Cisco Nexus 9000 Series NX-OS Platform Insights Engine Guide, Release 10.2(x)

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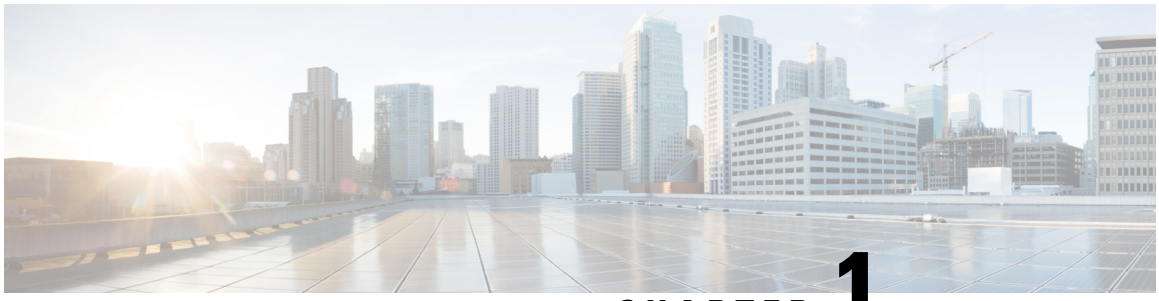


CHAPTER 1

New and Changed Information

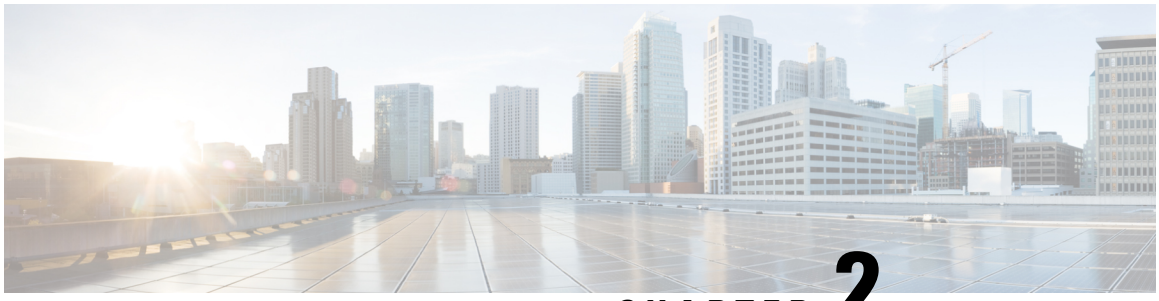
New and Changed Information

This table summarizes the new and changed features for the *Cisco Nexus 9000 Series NX-OS Platform Insights Engine Guide, Release 10.2(x)*, and their corresponding sections.

Table 1: New and Changed Features

Feature	Description	Changed in Release	Where Documented
No New features added for this release	Not Applicable	10.2(1)F	--
Platform Insights Engine Support in EOR Platform	Added support for PIE in EOR Platform.	10.2(2)F	Support Matrix for Platform Insights Engine (PIE), on page 3 Platform Insights Engine, on page 5

New and Changed Information



CHAPTER 2

Support Matrix for Platform Insights Engine

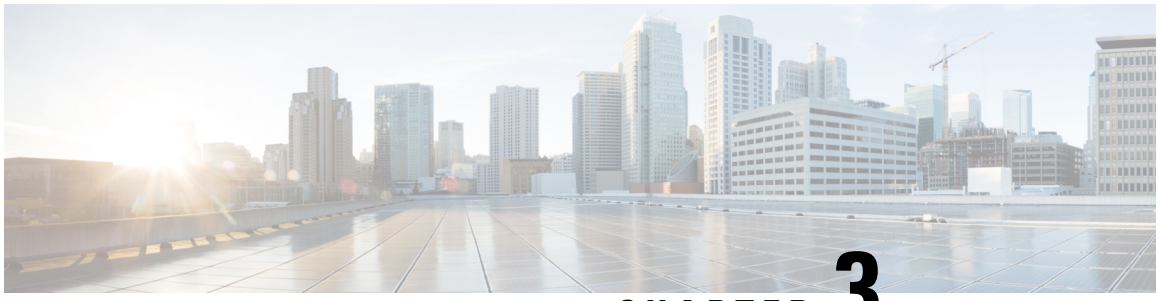
Support Matrix for Platform Insights Engine (PIE)

This chapter defines platform support for features that are supported across the entire suite of Cisco Nexus platforms.

The following are the supported platforms:

- All Modular chassis N9K-9504, N9K-9508, N9K-9516
- All Nexus 9000 Series TORS

Beginning with Cisco NX-OS release 10.2(2)F, Platform Insights Engine is supported on Cloudscale EOR platforms. Fretta EORs are not supported.



CHAPTER 3

Platform Insights Engine

About PIE

PIE is an on-switch real time root cause analysis application. To keep the service outages in a switch to a minimum, it gives insights about the current issues on the switch and visibility about the potential issues.

The PIE application enables you to:

- Collect data on a switch periodically or during a failure.
- Analyze the collected data.
- Find a root-cause for the issue.
- Reduce the time to resolve issues.

While the data collection should happen on a switch, the analysis can happen on the switch or off the switch. The collection and analysis can happen either online or offline.

Licensing Requirements

The PIE application does not require licensing information.

Guidelines and Limitations

The following are the general guidelines and limitations:

- All the data that is collected in EventDB is not written to persistent storage. Therefore, data is lost when the system is restarted, switched-off, or reloaded unexpectedly.

PIE Application

The PIE application is implemented as an independent process. It has an internal client which implements a set of insight engines. The actual engine logic is component specific. The internal PIE client provides a simpler way to plugin new insight engines.

PIEs subscribe to events they can analyze. The PIEs analyze raw data and generate insights, such as root cause analysis, about the event. The insights are published back to the broker as new events, which could be used for analysis in other PIEs.

The following list describes the PIEs:

Link Flap PIE

The link flap PIE analyzes link flap events published by user space drivers (USDs) and determines the root cause for a link flap. The PIE publishes the root cause analysis insight to the broker. Link flap events are published by the USDs (PIE client) when a link flaps. The USDs collect all of the relevant data from the ASIC and USD that is required for root cause analysis and publish the data to the broker. The link flap PIE analyzes the data and arrives at the most probable root cause for the flap.

