

排除NCS 5500平台上的丢包故障

目录

[简介](#)

[先决条件](#)

[要求](#)

[使用的组件](#)

[背景信息](#)

[丢包](#)

[放置位置](#)

[向TAC提交案例所需的信息](#)

[相关信息](#)

简介

本文档介绍如何在Cisco NCS55XX平台中有效识别数据包丢弃并对其进行故障排除的综合指南。

先决条件

要求

本文档没有任何特定的要求。

使用的组件

本文档适用于使用Jericho1或Jericho2 ASIC架构的所有NCS 5500平台。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您的网络处于活动状态，请确保您了解所有命令的潜在影响。

背景信息

丢包

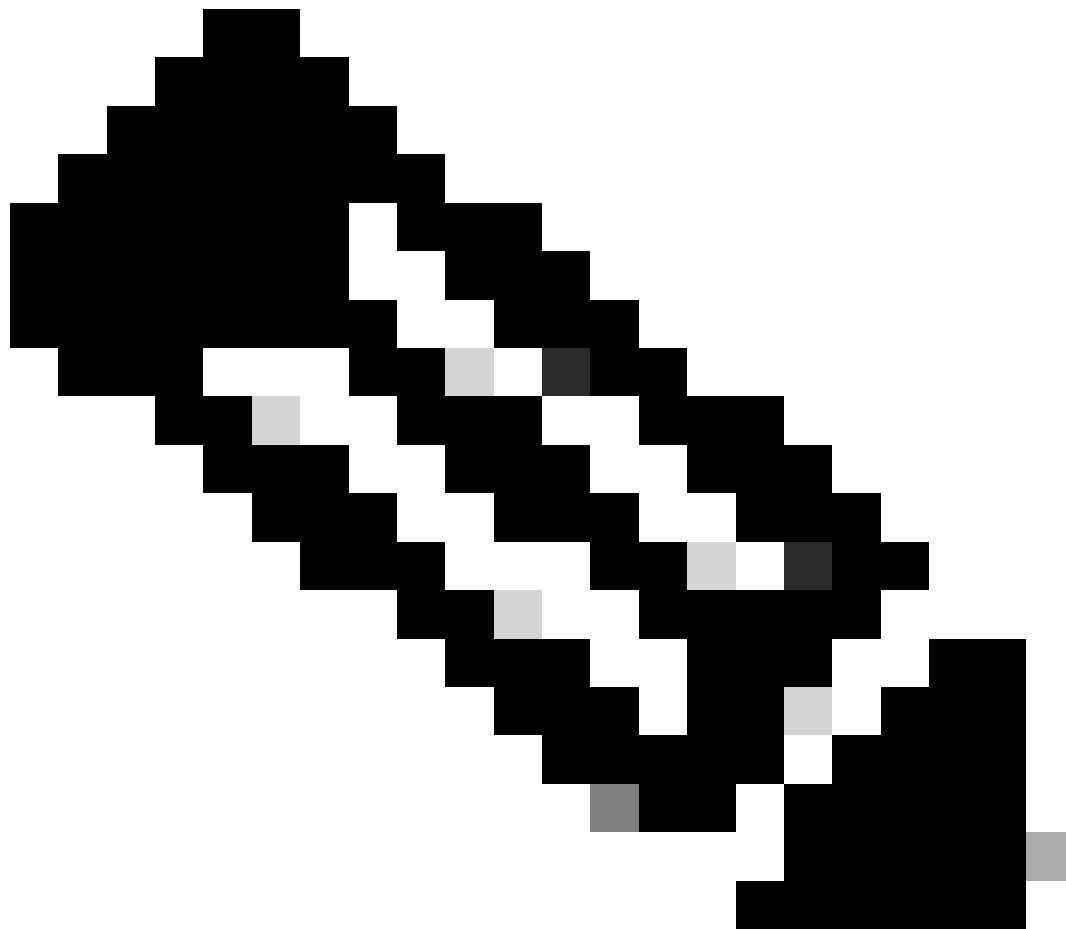
数据包丢弃是指设备有意或无意地丢弃经过网络的数据包，使其无法到达其预期目的地。

放置位置

要调试任何类型的数据包丢弃，您需要执行以下步骤：

- 1.找出拓扑中丢弃数据包的路由器。
- 2.查找接口上递增的输入数据包计数器或丢弃计数器。

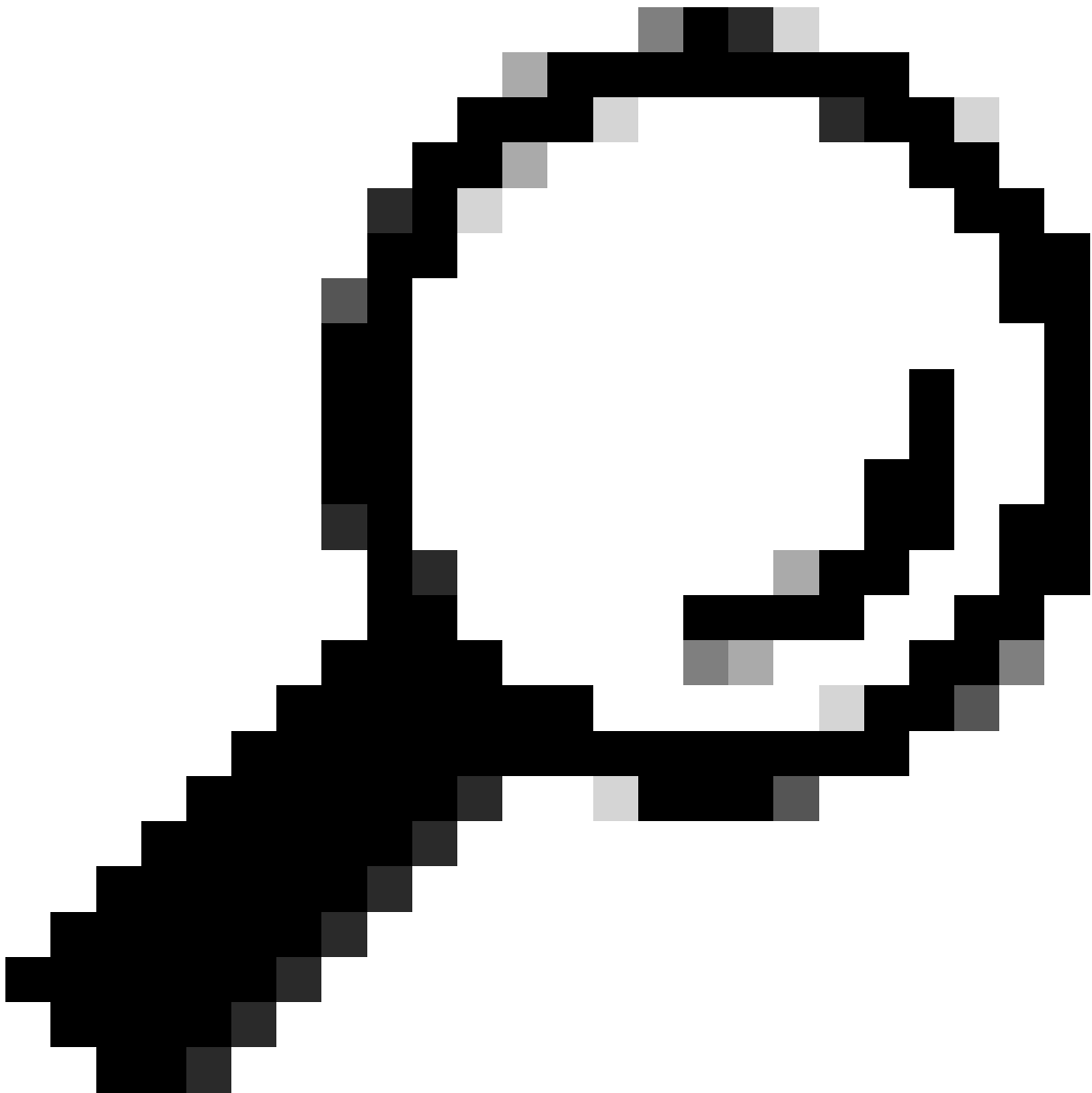
示例 show interface <>



注意：命令是在受控实验室环境中的NCS 5500上执行的，用于测试和验证目的。

```
RP/0/RP0/CPU0:NCS-5500#show interfaces TenGigE0/0/0/14
TenGigE0/0/0/14 is up, line protocol is up
Interface state transitions: 3
Hardware is TenGigE, address is fce4.f6ad.b038 (bia fce4.f6ad.b038)
loopback not set,
Last link flapped 2w2d
ARP type ARPA, ARP timeout 04:00:00
Last input 00:00:00, output 00:00:17
Last clearing of "show interface" counters never
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
49129 packets input, 4286647 bytes, 153 total input drops    <<  drops
0 drops for unrecognized upper-level protocol
Received 0 broadcast packets, 49129 multicast packets
0 runs, 0 giants, 0 throttles, 0 parity
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
```

```
47637 packets output, 6144913 bytes, 0 total output drops
Output 4 broadcast packets, 47633 multicast packets
845 output errors, 0 underruns, 0 applique, 0 resets          <<<<  errors
0 output buffer failures, 0 output buffers swapped out
3 carrier transitions
RP/0/RP0/CPU0:NCS-5500#
```



提示：对于捆绑接口和子接口，请确保在捆绑接口、子接口和对应的物理接口上运行此命令。

3.一旦确认丢弃或错误计数器正在增加，下一步就是确定与受影响接口关联的网络处理单元(NPU)。

示例：show controllers npu voq-usage interface all instance all location <>

```
RP/0/RP0/CPU0:NCS-5500#show controllers npu voq-usage interface all instance all location 0/0/cpu0
```

```
-----  
Node ID: 0/0/CPU0
```

