, Src: f0:4a:02:06:19:04 (f0:4a:02:06:19:04), Dst: 01:80:c2:00:00:02 (01:80:c2:00:00:02)

Destination: 01:80:c2:00:00:02 (01:80:c2:00:00:02)
Address: 01:80:c2:00:00:02 (01:80:c2:00:00:02)
.... ..0. = LG bit: Globally unique address (factory default)
.... ...1. = IG bit: Group address (multicast/broadcast)
Source: f0:4a:02:06:19:04 (f0:4a:02:06:19:04)
Address: f0:4a:02:06:19:04 (f0:4a:02:06:19:04)
.... ..0. = LG bit: Globally unique address (factory default)
.... ...0. = IG bit: Individual address (unicast)
Type: Slow Protocols (0x8809)

Slow Protocols


Slow Protocols subtype: LACP (0x01)

Link Aggregation Control Protocol

LACP Version: 0x01
TLV Type: Actor Information (0x01)
TLV Length: 0x14
Actor System Priority: 32768
Actor System ID: f0:4a:02:06:19:00 (f0:4a:02:06:19:00)
Actor Key: 1
Actor Port Priority: 32768
Actor Port: 261
Actor State: 0x3d, LACP Activity, Aggregation, Synchronization, Collecting, Distributing
.... ...1 = LACP Activity: Active
.... ..0. = LACP Timeout: Long Timeout
.... .1.. = Aggregation: Aggregatable
.... 1... = Synchronization: In Sync
...1 = Collecting: Enabled
..1. = Distributing: Enabled
.0.. = Defaulted: No
0... = Expired: No
[Actor State Flags: **DCSG*A]
Reserved: 000000
TLV Type: Partner Information (0x02)
TLV Length: 0x14
Partner System Priority: 32768
Partner System: f0:4a:02:05:d6:00 (f0:4a:02:05:d6:00)
Partner Key: 1

```
Partner Port Priority: 32768
Partner Port: 261
Partner State: 0x3d, LACP Activity, Aggregation, Synchronization, Collecting, Distributing
.... ...1 = LACP Activity: Active
.... ..0. = LACP Timeout: Long Timeout
.... .1.. = Aggregation: Aggregatable
.... 1... = Synchronization: In Sync
...1 .... = Collecting: Enabled
..1. .... = Distributing: Enabled
.0.. .... = Defaulted: No
0... .... = Expired: No
[Partner State Flags: **DCSG*A]
Reserved: 000000
TLV Type: Collector Information (0x03)
TLV Length: 0x10
Collector Max Delay: 32768
Reserved: 000000000000000000000000
TLV Type: Terminator (0x00)
TLV Length: 0x00
Pad: 0000000000000000000000000000000000000000000000000000000000000000...
```

```
Frame 2: 124 bytes on wire (992 bits), 124 bytes captured (992 bits) on interface 0
Interface id: 0 (/tmp/epc_ws/wif_to_ts_pipe)
Interface name: /tmp/epc_ws/wif_to_ts_pipe
Encapsulation type: Ethernet (1)
Arrival Time: Mar 28, 2023 15:48:17.548836000 UTC
[Time shift for this packet: 0.000000000 seconds]
Epoch Time: 1680018497.548836000 seconds
[Time delta from previous captured frame: 2.563406000 seconds]
[Time delta from previous displayed frame: 2.563406000 seconds]
[Time since reference or first frame: 2.563406000 seconds]
```

 لوجملا نم هتءارق نكمي ال وزاهج 9200 ىلع جارخإلا قيسنت فلتخي نأ نكمي: ةظحالم ل. لاجلا وه اذه ناك اذا يصخشلا رتوي بمكلا نم اهأرق او طاق تلالا ةيلمع ري دصت ب مق

مامألا ىلإ تاصنملا

ةزهجالا هيجوت ةداعإ يوتسم يف ةمزحلا راسم عبتتو هيجوتلا ةداعإ تامولعم ءاطخأ حيحصتلا نم ةفرعملا ةمزحلا رمألا اذه يكأحي. رمألا forward interface <switch number or role> show platform hardware fed switch مءدختسأ سسؤي ءانيم لءدملا ىلع طبر تقلخ. ةزهجالا هيجوت ةداعإ يوتسم نم هيجوتلا ةداعإ تامولعم عءرتسي ومءدختسلا لبق دربم PCAP يف نءخي طبر ضبق ىلع لا نم لءمك طبر ءدوذاضيا عي طتسي تنأ. رمألا اذه يف نيءت تنأ نأ لمعم طبرلا ىلع

show platform hardware fed switch {switch_num|active|standby}forward interface لاجلا ءدوؤملا ءارايءلا ي، ةهءاولا هيجوت ةداعإ ءصاخلا ءارايءلا ىلع طقف ليصف تلاب عوضوملا اذه ءضوي

```
show platform hardware fed switch <switch number or role> forward interface <interface ID> <source mac address>
show platform hardware fed switch <switch number or role> forward interface <interface ID> pcap <pcap filename>
show platform hardware fed switch <switch number or role> forward interface <interface ID> vlan <VLAN ID>
```