Link Down PIE

The link down PIE finds the root cause for a link not coming up. The USD collects data about an interface when the interface is configured to be up, but the interface's operating state is not up. This data is published to the PIE application. The link down PIE subscribes to these events, receives the data from the broker, and analyzes the data to find the root cause.

Optics PIE

The optics PIE is a continuous monitoring engine that performs a time series analysis of the DOM data collected at regular intervals. By tracking various parameters in the DOM over a period, the PIE arrives at a metric to describe the state of optics for each optical port. The metric is an insight about the trending health of an optical transceiver.

SSD PIE

The SSD PIE provides a mechanism to debug high SSD usage. This PIE provides the top 10 process usage information.

CPU PIE

The CPU PIE provides a mechanism to debug high CPU usage. This PIE provides the top 10 processes that use the most CPU. The data is collected periodically to have a history of top 10 users of CPU usage.

Sensor PIE

The sensor PIE provides a mechanism to debug issues with the temperature sensors by maintaining a history of temperature sensor readings for the past 30 days. The PIE enables system environment readings (PSU, fan, and sensor) to be correlated and derives an insights metric.

Memory PIE

The memory PIE monitors the memory usage of the box. This PIE finds the top 10 users of memory and provides the data collection for detecting memory leaks.

PSU PIE

The PSU PIE monitors the health of the PSU and predicts if the PSU will have a failure. This PIE analyzes the relationship between power, voltage, and current, and captures the hardware state periodically.

Fan PIE

The fan PIE monitors the health of the fans. This PIE analyzes the relationship between pulse width modulation (PWM) and RPM, and makes it easier to find fans that have failed.

PIE Information Model

The following table provides the descriptions for the PIE information parameters:

Table 2: PIE Information Model

Information	Description
Event	A piece of information exchanged by clients associated with a timestamp.
Event ID	A unique identity number to identify an event in the database.
Event Class	An event class identifies the type of event.
Client ID	A Client ID identifies a PIE client.
Source ID	A Source ID identifies a logical source of an event.
Event Meta Data	Metadata consists of the event. It consists of Event ID, Class ID, Source ID, timestamp, and event data length. It is common to all events.
Event Data	The raw data collected by the source or the insight data is published by PIE.

Internal Commands for Broker and Publisher

The following show commands are associated with PIE:

Table 3: show commands

Command	Purpose
`switch# show pie eventdb all`	Lists all events in the eventdb.

Command	Purpose
`switch# show pie eventdb dom`	Lists the list of transceiver dom events.
`switch# show pie eventdb dom_db`	Lists health metrics of transceivers based on health metrics computed by optics pie.
`switch# show pie eventdb link-down`	Lists all link-down events.
`switch# show pie eventdb link-down [detail]`	Lists all link-down events. If you specify the **detail** flag, the output includes more information.
`switch# show pie eventdb link-down-rca`	Lists all the link-down events with reason for being down, computed by link-down pie.
`switch# show pie eventdb link-down-rca [detail]`	Lists all the link-down events with the reason for the link being down, computed by the link-down PIE. If you specify the **detail** flag, the output includes more information.
`switch# show pie eventdb link-flaps`	Lists all link-flap events.
`switch# show pie eventdb link-flaps [detail]`	Lists all link-flap events. If you specify the **detail** flag, the output includes more information.
`switch# show pie eventdb link-flap-rca`	Lists all the link-flap events with the reason for flaps based on the root cause analysis by on-switch link-flap insight engine.

`switch# show system internal bootflash-stats ?`
`current Show SSD IO stats from bootup`
`overall Show SSD IO overall usage`
`summary Show SSD aggregate summary`
	Lists all current SSD events.

`switch# show pie eventdb ssd-overall`	Lists all overall SSD events.
`switch# show pie interface ethernet 1/19 link-down-rca`	Lists the link-down events for a specific interface.
`switch# show pie eventid 26`	List the details of specific event (if eventid is known).
`switch# show pie interface ethernet 1/20 link-flap-rca`	Lists the link-flaps for a specific interface.
`switch# show pie interface ethernet 1/15 transceiver-insights`	Lists the transceiver insights for a specific interface.
`switch# show pie eventdb ssd-cur`	List all current SSD events.
`switch# show pie eventdb ssd-summary`	List the SSD aggregate summary events.
`switch# show pie eventdb psu insights [detail]`	Lists all fan insights. If you specify the **detail** flag, the output includes more information.
`switch# show pie envmon psu all [detail]`	Lists all fan events. If you specify the **detail** flag, the output includes more information.

Command	Purpose
switch# **show pie eventdb fan insights [detail]**	Lists all fan insights. If you specify the **detail** flag, the output includes more information.
switch# **show pie envmon fan [detail]**	Lists all fan events. If you specify the **detail** flag, the output includes more information.
switch# **show pie envmon mem-usage [detail]**	Lists all memory usage insights. If you specify the **detail** flag, the output includes more information.
switch# **show pie eventdb mem-usage [detail]**	Lists all memory usage events. If you specify the **detail** flag, the output includes more information.
switch# **show pie envmon cpu [detail]**	Lists all CPU insights. If you specify the **detail** flag, the output includes more information.
switch# **sshow pie eventdb cpu [detail]**	Lists all CPU events. If you specify the **detail** flag, the output includes more information.
switch# **show pie envmon sensor [detail]**	Lists all sensor insights. If you specify the **detail** flag, the output includes more information.
switch# **show pie eventdb sensor [detail]**	Lists all sensor events. If you specify the **detail** flag, the output includes more information.