Intf name	Intf handle (hex)	NPU #	NPU core	PP Port	Sys Port	VOQ base	Flow base	VOQ port type	Port speed
--------------	-------------------------	----------	-------------	------------	-------------	-------------	--------------	---------------------	---------------

Hu0/0/0/5	8	0	0	1	1	1272	8360	local	100G
-----------	---	---	---	---	---	------	------	-------	------

Hu0/1/0/2	2000088	0	1	17	857	1528	7464	remote	100G
-----------	---------	---	---	----	-----	------	------	--------	------

Te0/0/0/14	1088	2	1	17	297	1728	6568	local	10G
------------	------	---	---	----	-----	------	------	-------	-----

<< NPU2, PP Port:17

4.捕获托管接口的NPU上的数据包。在输出中找到PP端口，确保它与步骤1中识别的PP端口匹配。

示例： show controllers fia diagshell

"diag last" location

<#root>

```
RP/0/RP0/CPU0:NCS-5500#show controllers fia diagshell 2 "diag last" location 0/0/CPU0
```

```
Node ID: 0/0/CPU0
```

```
R/S/I: 0/0/2
```

Core 0:

Last packet information: is_valid=0 tm_port=253

pp_port=240 src_syst_port=253 port_header_type=tm packet_size=0

Packet start, offset in bytes:

00: 4e415000 00134e41 50000001 8100e602 876f00fd 0606c00e 00000000 000180c2

20: 00000efc e4f6adb0 3888cc02 0704fce4 f6adb487 04100554 656e4769 6745302f

40: 302f302f 31340602 00780a0a 4e43532d 35353038 2d410c10 20372e39 2e322c20

60: 4e43532d 35353030 08000e04 00100010 100c0501 0a130101 02000000 d8001018

Core 1:

Last packet information: is_valid=1 tm_port=17

pp_port=17

src_syst_port=297 port_header_type=eth packet_size=83

<< pp_port: 17

Packet start, offset in bytes:

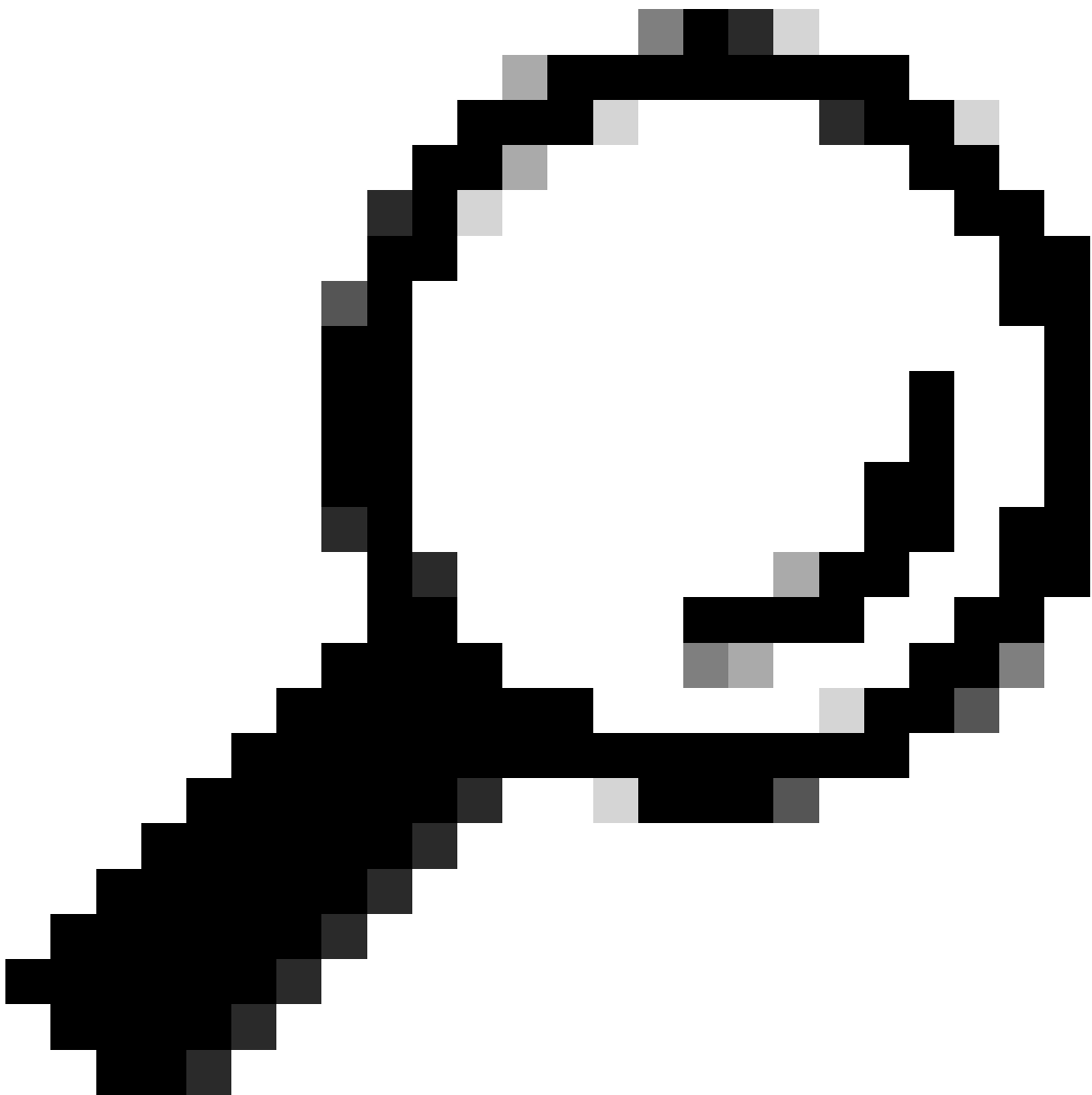
00: 0180c200 000e40a6 b79e2552 88cc0207 0440a6b7 9e255204 070340a6 b79e2552