1. رابط ال CAP.pcap لي لحت متي، ةالاحل هذه في. امام ال ل اصنم ال طاق ال فير عتب مق

<#root>

switch#

```
show platform hardware fed switch active forward interface gigabitEthernet 1/0/1 pcap flash:CAP.pcap num
```

show forward is running in the background. After completion, syslog will be generated.

ةال ال ال syslog لئ اسر ر ضرع متي، يساس ال ماظن ال هي جوت ةداع | طاق ال امام ال درج م ب

<#root>

switch#

```
show logging
```

<output omitted>

```
*Mar 28 16:47:57.289: %SHFWD-6-PACKET_TRACE_DONE: Switch 1 R0/0: fed: Packet Trace Complete: Execute (s
*Mar 28 16:47:57.289: %SHFWD-6-PACKET_TRACE_FLOW_ID: Switch 1 R0/0: fed: Packet Trace Flow id is 100990
```

م متي نأ ع قوت م ال م. ي ل خا دل ال هي جوت ال ةداع | رارق ناك ام جور خال مسق ك ربخي. يساس ال ماظن ال هي جوت ةداع | طاق ال لي لحت

DGTID : 0

Egress: Possible Replication : Port : CPU_Q_L2_CONTROL Output Port Data : Port : CPU

Asic Instance : 0

CPU Queue : 1 [CPU_Q_L2_CONTROL]


Unique RI : 0
Rewrite Type : 0 [NULL]
Mapped Rewrite Type : 15 [CPU_ENCAP]

Vlan : 1

Mapped Vlan ID : 4

PSV) ةمزلحلا ةلاح هجتم

راي عم قباطي نأ ةكبشلا نم رشابملا لخدملا تاراطا طقتلې PSV نأ ءانثتسال عم Platform Forward طاقتلال لثامم PSV لغلشملا.

 مظهرالم : مع دم تي : قظحالم
C9500-48Y4C و C9500-24Y4C و C9500-32QC و C9500-32C نم ةيساسألا ةمظنألا ىلع طقف PSV معد م تي : قظحالم
C9606R.

<#root>

debug platform hardware fed <switch number or role> capture trigger interface <interface ID> ingress

```
debug platform hardware fed <switch number or role> capture trigger layer2 <source MAC address> <destination MAC address>
```

```
show platform hardware fed <switch number or role> capture trigger
```

```
show platform hardware fed <switch number or role> capture status
```

```
show platform hardware fed <switch number or role> capture summary
```

PSV. طاقت الة زيمو ة لالات الة ذفنم الة انقل ضعبل الامهضعبب ني تلصت مل الة C9500-48Y4C يتحت فم ادختس | متي

```
<#root>
```

```
switch#
```

```
show etherchannel 1 summary
```

<output omitted>

Group Port-channel Protocol Ports

-----+-----+-----+-----
1 Po1(SU) LACP

Twe1/0/1(P)

Twe1/0/2(P)


ةيأغك LACP MAC ناوعو MAC ناوع رصم عم ةقباطم لل 2 ةقبط ةيساسألا ةملكلل مدختسأ. لغمشملا ريعم دادعاب مق

<#root>

```
switch#debug platform hardware fed active capture trigger interface twentyFiveGigE1/0/1 ingress  
switch#debug platform hardware fed active capture trigger layer2
```

```
0000.0000.0000 0180.c200.0002 <-- match source MAC: any, match destination MAC: LACP MAC address
```

Capture trigger set successful.

 يةقباطم PSV طاقتللا لىلع فرعملا MAC 0000.000.000 ناوع ينعي: ةظحالم

لغمشملا ريعم ةحص نم ققحتلا دادعاب مت

<#root>

switch#


```
show platform hardware fed active capture trigger
```

Trigger Set:

Ingress Interface: TwentyFiveGigE1/0/1

Dest Mac: 0180.c200.0002

لم تكتمك ة الاحل ضرع متي، PST لي غشت درج م ب.