Output Examples

The following examples display the sample output for the show commands:

```
switch# show pie eventdb all
2020-11-26 22:14:35   Event Id: 00000578  Event Class:  xcvr DOM DB Event  Source Id: 0428
2020-11-26 22:14:35   Event Id: 00000577  Event Class:  xcvr DOM DB Event   Source Id: 0404
2020-11-26 22:14:35   Event Id: 00000576  Event Class:  xcvr DOM DB Event
Source Id: 0400
2020-11-26 22:14:35   Event Id: 00000575  Event Class:  xcvr DOM Event
Source Id: 0428
2020-11-26 22:14:35   Event Id: 00000574  Event Class:  xcvr DOM Event
Source Id: 0404
2020-11-26 22:14:35   Event Id: 00000573  Event Class:  xcvr DOM Event
Source Id: 0400
2020-11-26 22:14:06   Event Id: 00000572  Event Class:  xcvr DOM DB Event
Source Id: 0056
2020-11-26 22:14:06   Event Id: 00000571  Event Class:  xcvr DOM Event
Source Id: 0056
2020-11-26 22:14:03   Event Id: 00000570  Event Class:  xcvr DOM DB Event
Source Id: 0000
2020-11-26 22:14:03   Event Id: 00000569  Event Class:  xcvr DOM Event
Source Id: 0000
2020-11-26 22:14:02   Event Id: 00000568  Event Class:  xcvr DOM DB Event
Source Id: 0012
2020-11-26 22:14:02   Event Id: 00000567  Event Class:  xcvr DOM Event
Source Id: 0012
```

```
switch# show pie eventdb dom
2020-11-26 22:14:35   Event Id: 00000575    Event Class:  xcvr DOM Event
Interface: Ethernet1/108    Source Id: 0428
```

```
2020-11-26 22:14:35   Event Id: 00000574    Event Class:  xcvr DOM Event
Interface: Ethernet1/102    Source Id: 0404
2020-11-26 22:14:35   Event Id: 00000573    Event Class:  xcvr DOM Event
Interface: Ethernet1/101    Source Id: 0400
2020-11-26 22:14:06   Event Id: 00000571    Event Class:  xcvr DOM Event
Interface: Ethernet1/15     Source Id: 0056
2020-11-26 22:14:03   Event Id: 00000569    Event Class:  xcvr DOM Event
Interface: Ethernet1/1      Source Id: 0000
2020-11-26 22:14:02   Event Id: 00000567    Event Class:  xcvr DOM Event
Interface: Ethernet1/4      Source Id: 0012
2020-11-26 22:14:01   Event Id: 00000565    Event Class:  xcvr DOM Event
```

```
switch# show pie eventdb dom detail
2020-11-27 03:00:02   Event Id: 00003440    Event Class:  xcvr DOM Event
Interface: Ethernet1/4      Source Id: 0012
************************************************************************
******

sensor      measurement      Hi Alarm      Lo Alarm      Hi Warn      Lo
Warn
************************************************************************
******
temperature   29.05 C         75.00 C      -5.00 C      70.00 C     00.80
C
volt          03.31 V         03.61 V      02.98 V      03.47 V     03.12
V
current       07.79 mA        12.19 mA     03.63 mA     11.14 mA    05.01
mA
TX power      -1.81 mdb       01.71 mdb    -11.21 mdb    -1.40 mdb   -
6.94 mdb
RX power      -2.30 mdb       01.98 mdb    -15.80 mdb    -0.87 mdb   -
11.15 mdb

2020-11-27 03:00:01   Event Id: 00003437    Event Class:  xcvr DOM Event
Interface: Ethernet1/3      Source Id: 0008
************************************************************************
******

sensor      measurement      Hi Alarm      Lo Alarm      Hi Warn      Lo
Warn
************************************************************************
******
temperature   25.76 C         75.00 C      -5.00 C      70.00 C     00.80
C
volt          03.31 V         03.61 V      02.98 V      03.47 V     03.14
V
current       06.85 mA        10.69 mA     02.31 mA     10.69 mA    02.45
mA
TX power      -2.30 mdb       01.71 mdb    -11.21 mdb    -1.40 mdb   -
6.94 mdb
RX power      00.00 mdb       01.98 mdb    -15.80 mdb    -0.87 mdb   -
11.15 mdb
```

```
switch# show pie eventdb dom_db
2020-11-26 22:16:35   Event Id: 00000626    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/108    Health Metric: --------GOOD----
---
2020-11-26 22:16:35   Event Id: 00000625    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/102    Health Metric: --------GOOD----
---
2020-11-26 22:16:35   Event Id: 00000624    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/101    Health Metric: --------GOOD----
---
2020-11-26 22:16:07   Event Id: 00000616    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/15     Health Metric: ------MODERATE--
```

```
---
2020-11-26 22:16:03   Event Id: 00000610    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/1      Health Metric: --------GOOD----
---
2020-11-26 22:16:02   Event Id: 00000608    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/4      Health Metric: --------GOOD----
---
2020-11-26 22:16:01   Event Id: 00000606    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/3      Health Metric: ------MODERATE--
---
2020-11-26 22:16:01   Event Id: 00000604    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/2      Health Metric: --------GOOD----
---
2020-11-26 22:14:35   Event Id: 00000578    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/108    Health Metric: --------GOOD----
---
2020-11-26 22:14:35   Event Id: 00000577    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/102    Health Metric: --------GOOD----