20: 06020079 fe190080 c2098000 00000064 00000000 00000002 00000000 000000fe

40: 060080c2 0b8800fe 080080c2 0c006189 06000000 00000000 00000000 00000000

60: 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

```
RP/0/RP0/CPU0:NCS-5500#
```



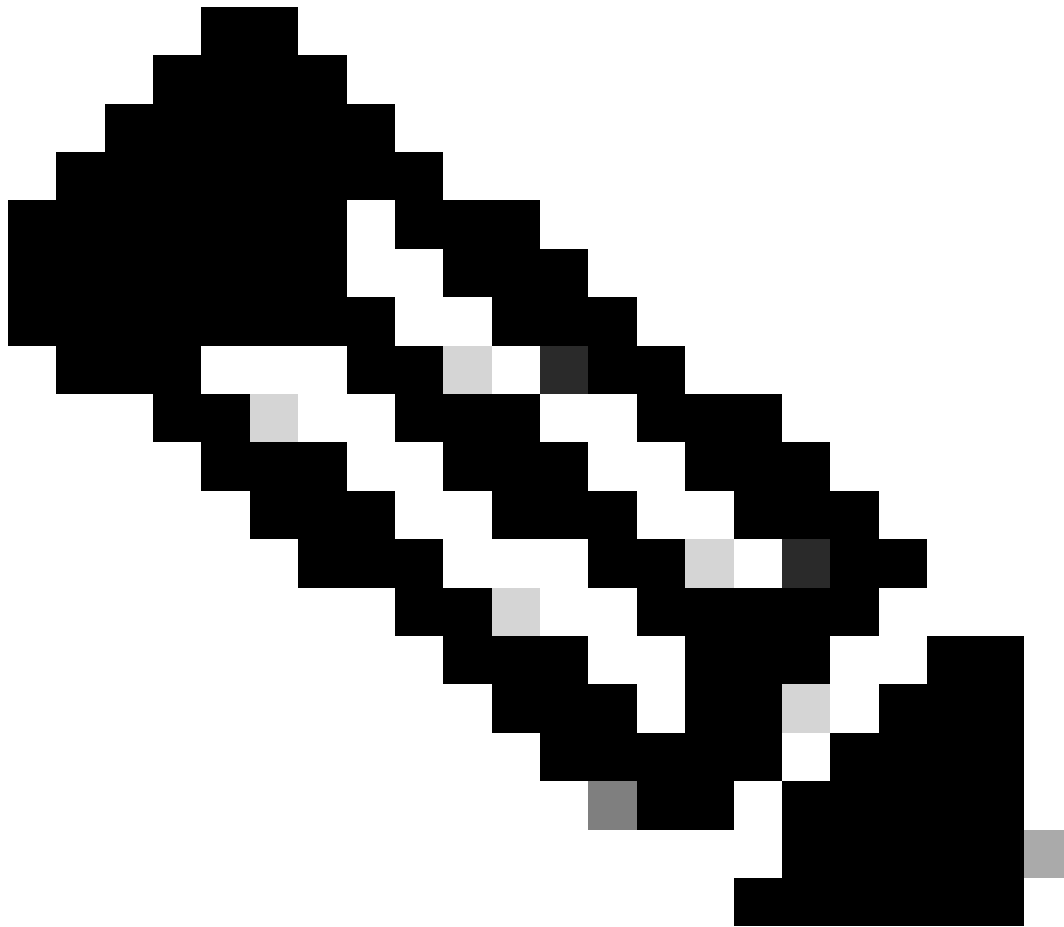
提示：您可以使用数据包解码器工具解码十六进制数据，以彻底分析和解释网络流量。

5.检查NPU统计信息：确定与传出或传入接口关联的NPU编号，然后执行此命令以检查数据路径计数器

示例：`show controllers fia diagshell`

"diag counter g c" location

JERICHO NETWORK INTERFACE			
NBI		NBI	
RX_TOTAL_BYTE_COUNTER	= 0	TX_TOTAL_BYTE_COUNTER	= 0
RX_TOTAL_PKT_COUNTER	= 0	TX_TOTAL_PKT_COUNTER	= 0
RX_TOTAL_DROPPED_EOPS	= 0		
IRE		EPNI	
CPU_PACKET_COUNTER	= 0	EPE_BYTES_COUNTER	= 0
NIF_PACKET_COUNTER	= 0	EPE_PKT_COUNTER	= 0
OAMP_PACKET_COUNTER	= 0	EPE_DISCARD_PKT_CNT	= 0
OLP_PACKET_COUNTER	= 0		
RCY_PACKET_COUNTER	= 0		
IRE_FDT_INTERFACE_COUNTER	= 0		
IDR		EGQ	
MMU_IDR_PACKET_COUNTER	= 0	FQP_PACKET_COUNTER	= 0
IDR_OCB_INTERFACE_COUNTER	= 0	FQP_UNICAST_PKT_CNT	= 0
		FQP_DISCARD_UC_PKT_CNT	= 0
		FQP_UC_BYTES_CNT	= 0
		FQP_MC_PKT_CNT	= 0
		FQP_DISCARD_MC_PKT_CNT	= 0
		FQP_MC_BYTES_CNT	= 0
		EHP_UNICAST_PKT_CNT	= 0
		EHP_MC_HIGH_PKT_CNT	= 0