<#root>

switch#

```
show platform hardware fed active capture status
```

Asic: 0

Status: Completed

ة جال اع م ل ا ة د ح و ي ل ع ة ب و ق ث م PAgP و LACP ت ا ر ا ط ا | ر ت ن ا ع ق و ت م ل ا م . ي ل ا ت ل ا ر م ا ل ا م ا د خ ت س ا ب PSV ط ا ق ت ل ا ج ا ر خ | ل ي ل ح ت ة . ي ز ك ر م ل ا

<#root>

switch#

show platform hardware fed active capture summary

Trigger: Ingress Interface:TwentyFiveGigE1/0/1 Dest Mac:0180.c200.0002

Input	Output	State	Reason
-------	--------	-------	--------

Tw1/0/1 cpuQ 1 PUNT

Bridged

مكحلت ال يوتسم مظنم (CoPP)

يوتسمو (ةزهجال) تانايب ال يوتسم نيب تانايب ال بوبنأى لى ع هقبيبطت متي يذلا ةمدخل ةدوج مظنم اساسأ وه CoPP ةيفصت ب CoPP موقى نأ نكمي .ةيزكرم ال ةجالاعم ال ةدو وي ةريبك لكاشم ثودح بنجتل (ةيزكرم ال ةجالاعم ال ةدو) مكحلت ال ةزيم ال ةتدح يذلا دحل زواجتت تارااطال ال هذه تناك اذا PAgP و LACP تارااطا

LACP مزح طاقس اب CoPP ماق اذا ةحص ال نم قيقحتل

<#root>

show platform hardware fed switch active qos queue stats internal cpu policer

طاقس تايلمع لى ع يناشلا يوتسم ال ي ف مكحلت ال راطت نا ةمئاق يوتحت ال ،رمأ ال اذه تاجرم

<#root>

switch#

```
show platform hardware fed switch active qos queue stats internal cpu policer
```

CPU Queue Statistics

```
=====
                                (default)
```

(set)

Queue Queue

QId PlcIdx

Queue Name

Enabled Rate

Rate

Drop(Bytes) Drop(Frames)

```
-----
0 11 DOT1X Auth Yes 1000 1000 0 0
```

1 1 L2 Control Yes 2000 2000 0 0 <-- L2 Control queue filters LACP packets, rate set to 2000 (packets pe

2 14 Forus traffic Yes 4000 4000 0 0

<output omitted>

* NOTE: CPU queue policer rates are configured to the closest hardware supported value

CPU Queue Policer Statistics

Policer Index	Policer Accept Bytes	Policer Accept Frames	Policer Drop Bytes	Policer Drop Frames
0	0	0	0	0

1 13328202 79853 0 0 <-- QId = 1 matches policer index (level 1) = 1, no drops

2 0 0 0 0

<output omitted>

Second Level Policer Statistics

20 34149506 389054 0 0 <-- Policer index (level 2) no drops

21 76896 596 0 0

Policer Index Mapping and Settings

level-2	level-1	(default)	(set)
PlcIndex	PlcIndex	rate	rate

20 : 1 2 8 13000 13000 <-- Policer index (level 1) = 1 matches policer index (level 2) = 20

21 : 0 4 7 9 10 11 12 13 14 15 6000 6000

Second Level Policer Config

level-1	level-2	level-2
---------	---------	---------

debug platform software fed switch active punt packet-capture stop

show platform software fed switch active punt packet-capture status

show platform software fed switch active punt packet-capture brief

debug platform software fed sw active inject packet-capture set-filter <filter>

debug platform software fed switch active inject packet-capture start

debug platform software fed switch active inject packet-capture stop

```
show platform software fed switch active inject packet-capture status
```

```
show platform software fed switch active inject packet-capture brief
```

تناب

طاقف LACP مزح ةيفصل ةمزح لال طاقنل اددح.

```
<#root>
```

```
switch#
```

```
debug platform software fed sw active punt packet-capture set-filter "eth.dst==0180.c200.0002"
```

Filter setup successful. Captured packets will be cleared

طاقنل الال ةيلمع ادبا.

```
<#root>
```

```
switch#
```

```
debug platform software fed sw active punt packet-capture start
```


Punt packet capturing: disabled. Buffer wrapping: disabled

Total captured so far: 11 packets.