---
2020-11-26 22:14:35   Event Id: 00000576    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/101    Health Metric: --------GOOD----
---
2020-11-26 22:14:06   Event Id: 00000572    Event Class:  xcvr DOM DB
Event         Interface: Ethernet1/15     Health Metric: ------MODERATE--
---
```

```
switch# show pie eventdb link-flap-rca2021-10-11 21:06:42 Event Id: 00008592 Ethernet1/23
Source Id: 436297728 RCA Code: 41
Reason: Link flapped/down due to Local Fault, check peer
2021-10-11 21:06:42 Event Id: 00008590 Ethernet1/19 Source Id: 436281344 RCA Code: 41
Reason: Link flapped/down due to Local Fault, check peer
2021-10-08 20:46:02 Event Id: 00001826 Ethernet1/23 Source Id: 436297728 RCA Code: 41
Reason: Link flapped/down due to Local Fault, check peer
2021-10-08 20:46:02 Event Id: 00001824 Ethernet1/19 Source Id: 436281344 RCA Code: 41
Reason: Link flapped/down due to Local Fault, check peer
2021-10-08 03:35:46 Event Id: 00000588 Ethernet1/32 Source Id: 436334592 RCA Code: 28
Reason: Link flapped due to UnderRun error on MAC
```

```
switch# show pie eventdb link-flap-rca detail
2021-10-11 21:06:42 Event Id: 00008592 Ethernet1/23 Source Id: 436297728 RCA Code: 41
Reason: Link flapped/down due to Local Fault, check peer
Link flap Reason : Link flapped/down due to Local Fault, check peer
Source Event id : 8591
*************** Meta Details************************
ifindex : 0x0
port_no : 88
phy_port_no : 0
link_event_type : 0
link_status : 0
retimer_port : 0
asic_type : 0
phy_type : 0
phy_mode : 0
link_down_rca : 0
xcvr_supported : 1
is_phy_port : 0
is_copper : 0
*************** SW Admin Details************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 20000
sw_port_fec : 0
sw_port_loopback : 0
sw_port_mtu : 9022
```

```
sw_breaklout_map : 0
sw_port_ipg : 0
sw_port_prbs : 0
sw_xcvr_present : 0
sw_glct_present : 0
sw_qsa_present : 0
sw_phy_present : 0
sw_port_purged : 0
hw_port_present : 0
*************** HW Admin Details*************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 20000
sw_port_fec : 0
sw_port_loopback : 0
sw_port_mtu : 0
***************Port SM Details************************
port_sm_type : 0
port_sm_state : 0
***************MAC Layer Details*************************
signal_detect : 1
num_lanes : 2
start_lane : 4
tx_enable : 0
rx_enable : 0
fault_status : 1
rx_crc_errors : 0
tx_crc_errors : 0
len_errors : 0
framing_errors : 0
tx_fifo_err : 0
rx_fifo_err : 0
***************PCS Layer Details*************************
block_lock_loss : 0
fault : 0
phy_fifo_error : 0
decoder_trap : 0
deskew_overflow : 0
sync_loss : 0
high_ber : 0
high_ser : 0
error_blocks : 0
alignment_loss : 0
alignment_status : 0
rx_pcs_block_err : 0
rx_pcs_test_err : 0
rx_pcs_sync_err : 0
rx_pcs_bip_err : 0
rx_pcs_align_map_err : 0
rx_pcs_align_skew_err : 0
rx_pcs_fec_cw_err : 0
rx_pcs_align_marker_err : 0
***************Fec Layer Details*************************
FC_ECC_error : 0
RS_ECC_error : 0
RS_alignment_lost : 0
RS_uncorr_err : 0
RS_deskew_err : 0
RS_BER_over_thres_err : 0
FC_uncorr_err : 0
FC_bad_uncorr_code_word : 0
***************PHY Details************************
hrx_lanes : 0x30
```

```
htx_lanes : 0x30
lrx_lanes : 0xf
ltx_lanes : 0xf
op_mode : 2
fec_mode : 1
***************XCVR Details************************
xcvr_type : 57
xcvr_present : 1
laser_disabled : 0
diags_supported : 0
tx_los : 0
rx_los : 0
tx_fault : 0
tx_adapt_eq_fault : 0
tx_cdr_lol : 0
rx_cdr_lol : 0
temp_high_alarm : 0
temp_low_alarm : 0
temp_high_warning : 0
temp_low_warning : 0
voltage_high_alarm : 0
voltage_low_alarm : 0
voltage_high_warning : 0
voltage_low_warning : 0
rx_power_high_alarm : 0
rx_power_low_alarm : 0
rx_power_high_warning : 0
rx_power_low_warning : 0
tx_power_high_alarm : 0
tx_power_low_alarm : 0
tx_power_high_warning : 0
tx_power_low_warning : 0
bias_current_high_alarm : 0
bias_current_low_alarm : 0
bias_current_high_warning : 0
bias_current_low_warning : 0
laser_temp_high_alarm : 0
laser_temp_low_alarm : 0
laser_temp_high_warning : 0
laser_temp_low_warning : 0
tec_current_high_alarm : 0
tec_current_low_alarm : 0
tec_current_high_warning : 0
tec_current_low_warning : 0
2021-10-11 21:06:42 Event Id: 00008590 Ethernet1/19 Source Id: 436281344 RCA Code: 41
Reason: Link flapped/down due to Local Fault, check peer
Link flap Reason : Link flapped/down due to Local Fault, check peer
Source Event id : 8589
*************** Meta Details************************
ifindex : 0x0
port_no : 72
phy_port_no : 0
link_event_type : 0
link_status : 0
retimer_port : 0
asic_type : 0
phy_type : 0
phy_mode : 0
link_down_rca : 0
xcvr_supported : 1
is_phy_port : 0
is_copper : 0
*************** SW Admin Details************************
sw_port_admin_state : 1
```

```
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 50000
sw_port_fec : 2
sw_port_loopback : 0
sw_port_mtu : 9022
sw_breaklout_map : 0
sw_port_ipg : 0
sw_port_prbs : 0
sw_xcvr_present : 0
sw_glct_present : 0
sw_qsa_present : 0
sw_phy_present : 0
sw_port_purged : 0