		EHP_MC_LOW_PKT_CNT	= 0
		DELETED_PKT_CNT	= 0
		RQP_PKT_CNT	= 0
		RQP_DSCRD_PKT_CNT	= 0
IQM		FDR	
ENQUEUE_PKT_CNT	= 0	CELLS_IN_CNT_P1	= 0
DEQUEUE_PKT_CNT	= 0	CELLS_IN_CNT_P2	= 0
DELETED_PKT_CNT	= 0	CELLS_IN_CNT_P3	= 0
ENQ_DISCARDED_PACKET_COUNTER	= 0	CELLS_IN_TDM_CNT	= 0
		CELLS_IN_MESHMC_CNT	= 0
		CELLS_IN_IPT_CNT	= 0
		EGQ_DROP_CNT	= 0
		EGQ_MESHMC_DROP_CNT	= 0
		EGQ_TDM_OVF_DROP_CNT	= 0
IPT		FDR	
EGQ_PKT_CNT	= 0	CELLS_OUT_CNT_P1	= 0
ENQ_PKT_CNT	= 0	CELLS_OUT_CNT_P2	= 0
FDT_PKT_CNT	= 0	CELLS_OUT_CNT_P3	= 0
CRC_ERROR_CNT	= 0	CELLS_OUT_TDM_CNT	= 0
		CELLS_OUT_MESHMC_CNT	= 0
		CELLS_OUT_IPT_CNT	= 0
FDT		FDR	
IPT_DESC_CELL_COUNTER	= 0	P1_CELL_IN_CNT	= 0
IRE_DESC_CELL_COUNTER	= 0	P2_CELL_IN_CNT	= 0
		P3_CELL_IN_CNT	= 0
TRANSMITTED_DATA_CELLS_COUNTER	= 0	CELL_IN_CNT_TOTAL	= 0
JERICHO FABRIC INTERFACE			



注意：仔细监视是否有任何突出显示的计数器在递增。

6.审查NPU每个处理阶段的统计:

示例： show controller npu stats counters-all instance

loc

```
RP/0/RP0/CPU0:NCS-5500#show controllers npu stats counters-all instance 2 location 0/0/CPU0
FIA Statistics Rack: 0, Slot: 1, Asic instance: 0
Per Block Statistics:
```

Ingress:

NBI RX:

