



Tracking Policy Failure Statistics

Users can track the number of calls that Cisco Unified Border Element (SP Edition) rejected based on the rules established in the number analysis policies, routing policies, or Call Admission Control (CAC) policies. Users can also view and query the policy failure statistics associated with these rejected calls, which can help them determine whether changes need to be made to the existing policies.

Cisco Unified Border Element (SP Edition) was formerly known as Integrated Session Border Controller and may be commonly referred to in this document as the session border controller (SBC).

For a complete description of the commands used in this chapter, refer to the *Cisco Unified Border Element (SP Edition) Command Reference: Unified Model* at:

http://www.cisco.com/en/US/docs/ios/sbc/command/reference/sbcu_book.html.

For information about all Cisco IOS commands, use the Command Lookup Tool at <http://tools.cisco.com/Support/CLILookup> or a Cisco IOS master commands list.



Note

For Cisco IOS XE Release 2.4, this feature is supported in the unified model only.

Feature History for Policy Failure Statistics

Release	Modification
Cisco IOS XE Release 2.4	This feature was introduced on the Cisco IOS XR along with support for the unified model.

Contents

This module contains the following sections:

- [Restrictions for Tracking Call Policy Failure Statistics, page 42-2](#)
- [Information About Policy Failure Statistics, page 42-2](#)

Restrictions for Tracking Call Policy Failure Statistics

Review the following restrictions for policy failure statistics:

- Only new call failures are tracked by this feature.
- Only call failures associated with local policy are recorded. Calls rejected by downstream signaling devices are not included in this statistics.

Information About Policy Failure Statistics

The section provides information on the following:

- [Policy Failure Statistics for a Specified Time Interval, page 42-2](#)
- [Policy Set and Per-Entry Statistics, page 42-2](#)
- [Automatic Tracking of Policy Failure Statistics, page 42-3](#)
- [Policy Failure Statistics and Hunting, page 42-4](#)

Policy Failure Statistics for a Specified Time Interval

[Table 42-1](#) lists the command to view and clear the failure statistics on the specified signaling border element (SBE) for a certain time interval.

Table 42-1 Commands for Time-Based Policy Failure Statistics

clear sbc <i>service-name</i> sbe policy-failure-stats	Clears the policy failure statistics for the current and previous time interval.
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Policy Set and Per-Entry Statistics

To determine whether calls failed due to policies configured in the routing, number validation, or CAC tables, users can view the policy failure statistics for a specific policy table or table entry. [Table 42-2](#) lists the commands to view and clear the statistics on policy tables associated with a policy set.

Table 42-2 Commands for Statistics for Policy Tables in a Policy Set

show sbc <i>service-name</i> sbe cac-policy-set <i>policy set-id</i> tables	Displays a summary of the CAC policy tables associated with the given policy set, including the number of failed calls.
clear sbc <i>service-name</i> sbe cac-rejection-stats	Clears all CAC policy failure statistics.
show sbc <i>service-name</i> sbe call-policy-set <i>policy set-id</i> tables	Displays a summary of routing policy tables associated with the given policy set, including the number of failed calls.
clear sbc <i>service-name</i> sbe call-rejection-stats	Clears all routing and number analysis policy rejection statistics.
show sbc <i>service-name</i> sbe cac-policy-set <i>policy set-id</i> table name entries	Displays the specified entire CAC policy table.

Table 42-3 lists the commands to view the detailed information for a specific entry in a CAC policy table and routing table.

Table 42-3 Per-Entry Statistics Commands

show sbc <i>service-name</i> sbe cac-policy-set <i>policy set-id table name entries</i>	Displays a summary of the entries associated with the given CAC table.
show sbc <i>service-name</i> sbe call-policy-set <i>policy set-id table name entry entry</i>	Displays detailed statistics for the given entry in the routing table.
show sbc <i>service-name</i> sbe call-policy-set <i>policy set-id table name entries</i>	Displays a summary of the entries associated with the given routing table.

Automatic Tracking of Policy Failure Statistics

Cisco Unified Border Element (SP Edition) automatically tracks policy failure statistics for call attribute sets representing the following:

- Per source adjacency statistics for all configured adjacencies
- Per destination adjacency statistics for all configured adjacencies
- Per source account statistics for all configured accounts
- Per destination account statistics for all configured accounts

Table 42-4 lists the commands to view and clear automatically tracked policy failure statistics.

Table 42-4 Automatically Tracked Statistics Commands

show sbc <i>service-name</i> sbe policy-failure-stats <i>src-adjacency table-name period</i>	Displays the policy statistics of the specified source adjacency for the specified time interval. The value for the <i>period</i> parameter must be one of the following: <ul style="list-style-type: none"> • current5mins • previous5mins • current15mins • previous15mins • currenthour • previoushour • currentday • previousday
clear sbc <i>service-name</i> sbe policy-failure-stats <i>src-adjacency table-name</i>	Clears the policy statistics of the specified source adjacency.