hw_port_present : 0
*************** HW Admin Details*************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 50000
sw_port_fec : 2
sw_port_loopback : 0
sw_port_mtu : 0
***************Port SM Details*************************
port_sm_type : 0
port_sm_state : 0
***************MAC Layer Details*************************
signal_detect : 1
num_lanes : 2
start_lane : 4
tx_enable : 0
rx_enable : 0
fault_status : 1
rx_crc_errors : 0
tx_crc_errors : 0
len_errors : 0
framing_errors : 0
tx_fifo_err : 0
rx_fifo_err : 0
***************PCS Layer Details*************************
block_lock_loss : 0
fault : 0
phy_fifo_error : 0
decoder_trap : 0
deskew_overflow : 0
sync_loss : 0
high_ber : 0
high_ser : 0
error_blocks : 0
alignment_loss : 0
alignment_status : 0
rx_pcs_block_err : 0
rx_pcs_test_err : 0
rx_pcs_sync_err : 0
rx_pcs_bip_err : 0
rx_pcs_align_map_err : 0
rx_pcs_align_skew_err : 0
rx_pcs_fec_cw_err : 0
rx_pcs_align_marker_err : 0
***************Fec Layer Details*************************
FC_ECC_error : 0
RS_ECC_error : 0
RS_alignment_lost : 0
RS_uncorr_err : 0
```

```
RS_deskew_err : 0
RS_BER_over_thres_err : 0
FC_uncorr_err : 0
FC_bad_uncorr_code_word : 0
***************PHY Details*************************
hrx_lanes : 0x30
htx_lanes : 0x30
lrx_lanes : 0xf
ltx_lanes : 0xf
op_mode : 2
fec_mode : 2
***************XCVR Details*************************
xcvr_type : 80
xcvr_present : 1
laser_disabled : 0
diags_supported : 0
tx_los : 0
rx_los : 0
tx_fault : 0
tx_adapt_eq_fault : 0
tx_cdr_lol : 0
rx_cdr_lol : 0
temp_high_alarm : 0
temp_low_alarm : 0
temp_high_warning : 0
temp_low_warning : 0
voltage_high_alarm : 0
voltage_low_alarm : 0
voltage_high_warning : 0
voltage_low_warning : 0
rx_power_high_alarm : 0
rx_power_low_alarm : 0
rx_power_high_warning : 0
rx_power_low_warning : 0
tx_power_high_alarm : 0
tx_power_low_alarm : 0
tx_power_high_warning : 0
tx_power_low_warning : 0
bias_current_high_alarm : 0
bias_current_low_alarm : 0
bias_current_high_warning : 0
bias_current_low_warning : 0
laser_temp_high_alarm : 0
laser_temp_low_alarm : 0
laser_temp_high_warning : 0
laser_temp_low_warning : 0
tec_current_high_alarm : 0
tec_current_low_alarm : 0
tec_current_high_warning : 0
tec_current_low_warning : 0
```

```
switch# show pie eventdb link-down-rca
2021-10-11 21:23:38 Event Id: 00008624 Ethernet1/1 Source Id: 436207616 RCA Code: 16
Reason: No PCS alignment detected. Please check Fec, speed, Autoneg configurations with
peer
2021-10-11 21:23:23 Event Id: 00008622 Ethernet1/1 Source Id: 436207616 RCA Code: 1
Reason: No Signal from peer is detected .Please check peer configuration.
2021-10-11 21:17:13 Event Id: 00008616 Ethernet1/23 Source Id: 436297728 RCA Code: 1
Reason: No Signal from peer is detected .Please check peer configuration.
2021-10-11 21:16:28 Event Id: 00008614 Ethernet1/23 Source Id: 436297728 RCA Code: 16
Reason: No PCS alignment detected. Please check Fec, speed, Autoneg configurations with
peer
2021-10-11 21:16:22 Event Id: 00008612 Ethernet1/1 Source Id: 436207616 RCA Code: 16
Reason: No PCS alignment detected. Please check Fec, speed, Autoneg configurations with
peer
```

```
2021-10-11 21:07:13 Event Id: 00008598 Ethernet1/23 Source Id: 436297728 RCA Code: 1
Reason: No Signal from peer is detected .Please check peer configuration.
2021-10-11 21:07:12 Event Id: 00008596 Ethernet1/19 Source Id: 436281344 RCA Code: 1
Reason: No Signal from peer is detected .Please check peer configuration.
2021-10-11 21:07:07 Event Id: 00008594 Ethernet1/1 Source Id: 436207616 RCA Code: 1
Reason: No Signal from peer is detected .Please check peer configuration.
```

```
switch# show pie eventdb link-down-rca detail
2021-10-11 21:23:38 Event Id: 00008624 Ethernet1/1 Source Id: 436207616 RCA Code: 16
Reason: No PCS alignment detected. Please check Fec, speed, Autoneg configurations with
peer
Link Down Reason :No PCS alignment detected. Please check Fec, speed, Autoneg configurations
with peer
Link Down Event id :8623
Source Event id :8623
*************** Meta Details*************************
ifindex : 0x1a000000
port_no : 0
phy_port_no : 0
link_event_type : 0
link_status : 0
retimer_port : 0
asic_type : 0
phy_type : 0
phy_mode : 0
link_down_rca : 0
xcvr_supported : 1
is_phy_port : 0
is_copper : 0
*************** SW Admin Details*************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 50000
sw_port_fec : 2
sw_port_loopback : 0
sw_port_mtu : 9022
sw_breaklout_map : 0
sw_port_ipg : 0
sw_port_prbs : 0
sw_xcvr_present : 0
sw_glct_present : 0
sw_qsa_present : 0
sw_phy_present : 0
sw_port_purged : 0
hw_port_present : 0
*************** HW Admin Details*************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 50000
sw_port_fec : 2
sw_port_loopback : 0
sw_port_mtu : 0
***************Port SM Details*************************
port_sm_type : 0
port_sm_state : 0
***************MAC Layer Details*************************
signal_detect : 1
num_lanes : 2
start_lane : 0
tx_enable : 0
rx_enable : 0
fault_status : 0