RX_TOTAL_BYTE_COUNTER	= 987134
RX_TOTAL_PKT_COUNTER	= 7117

```

IRE:
  CPU_PACKET_COUNTER           = 0
  NIF_PACKET_COUNTER           = 7117
  OAMP_PACKET_COUNTER          = 16976
  OLP_PACKET_COUNTER           = 0
  RCY_PACKET_COUNTER           = 23081
  IRE_FDT_INTRFACE_CNT         = 0

IDR:
  MMU_IDR_PACKET_COUNTER       = 3037
  IDR_OCB_PACKET_COUNTER       = 0

IQM:
  ENQUEUE_PKT_CNT              = 52073
  DEQUEUE_PKT_CNT              = 52073
  DELETED_PKT_CNT              = 0
  ENQ_DISCARDED_PACKET_COUNTER = 0

IPT:
  EGQ_PKT_CNT                  = 35207
  ENQ_PKT_CNT                  = 52073
  FDT_PKT_CNT                  = 16976
  CFG_EVENT_CNT                = 49036
  CFG_BYTE_CNT                 = 5313772

FDT:
  IPT_DESC_CELL_COUNTER        = 16976
  IRE_DESC_CELL_COUNTER        = 0
  TRANSMITTED_DATA_CELLS_COUNTER = 16976

Egress:
FDR:
  P1_CELL_IN_CNT               = 17538
  P2_CELL_IN_CNT               = 0
  P3_CELL_IN_CNT               = 0
  CELL_IN_CNT_TOTAL            = 17538

FDA:
  CELLS_IN_CNT_P1              = 17538
  CELLS_IN_CNT_P2              = 0
  CELLS_IN_CNT_P3              = 0
  CELLS_IN_TDM_CNT             = 0
  CELLS_IN_MESHMC_CNT          = 0
  CELLS_IN_IPT_CNT              = 35317
  CELLS_OUT_CNT_P1             = 17538
  CELLS_OUT_CNT_P2             = 0
  CELLS_OUT_CNT_P3             = 0
  CELLS_OUT_TDM_CNT            = 0
  CELLS_OUT_MESHMC_CNT         = 0
  CELLS_OUT_IPT_CNT            = 35317
  EGQ_DROP_CNT                 = 0
  EGQ_MESHMC_DROP_CNT          = 0

EGQ:
  FQP_PACKET_COUNTER           = 52635
  PQP_UNICAST_PKT_CNT          = 52635
  PQP_DSCRD_UC_PKT_CNT         = 0
  PQP_UC_BYTES_CNT             = 5750183
  PQP_MC_PKT_CNT               = 0
  PQP_DSCRD_MC_PKT_CNT         = 0

```

```
PQP_MC_BYTES_CNT = 0
EHP_UNICAST_PKT_CNT = 52635
EHP_MC_HIGH_PKT_CNT = 0
EHP_MC_LOW_PKT_CNT = 0
DELETED_PKT_CNT = 0
EHP_MC_HIGH_DSCRD_CNT = 0
EHP_MC_LOW_DSCRD_CNT = 0
ERPP_LAG_PRUNING_DSCRD_CNT = 0
ERPP_PMF_DISCARDS_CNT = 0
ERPP_VLAN_MBR_DSCRD_CNT = 0

EPNI:
EPE_BYTES_COUNTER = 5459532
EPE_PKT_COUNTER = 52635
EPE_DSCRD_PKT_CNT = 0

NBI TX:
TX_TOTAL_BYTE_COUNTER = 2315363
TX_TOTAL_PKT_COUNTER = 15053
RP/0/RP0/CPU0:NCS-5500#
```

7.请参阅陷阱统计信息，以确定数据包是否已丢弃或重定向到CPU。

示例： show controllers npu stats traps-all instance

loc

```
RP/0/RP0/CPU0:NCS-5500#show controllers npu stats traps-all instance 2 location 0/0/CPU0
```

Trap Type	NPU	Trap	TrapStats	Policer	Packet	Packet
	ID	ID	ID		Accepted	Dropped
RxTrapMimDiscardMacsaDrop (IRB)	2	1	0x1	32045	0	0
RxTrapMimDiscardMacsaSnoop(dot1x)	2	3	0x3	32020	0	53
RxTrapMimSaMove(CFM_DOWM_MEP_DMM)	2	6	0x6	32039	0	0

```
RP/0/RP0/CPU0:NCS-5500#
```

8.对于陷阱计数器中未标记为丢弃的数据包，请查看SPP计数器以检查是否有任何潜在的丢弃。

示例： show spp node-counters loc

```

RP/0/RP0/CPU0:NCS-5500#show spp node-counters location 0/0/CPU0
socket/rx
    ether raw pkts:          4098990
-----
socket/tx
    ce pkts:                923918
-----
fretta/classify
    forwarded NPU packet to NetIO: 3536836
    forwarded CPU packet to NetIO:  102051
    forwarded NPU packet to SPI0:   360025
    dropped in classify node:        1638 <<<
    lnx 12 drop in classify node:    1637
    port-mapper drop:               1
-----

client/inject
    pkts injected into spp:        923728
    NetIO->NPU injected into spp:  461604
    NetIO->CPU injected into spp:  102132
-----

    LACP:                      128529
    LLDP:                      231463
-----
cfm_off_tx_node
    Hostname updated:            1
-----
pkt_classrx
    Other punt traffic to XR:     3998476
    LPTS: ICMPv4 to XR:          119
    LPTS: ARP request:           127
    Total Pkts to XR:            3998912
    Total Pkts punted to RP Lnx:  190
    LPTS: ARP reply:             190
    Total Pkts to both dests:    190
-----
client/punt
    punted to client:            3998861
    no client found - send to defa: 51
-----
RP/0/RP0/CPU0:NCS-5500#

```

9.如果未观察到陷阱增加，则继续检查虚拟输出队列(VOQ)统计信息。

示例：

show controllers npu voq-usage interface

instance

loc

show controllers npu stats voq base

instance

location

RP/0/RP0/CPU0:NCS-5500#show controllers npu voq-usage interface tenGigE 0/0/0/14 instance 2 location 0/