Capture capacity : 4096 packets

Capture filter : "eth.dst==0180.c200.0002"

عملية تحميل البرنامج (CPU) في وحدة المعالجة المركزية (CPU) وتحميل البرنامج (FED) في وحدة المعالجة المركزية (FED).

<#root>

switch#

show platform software fed switch active punt packet-capture brief

Punt packet capturing: disabled. Buffer wrapping: disabled

Total captured so far: 11 packets

. Capture capacity : 4096 packets

Capture filter : "eth.dst==0180.c200.0002"

----- Punt Packet Number: 1, Timestamp: 2023/03/31 00:27:54.141 -----
interface :

physical: GigabitEthernet1/0/2[if-id: 0x0000000a]

, pa1: GigabitEthernet1/0/2 [if-id: 0x0000000a]

<-- interface that punted the frame

metadata :

cause: 96 [Layer2 control protocols],

sub-cause: 0,

q-no: 1

, linktype: MCP_LINK_TYPE_LAYER2 [10]

<-- LACP frame was punted due to L2 ctrl protocol to queue 1 (L2 control)

ether hdr :

dest mac: 0180.c200.0002, src mac: f04a.0205.d602 <-- source and destination MAC addresses

ether hdr : ethertype: 0x8809

----- Punt Packet Number: 2, Timestamp: 2023/03/31 00:27:58.436 -----
interface :

physical: GigabitEthernet1/0/4[if-id: 0x0000000c]

, pal: GigabitEthernet1/0/4 [if-id: 0x0000000c]
metadata :

cause: 96 [Layer2 control protocols]

, sub-cause: 0,

q-no: 1

, linktype: MCP_LINK_TYPE_LAYER2 [10]
ether hdr : dest mac: 0180.c200.0002,

src mac: f04a.0205.d604

ether hdr : ethertype: 0x8809

----- Punt Packet Number: 3, Timestamp: 2023/03/31 00:28:00.758 -----
interface :

physical: GigabitEthernet1/0/1[if-id: 0x00000009]

, pal: GigabitEthernet1/0/1 [if-id: 0x00000009]

metadata :

cause: 96 [Layer2 control protocols]

, sub-cause: 0,

q-no: 1

, linktype: MCP_LINK_TYPE_LAYER2 [10]
ether hdr : dest mac: 0180.c200.0002,

src mac: f04a.0205.d601

ether hdr : ethertype: 0x8809

----- Punt Packet Number: 4, Timestamp: 2023/03/31 00:28:11.888 -----
interface :

physical: GigabitEthernet1/0/3[if-id: 0x0000000b]

, pa1: GigabitEthernet1/0/3 [if-id: 0x0000000b]
metadata :

cause: 96 [Layer2 control protocols]

, sub-cause: 0,

q-no: 1

```
, linktype: MCP_LINK_TYPE_LAYER2 [10]  
ether hdr : dest mac: 0180.c200.0002,
```

```
src mac: f04a.0205.d603
```

```
ether hdr : ethertype: 0x8809
```

نقح

طاقف LACP مزح ةفصتل ةمزحل طاقتل افرعشب مق.

```
<#root>
```

```
switch#
```

```
debug platform software fed sw active inject packet-capture set-filter "eth.dst==0180.c200.0002"
```

Filter setup successful. Captured packets will be cleared

طاقتل الة لمع ادبا.

```
<#root>
```

```
switch#
```

```
debug platform software fed sw active inject packet-capture start
```


Inject packet capturing: disabled. Buffer wrapping: disabled

Total captured so far: 12 packets.

Capture capacity : 4096 packets

Capture filter : "eth.dst==0180.c200.0002"

عملية تحميل البرنامج (CPU) في وحدة المعالجة المركزية (CPU) ودمجها مع بطاقة الشبكة الخارجية ليتم
عملية تحميل البرنامج (FED).

<#root>

switch#

show platform software fed sw active inject packet-capture brief

Inject packet capturing: disabled. Buffer wrapping: disabled

Total captured so far: 12

packets. Capture capacity : 4096 packets

Capture filter : "eth.dst==0180.c200.0002"

----- Inject Packet Number: 1, Timestamp: 2023/03/31 19:59:26.507 -----
interface :

pal: GigabitEthernet1/0/2 [if-id: 0x0000000a] <-- interface that LACP frame is destined to

metadata :

cause: 1 [L2 control/legacy]

, sub-cause: 0,

q-no: 7

, linktype: MCP_LINK_TYPE_LAYER2 [10]