The statistics are collected at 5 minute intervals past the hour (that is, at 0, 5, 10, 15 minutes, and so on past the hour). For example, the periods covered by the various buckets at 12:43 would be as follows:

- current five minutes: 12:40-12:43
- previous five minutes: 12:35-12:40

- current 15 minutes: 12:30-12:43
- previous 15 minutes: 12:15-12:30
- current hour: 12:00-12:43
- last hour: 11:00-12:00
- current day: 00:00-12:43
- last day: 00:00-24h - 00:00

A counter can keep increasing. It keeps a count of events that have completed. When reporting the value of a counter, it's the sum total of events that happened in the period. Some examples of counters are total call attempts, failed call attempts, and active call failures.

A gauge is a counter that can go up and down. It typically tells you how many of something there are now. When reporting the value of a gauge, it's either the current value, or when measured over a longer time period, it's the average value during the period. Some examples of gauges are active calls, activating calls, and deactivating calls.

Policy Failure Statistics and Hunting

If the CAC module refuses a call or if a call cannot be signaled to the chosen destination adjacency because of a negative or no response, call hunting occurs. Call hunting is the process of selecting an alternative adjacency from the routing tables and retrying the call using the newly selected destination adjacency.

Hunting continues until one of the following conditions is fulfilled:

- The call gets connected.
- No further adjacencies are available for retry.
- The call has been hunted too many times.

Global Statistics and Call Hunting

If a call gets connected after hunting, Cisco Unified Border Element (SP Edition) does not include it in any of the following global statistics:

- Total call setup failures
- Total call setups failed due to number analysis
- Total call setups failed due to routing
- Total call setups failed due to CAC
- CAC failure due to number of calls limit
- CAC failure due to call rate limit
- CAC failure due to media channels limit
- CAC failure due to bandwidth limit

If a call fails after number analysis, hunting does not occur. Cisco Unified Border Element (SP Edition) includes it in the following global statistics:

- Total call setup failures
- Total call setups failed due to number analysis

If a call fails the first time it is routed because no destination adjacency is found in the routing table, then Cisco Unified Border Element (SP Edition) includes it in the following global statistics:

- Total call setup failures
- Total call setups failed due to routing

If a call fails because a CAC policy refused it permission to proceed, Cisco Unified Border Element (SP Edition) includes the failure in the total call setups failed due to CAC statistics. Additionally, the call is included in one of the following statistics depending on the nature of the CAC limit:

- CAC failure due to number of calls limit
- CAC failure due to call rate limit
- CAC failure due to media channels limit
- CAC failure due to bandwidth limit

Per-table and Per-entry Statistics and Call Hunting

If a call undergoes N iterations of hunting, then it traverses the number analysis tables once, and the routing and the CAC tables N times. But the CAC tables can reject the call each time it traverses the CAC table. For each time the CAC table rejects the call, Cisco Unified Border Element (SP Edition) finds the table and entry that was responsible for setting the CAC limit, and increments the following:

- Number of calls refused by the CAC table
- Number of calls refused by the table entry

Per-adjacency and Per-Account Statistics and Call Hunting

If a call gets connected after hunting, Cisco Unified Border Element (SP Edition) does not include it in the following per-account or per-adjacency statistics:

- total call setup failures
- total call setups failed due to number analysis
- total call setups failed due to CAC
- CAC failures due to rate limit
- CAC failures due to media channels limit
- CAC failures due to bandwidth limit

If a call fails due to number analysis, then hunting does not occur and Cisco Unified Border Element (SP Edition) includes the call in the following per-account and per-source adjacency statistics:

- total call setup failures
- total call setups failed due to number analysis

If a call fails in the routing tables before hunting occurs, Cisco Unified Border Element (SP Edition) includes the call in the following per-source account and per-source-adjacency statistics:

- total call setup failures
- total call setups failed due to routing

A call included in the total call setup failures statistics is included in the per-source adjacency, per-destination-adjacency, per-source-account adjacency, and per-destination account statistics. Additionally, if the most recent hunting attempt failed because a CAC policy refused the call permission to proceed, Cisco Unified Border Element (SP Edition) includes the failure in the total call setups failed

due to CAC statistics in the per-source-adjacency, per-destination-adjacency, per-source-account, and per-destination-account statistics. The call is also included in one of the following statistics depending on the nature of the CAC limit depending on the nature of the CAC limit:

- CAC failure due to number of calls limit
- CAC failure due to call rate limit
- CAC failure due to media channels limit
- CAC failure due to bandwidth limit