rx_crc_errors : 0
```

```
tx_crc_errors : 0
len_errors : 0
framing_errors : 0
tx_fifo_err : 0
rx_fifo_err : 0
***************PCS Layer Details*************************
block_lock_loss : 0
fault : 0
phy_fifo_error : 0
decoder_trap : 0
deskew_overflow : 0
sync_loss : 0
high_ber : 0
high_ser : 0
error_blocks : 0
alignment_loss : 0
alignment_status : 0
rx_pcs_block_err : 0
rx_pcs_test_err : 0
rx_pcs_sync_err : 0
rx_pcs_bip_err : 0
rx_pcs_align_map_err : 0
rx_pcs_align_skew_err : 0
rx_pcs_fec_cw_err : 0
rx_pcs_align_marker_err : 0
***************Fec Layer Details*************************
FC_ECC_error : 0
RS_ECC_error : 0
RS_alignment_lost : 0
RS_uncorr_err : 0
RS_deskew_err : 0
RS_BER_over_thres_err : 0
FC_uncorr_err : 0
FC_bad_uncorr_code_word : 0
***************PHY Details*************************
hrx_lanes : 0xc0
htx_lanes : 0xc0
lrx_lanes : 0xf0
ltx_lanes : 0xf0
op_mode : 2
fec_mode : 2
***************XCVR Details*************************
xcvr_type : 80
xcvr_present : 1
laser_disabled : 0
diags_supported : 0
tx_los : 240
rx_los : 0
tx_fault : 0
tx_adapt_eq_fault : 0
tx_cdr_lol : 0
rx_cdr_lol : 0
temp_high_alarm : 0
temp_low_alarm : 0
temp_high_warning : 0
temp_low_warning : 0
voltage_high_alarm : 0
voltage_low_alarm : 0
voltage_high_warning : 0
voltage_low_warning : 0
rx_power_high_alarm : 0
rx_power_low_alarm : 0
rx_power_high_warning : 0
rx_power_low_warning : 0
```

```
tx_power_high_alarm : 0
tx_power_low_alarm : 0
tx_power_high_warning : 0
tx_power_low_warning : 0
bias_current_high_alarm : 0
bias_current_low_alarm : 0
bias_current_high_warning : 0
bias_current_low_warning : 0
laser_temp_high_alarm : 0
laser_temp_low_alarm : 0
laser_temp_high_warning : 0
laser_temp_low_warning : 0
tec_current_high_alarm : 0
tec_current_low_alarm : 0
tec_current_high_warning : 0
tec_current_low_warning : 0
2021-10-11 21:23:23 Event Id: 00008622 Ethernet1/1 Source Id: 436207616 RCA Code: 1
Reason: No Signal from peer is detected .Please check peer configuration.
Link Down Reason :No Signal from peer is detected .Please check peer configuration.
Link Down Event id :8621
Source Event id :8621
*************** Meta Details*************************
ifindex : 0x1a000000
port_no : 0
phy_port_no : 0
link_event_type : 0
link_status : 0
retimer_port : 0
asic_type : 0
phy_type : 0
phy_mode : 0
link_down_rca : 0
xcvr_supported : 1
is_phy_port : 0
is_copper : 0
*************** SW Admin Details*************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 50000
sw_port_fec : 2
sw_port_loopback : 0
sw_port_mtu : 9022
sw_breaklout_map : 0
sw_port_ipg : 0
sw_port_prbs : 0
sw_xcvr_present : 0
sw_glct_present : 0
sw_qsa_present : 0
sw_phy_present : 0
sw_port_purged : 0
hw_port_present : 0
*************** HW Admin Details*************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 50000
sw_port_fec : 2
sw_port_loopback : 0
sw_port_mtu : 0
***************Port SM Details*************************
port_sm_type : 0
port_sm_state : 0
***************MAC Layer Details*************************
```

```
signal_detect : 0
num_lanes : 2
start_lane : 0
tx_enable : 0
rx_enable : 0
fault_status : 0
rx_crc_errors : 0
tx_crc_errors : 0
len_errors : 0
framing_errors : 0
tx_fifo_err : 0
rx_fifo_err : 0
***************PCS Layer Details*************************
block_lock_loss : 0
fault : 0
phy_fifo_error : 0
decoder_trap : 0
deskew_overflow : 0
sync_loss : 0
high_ber : 0
high_ser : 0
error_blocks : 0
alignment_loss : 0
alignment_status : 0
rx_pcs_block_err : 0
rx_pcs_test_err : 0
rx_pcs_sync_err : 0
rx_pcs_bip_err : 0
rx_pcs_align_map_err : 0
rx_pcs_align_skew_err : 0
rx_pcs_fec_cw_err : 0
rx_pcs_align_marker_err : 0
***************Fec Layer Details*************************
FC_ECC_error : 0
RS_ECC_error : 0
RS_alignment_lost : 0
RS_uncorr_err : 0
RS_deskew_err : 0
RS_BER_over_thres_err : 0
FC_uncorr_err : 0
FC_bad_uncorr_code_word : 0
***************PHY Details*************************
hrx_lanes : 0xc0
htx_lanes : 0xc0
lrx_lanes : 0xf0
ltx_lanes : 0xf0
op_mode : 2
fec_mode : 2
***************XCVR Details*************************
xcvr_type : 80
xcvr_present : 1
laser_disabled : 0
diags_supported : 0
tx_los : 240
rx_los : 15
tx_fault : 0
tx_adapt_eq_fault : 0
tx_cdr_lol : 0
rx_cdr_lol : 0
temp_high_alarm : 0
temp_low_alarm : 0
temp_high_warning : 0
temp_low_warning : 0
voltage_high_alarm : 0
```

```
voltage_low_alarm : 0
voltage_high_warning : 0
voltage_low_warning : 0
rx_power_high_alarm : 0
rx_power_low_alarm : 0
rx_power_high_warning : 0
rx_power_low_warning : 0
tx_power_high_alarm : 0
tx_power_low_alarm : 0
tx_power_high_warning : 0
tx_power_low_warning : 0
bias_current_high_alarm : 0
bias_current_low_alarm : 0
bias_current_high_warning : 0
bias_current_low_warning : 0
laser_temp_high_alarm : 0
laser_temp_low_alarm : 0
laser_temp_high_warning : 0
laser_temp_low_warning : 0
tec_current_high_alarm : 0
tec_current_low_alarm : 0
tec_current_high_warning : 0
tec_current_low_warning : 0
```

```
switch# show pie interface ethernet 1/1 link-down-rca