Node ID: 0/0/CPU0									
Intf name	Intf handle (hex)	NPU #	NPU core	PP Port	Sys Port	VOQ base	Flow base	VOQ port type	Port speed
Te0/0/0/14	1088	2	1	17	297	1728	6568	local	10G

RP/0/RP0/CPU0:NCS-5500#

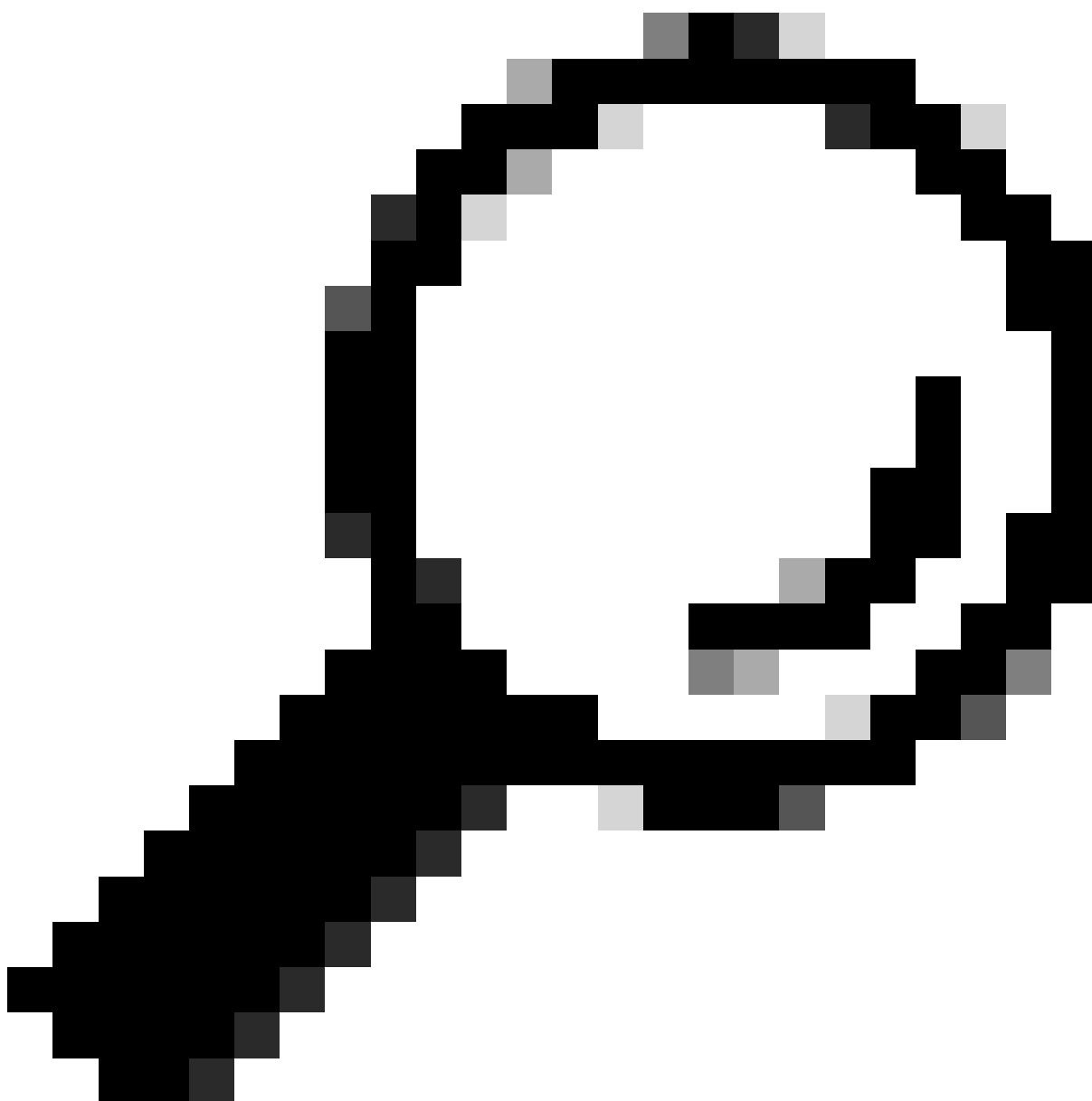
RP/0/RP0/CPU0:NCS-5500#show controllers npu stats voq base 1728 instance 2 loc 0/0/cpu0
Fri Jun 13 01:45:30.348 UTC

Location	=	0/0/CPU0			
Asic Instance	=	2			
VOQ Base	=	1728			
		ReceivedPkts	ReceivedBytes	DroppedPkts	DroppedBytes

Core-0:					
TC_0 = 0		0		0	0
TC_1 = 0		0		0	0
TC_2 = 0		0		0	0
TC_3 = 0		0		0	0
TC_4 = 0		0		0	0
TC_5 = 0		0		0	0
TC_6 = 0		0		0	0
TC_7 = 47929		7570783		0	0