<-- cause L2 ctrl, queue=7 (high priority)

ether hdr :

dest mac: 0180.c200.0002, src mac: f04a.0206.1902 <-- source and destination MAC addresses

ether hdr : ethertype: 0x8809

----- Inject Packet Number: 2, Timestamp: 2023/03/31 19:59:28.538 -----
interface :

pal: GigabitEthernet1/0/3 [if-id: 0x0000000b]

metadata :

cause: 1 [L2 control/legacy]

, sub-cause: 0,

q-no: 7

, linktype: MCP_LINK_TYPE_LAYER2 [10]
ether hdr :

dest mac: 0180.c200.0002, src mac: f04a.0206.1903

ether hdr : ethertype: 0x8809

----- Inject Packet Number: 3, Timestamp: 2023/03/31 19:59:30.050 -----
interface :

pal: GigabitEthernet1/0/1 [if-id: 0x00000009]

metadata :

cause: 1 [L2 control/legacy]

, sub-cause: 0,

q-no: 7

, linktype: MCP_LINK_TYPE_LAYER2 [10]
ether hdr :

dest mac: 0180.c200.0002, src mac: f04a.0206.1901

ether hdr : ethertype: 0x8809

----- Inject Packet Number: 4, Timestamp: 2023/03/31 19:59:33.467 -----
interface : pal:

GigabitEthernet1/0/4 [if-id: 0x0000000c]

metadata :

cause: 1 [L2 control/legacy]

, sub-cause: 0,

q-no: 7

, linktype: MCP_LINK_TYPE_LAYER2 [10]
ether hdr :

dest mac: 0180.c200.0002, src mac: f04a.0206.1904

ether hdr : ethertype: 0x8809

قلمص تاذا تامولعم

- [IEEE 802 ماقرا](#)
- [تاطابت رالاعيمجت يف مكحت لالوكوتورب - IEEE](#)
- [تاونق نيوكت: لصفلا - Catalyst 9200 تالوحم\) 17.3.x رادصلا، Cisco IOS XE Amsterdam، 2، عقبطلا نيوكت ليلىد EtherChannels](#)
- [EtherChannels تاونق نيوكت: لصفلا - Catalyst 9300 تالوحم\) 17.7.x قفرملا، Cisco IOS XE Amsterdam، 2، عقبطلا نيوكت ليلىد](#)
- [تاونق نيوكت: لصفلا - Catalyst 9400 تالوحم\) 17.3.x رادصلا، Cisco IOS XE Amsterdam، 2، عقبطلا نيوكت ليلىد EtherChannels](#)
- [EtherChannels نيوكت: لصفلا - Catalyst 9500 تالوحم\) 17.9.x قفرملا، Cisco IOS XE Amsterdam، 2، عقبطلا نيوكت ليلىد](#)
- [EtherChannels تاونق نيوكت: لصفلا - Catalyst 9600 تالوحم\) 17.9.x قفرملا، Cisco IOS XE Amsterdam، 2، عقبطلا نيوكت ليلىد](#)
- [show platform hardware fed switch interface - قزهألاو قهأولا رماوا: لصفلا](#)
- [Catalyst 9000 Switches تالوحم لىل ع Fed ب قضاخلا \(CPU\) فيزكرملا قجالاعملا قذحو قمزح طاق تال نيوكت](#)
- [Cisco Systems - تادنت سمل او ينق تالام عدلا](#)

ةمچرتل هذه ل و ح

ةلأل تاي نقتل ن مة و مچم مادخت ساب دن تسم ل اذ ه Cisco ت مچرت
م ل اء ان ا مچ ي ف ن م دخت س م ل م عد و ت ح م م ي دقت ل ة ي ر ش ب ل و
امك ة ق ي ق د ن و ك ت ن ل ة ل آل ة مچرت ل ض ف ا ن ا ة ظ ح ال م ي ج ر ي . ة ص ا خ ل م ه ت غ ل ب
Cisco ي ل خ ت . ف ر ت ح م مچرت م ا ه م د ق ي ي ت ل ا ة ي ف ا ر ت ح ال ا ة مچرت ل ا م ل ا ح ل ا و ه
ى ل ا م اء ا د ع و ج ر ل ا ب ي ص و ت و ت ا مچرت ل ا ه ذ ه ة ق د ن ع ا ه ت ي ل و ئ س م Cisco
Systems (ر ف و ت م ط ب ا ر ل ا) ي ل ص ا ل ا ي ز ي ل ج ن ا ل ا دن ت س م ل ا