2021-10-11 21:23:38 Event Id: 00008624 Ethernet1/1 Source Id: 436207616 RCA Code: 16
Reason: No PCS alignment detected. Please check Fec, speed, Autoneg configurations with
peer
```

```
switch# show pie interface ethernet 1/1 link-down-rca detail
2021-10-11 21:23:38 Event Id: 00008624 Ethernet1/1 Source Id: 436207616 RCA Code: 16
Reason: No PCS alignment detected. Please check Fec, speed, Autoneg configurations with
peer
Link Down Reason :No PCS alignment detected. Please check Fec, speed, Autoneg configurations
with peer
Link Down Event id :8623
Source Event id :8623
*************** Meta Details************************
ifindex : 0x1a000000
port_no : 0
phy_port_no : 0
link_event_type : 0
link_status : 0
retimer_port : 0
asic_type : 0
phy_type : 0
phy_mode : 0
link_down_rca : 0
xcvr_supported : 1
is_phy_port : 0
is_copper : 0
*************** SW Admin Details************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 50000
sw_port_fec : 2
sw_port_loopback : 0
sw_port_mtu : 9022
sw_breaklout_map : 0
sw_port_ipg : 0
sw_port_prbs : 0
sw_xcvr_present : 0
sw_glct_present : 0
sw_qsa_present : 0
```

```
sw_phy_present : 0
sw_port_purged : 0
hw_port_present : 0
*************** HW Admin Details*************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 50000
sw_port_fec : 2
sw_port_loopback : 0
sw_port_mtu : 0
***************Port SM Details************************
port_sm_type : 0
port_sm_state : 0
***************MAC Layer Details************************
signal_detect : 1
num_lanes : 2
start_lane : 0
tx_enable : 0
rx_enable : 0
fault_status : 0
rx_crc_errors : 0
tx_crc_errors : 0
len_errors : 0
framing_errors : 0
tx_fifo_err : 0
rx_fifo_err : 0
***************PCS Layer Details************************
block_lock_loss : 0
fault : 0
phy_fifo_error : 0
decoder_trap : 0
deskew_overflow : 0
sync_loss : 0
high_ber : 0
high_ser : 0
error_blocks : 0
alignment_loss : 0
alignment_status : 0
rx_pcs_block_err : 0
rx_pcs_test_err : 0
rx_pcs_sync_err : 0
rx_pcs_bip_err : 0
rx_pcs_align_map_err : 0
rx_pcs_align_skew_err : 0
rx_pcs_fec_cw_err : 0
rx_pcs_align_marker_err : 0
***************Fec Layer Details************************
FC_ECC_error : 0
RS_ECC_error : 0
RS_alignment_lost : 0
RS_uncorr_err : 0
RS_deskew_err : 0
RS_BER_over_thres_err : 0
FC_uncorr_err : 0
FC_bad_uncorr_code_word : 0
***************PHY Details************************
hrx_lanes : 0xc0
htx_lanes : 0xc0
lrx_lanes : 0xf0
ltx_lanes : 0xf0
op_mode : 2
fec_mode : 2
***************XCVR Details************************
```

```
xcvr_type : 80
xcvr_present : 1
laser_disabled : 0
diags_supported : 0
tx_los : 240
rx_los : 0
tx_fault : 0
tx_adapt_eq_fault : 0
tx_cdr_lol : 0
rx_cdr_lol : 0
temp_high_alarm : 0
temp_low_alarm : 0
temp_high_warning : 0
temp_low_warning : 0
voltage_high_alarm : 0
voltage_low_alarm : 0
voltage_high_warning : 0
voltage_low_warning : 0
rx_power_high_alarm : 0
rx_power_low_alarm : 0
rx_power_high_warning : 0
rx_power_low_warning : 0
tx_power_high_alarm : 0
tx_power_low_alarm : 0
tx_power_high_warning : 0
tx_power_low_warning : 0
bias_current_high_alarm : 0
bias_current_low_alarm : 0
bias_current_high_warning : 0
bias_current_low_warning : 0
laser_temp_high_alarm : 0
laser_temp_low_alarm : 0
laser_temp_high_warning : 0
laser_temp_low_warning : 0
tec_current_high_alarm : 0
tec_current_low_alarm : 0
tec_current_high_warning : 0
tec_current_low_warning : 0
```

```
switch# show pie interface ethernet 1/23 link-flap-rca
2021-10-11 21:06:42 Event Id: 00008592 Ethernet1/23 Source Id: 436297728 RCA Code: 41
Reason: Link flapped/down due to Local Fault, check peer
2021-10-08 20:46:02 Event Id: 00001826 Ethernet1/23 Source Id: 436297728 RCA Code: 41
Reason: Link flapped/down due to Local Fault, check peer
```

```
switch# show pie interface ethernet 1/23 link-flap-rca detail
2021-10-11 21:06:42 Event Id: 00008592 Ethernet1/23 Source Id: 436297728 RCA Code: 41
Reason: Link flapped/down due to Local Fault, check peer
Link flap Reason : Link flapped/down due to Local Fault, check peer
Source Event id : 8591
*************** Meta Details************************
ifindex : 0x0
port_no : 88
phy_port_no : 0
link_event_type : 0
link_status : 0
retimer_port : 0
asic_type : 0
phy_type : 0
phy_mode : 0
link_down_rca : 0
xcvr_supported : 1
is_phy_port : 0
is_copper : 0
*************** SW Admin Details************************
```

```
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 20000
sw_port_fec : 0
sw_port_loopback : 0
sw_port_mtu : 9022
sw_breaklout_map : 0
sw_port_ipg : 0
sw_port_prbs : 0
sw_xcvr_present : 0
sw_glct_present : 0
sw_qsa_present : 0
sw_phy_present : 0
sw_port_purged : 0
hw_port_present : 0
*************** HW Admin Details*************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 20000
sw_port_fec : 0
sw_port_loopback : 0
sw_port_mtu : 0
***************Port SM Details************************
port_sm_type : 0
port_sm_state : 0
***************MAC Layer Details*************************
signal_detect : 1
num_lanes : 2
start_lane : 4