RP/0/RP0/CPU0:NCS-5500#

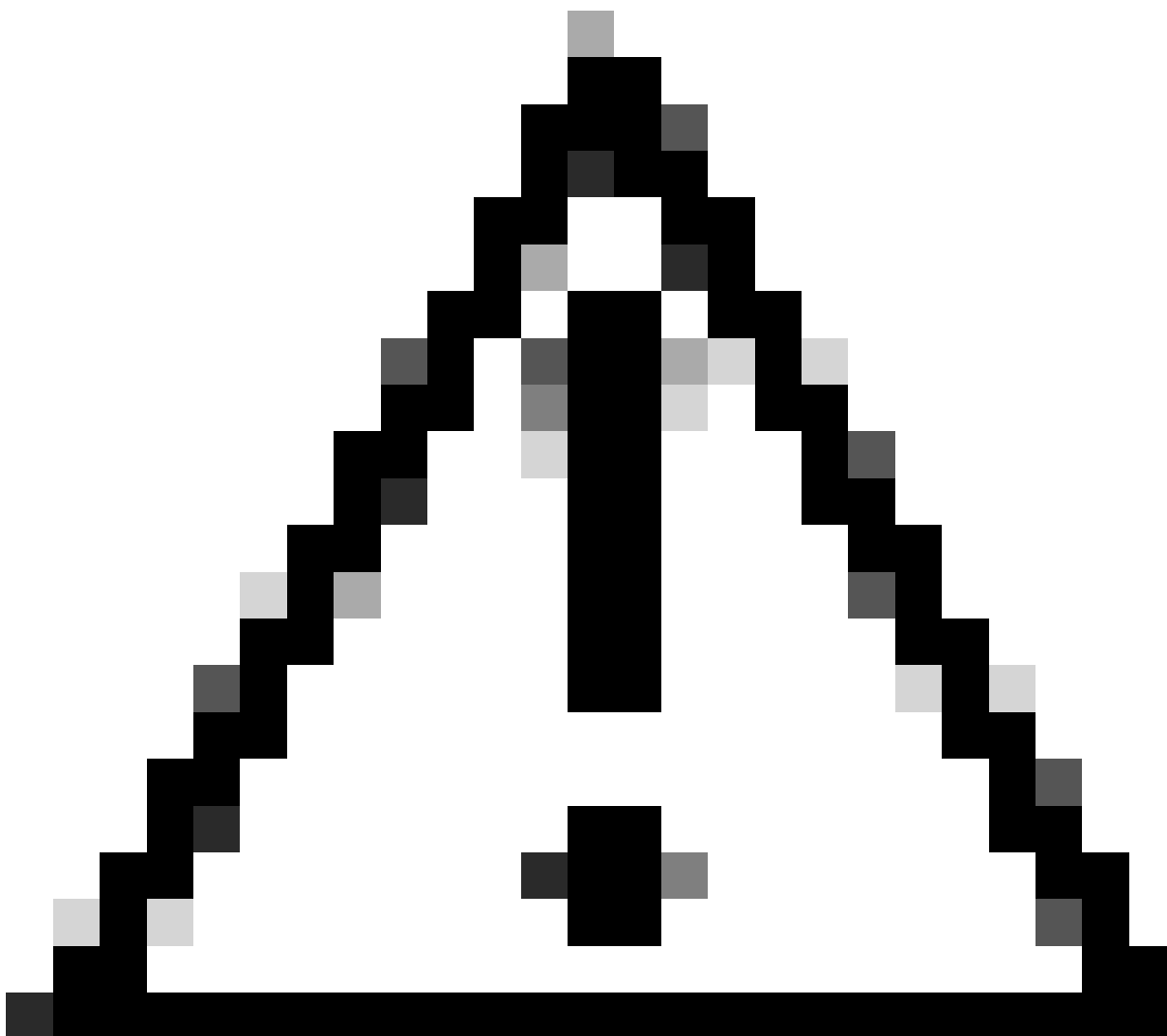
向TAC提交案例所需的信息



提示：定期多次运行上述命令，以主动监控并确定是否有计数器（例如错误、丢包或溢出）增加。

请收集本文档中提到的所有命令，以及这些用于全面故障排除的其他命令：

`show drops all ongoing location`



警告： For certain versions of Jericho1, the command used is **show drops-all ongoing location**

show tech-support

show captured packets ingress location

相关信息

[NCS 5500:数据包的寿命 \(传输、传送/注入、Ping路径 \)](#)

[思科技术支持和下载](#)

关于此翻译

思科采用人工翻译与机器翻译相结合的方式将此文档翻译成不同语言，希望全球的用户都能通过各自的语言得到支持性的内容。

请注意：即使是最好的机器翻译，其准确度也不及专业翻译人员的水平。

Cisco Systems, Inc. 对于翻译的准确性不承担任何责任，并建议您总是参考英文原始文档（已提供链接）。