tx_enable : 0
rx_enable : 0
fault_status : 1
rx_crc_errors : 0
tx_crc_errors : 0
len_errors : 0
framing_errors : 0
tx_fifo_err : 0
rx_fifo_err : 0
***************PCS Layer Details*************************
block_lock_loss : 0
fault : 0
phy_fifo_error : 0
decoder_trap : 0
deskew_overflow : 0
sync_loss : 0
high_ber : 0
high_ser : 0
error_blocks : 0
alignment_loss : 0
alignment_status : 0
rx_pcs_block_err : 0
rx_pcs_test_err : 0
rx_pcs_sync_err : 0
rx_pcs_bip_err : 0
rx_pcs_align_map_err : 0
rx_pcs_align_skew_err : 0
rx_pcs_fec_cw_err : 0
rx_pcs_align_marker_err : 0
***************Fec Layer Details*************************
FC_ECC_error : 0
RS_ECC_error : 0
RS_alignment_lost : 0
```

```
RS_uncorr_err : 0
RS_deskew_err : 0
RS_BER_over_thres_err : 0
FC_uncorr_err : 0
FC_bad_uncorr_code_word : 0
***************PHY Details*************************
hrx_lanes : 0x30
htx_lanes : 0x30
lrx_lanes : 0xf
ltx_lanes : 0xf
op_mode : 2
fec_mode : 1
***************XCVR Details*************************
xcvr_type : 57
xcvr_present : 1
laser_disabled : 0
diags_supported : 0
tx_los : 0
rx_los : 0
tx_fault : 0
tx_adapt_eq_fault : 0
tx_cdr_lol : 0
rx_cdr_lol : 0
temp_high_alarm : 0
temp_low_alarm : 0
temp_high_warning : 0
temp_low_warning : 0
voltage_high_alarm : 0
voltage_low_alarm : 0
voltage_high_warning : 0
voltage_low_warning : 0
rx_power_high_alarm : 0
rx_power_low_alarm : 0
rx_power_high_warning : 0
rx_power_low_warning : 0
tx_power_high_alarm : 0
tx_power_low_alarm : 0
tx_power_high_warning : 0
tx_power_low_warning : 0
bias_current_high_alarm : 0
bias_current_low_alarm : 0
bias_current_high_warning : 0
bias_current_low_warning : 0
laser_temp_high_alarm : 0
laser_temp_low_alarm : 0
laser_temp_high_warning : 0
laser_temp_low_warning : 0
tec_current_high_alarm : 0
tec_current_low_alarm : 0
tec_current_high_warning : 0
tec_current_low_warning : 0
2021-10-08 20:46:02 Event Id: 00001826 Ethernet1/23 Source Id: 436297728 RCA Code: 41
Reason: Link flapped/down due to Local Fault, check peer
Link flap Reason : Link flapped/down due to Local Fault, check peer
Source Event id : 1825
*************** Meta Details*************************
ifindex : 0x0
port_no : 88
phy_port_no : 0
link_event_type : 0
link_status : 0
retimer_port : 0
asic_type : 0
phy_type : 0
```

```
phy_mode : 0
link_down_rca : 0
xcvr_supported : 1
is_phy_port : 0
is_copper : 0
*************** SW Admin Details*************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 20000
sw_port_fec : 0
sw_port_loopback : 0
sw_port_mtu : 9022
sw_breaklout_map : 0
sw_port_ipg : 0
sw_port_prbs : 0
sw_xcvr_present : 0
sw_glct_present : 0
sw_qsa_present : 0
sw_phy_present : 0
sw_port_purged : 0
hw_port_present : 0
*************** HW Admin Details*************************
sw_port_admin_state : 1
sw_port_oper_state : 2
sw_port_autoneg : 1
sw_port_speed : 20000
sw_port_fec : 0
sw_port_loopback : 0
sw_port_mtu : 0
***************Port SM Details*************************
port_sm_type : 0
port_sm_state : 0
***************MAC Layer Details*************************
signal_detect : 1
num_lanes : 2
start_lane : 4
tx_enable : 0
rx_enable : 0
fault_status : 1
rx_crc_errors : 0
tx_crc_errors : 0
len_errors : 0
framing_errors : 0
tx_fifo_err : 0
rx_fifo_err : 0
***************PCS Layer Details*************************
block_lock_loss : 0
fault : 0
phy_fifo_error : 0
decoder_trap : 0
deskew_overflow : 0
sync_loss : 0
high_ber : 0
high_ser : 0
error_blocks : 0
alignment_loss : 0
alignment_status : 0
rx_pcs_block_err : 0
rx_pcs_test_err : 0
rx_pcs_sync_err : 0
rx_pcs_bip_err : 0
rx_pcs_align_map_err : 0
rx_pcs_align_skew_err : 0
```

```
rx_pcs_fec_cw_err : 0
rx_pcs_align_marker_err : 0
***************Fec Layer Details************************
FC_ECC_error : 0
RS_ECC_error : 0
RS_alignment_lost : 0
RS_uncorr_err : 0
RS_deskew_err : 0
RS_BER_over_thres_err : 0
FC_uncorr_err : 0
FC_bad_uncorr_code_word : 0
***************PHY Details************************
hrx_lanes : 0x30
htx_lanes : 0x30
lrx_lanes : 0xf
ltx_lanes : 0xf
op_mode : 2
fec_mode : 1
***************XCVR Details************************
xcvr_type : 57
xcvr_present : 1
laser_disabled : 0
diags_supported : 0
tx_los : 0
rx_los : 0
tx_fault : 0
tx_adapt_eq_fault : 0
tx_cdr_lol : 0
rx_cdr_lol : 0
temp_high_alarm : 0
temp_low_alarm : 0
temp_high_warning : 0
temp_low_warning : 0
voltage_high_alarm : 0
voltage_low_alarm : 0
voltage_high_warning : 0
voltage_low_warning : 0
rx_power_high_alarm : 0
rx_power_low_alarm : 0
rx_power_high_warning : 0
rx_power_low_warning : 0
tx_power_high_alarm : 0
tx_power_low_alarm : 0
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tx_power_high_warning : 0
tx_power_low_warning : 0
bias_current_high_alarm : 0
bias_current_low_alarm : 0
bias_current_high_warning : 0
bias_current_low_warning : 0
laser_temp_high_alarm : 0
laser_temp_low_alarm : 0
laser_temp_high_warning : 0
laser_temp_low_warning : 0
tec_current_high_alarm : 0
tec_current_low_alarm : 0
tec_current_high_warning : 0
tec_current_low_warning : 0
```