TCAM Threshold Configuration Guide, Cisco IOS XE Release 3S (Cisco ASR 900 Series)

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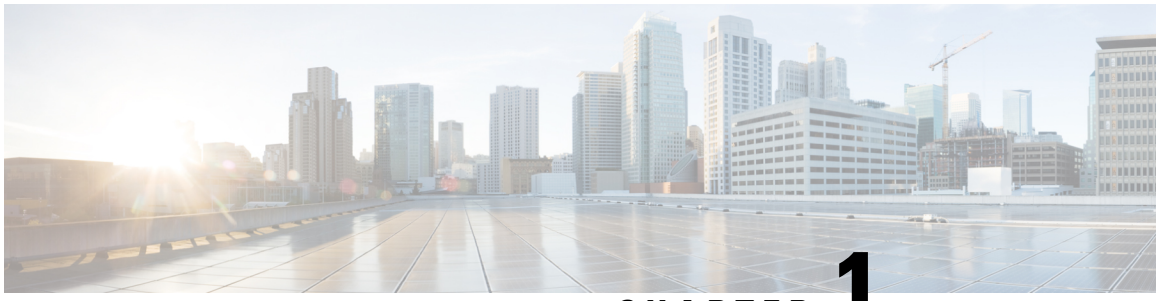

CHAPTER 1

Configuring TCAM Threshold Based Alarms

The Ternary Content-Addressable Memory (TCAM) threshold based alarms feature generates syslog and consequently a Simple Network Management Protocol (SNMP) trap when an application reaches the preset threshold for its allotted TCAM size. Alarms and traps are generated when the threshold value for the TCAM is reached.

Note The **platform tcam-threshold** command is supported only on RSP1 and RSP2 modules and not supported on RSP3 module.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

New and Changed Information

Table 1: New and Changed Features

Feature	Description	Changed in Release	Where Documented
TCAM Threshold Based Alarms	This feature generates a Syslog and consequently a SNMP trap when the number of entries for an application on TCAM becomes equal or greater than a preset threshold level.	Cisco IOS XE Release 3.11S	• Information on TCAM Threshold Based Alarms, on page 2 • Configuring TCAM Threshold Based Alarms, on page 3
TCAM Threshold Based Alarm Frequency	This enhancement configures the frequency at which the TCAM Threshold based alarm should be generated.	Cisco IOS XE Release 3.12	• Information on TCAM Threshold Based Alarm Frequency, on page 2 • Configuring TCAM Threshold Based Alarms, on page 3

Information on TCAM Threshold Based Alarms

This feature generates a Syslog and consequently an SNMP trap when the number of entries for an application on TCAM becomes equal to or greater than the threshold percentage of the value defined in the license template. You can configure the threshold percentage value for notification before the TCAM limit specified by the license for an application is exhausted. The default threshold value for all TCAM applications is 80 percent. The frequency of the alert messages is rate limited to avoid flooding the router console when many entries are added or deleted in quick succession.

Note This feature can be enabled or disabled using the **platform tcam-threshold enable** or **no platform tcam-threshold enable** command.

Information on TCAM Threshold Based Alarm Frequency

This feature enables you to configure the frequency at which the TCAM Threshold Based alarm should be generated. You can configure the TCAM Threshold Based alarm frequency only if you have enabled the TCAM Threshold Based alarms.

Note By default, the **platform tcam-threshold alarm-frequency** command appears in the router configuration file with the default alarm frequency value 1.

Configuring TCAM Threshold Based Alarms

To configure TCAM threshold based alarms, complete the following steps:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **platform tcam-threshold enable** [*app-name* | **all**] [*threshold_percentage* | **default**]
4. **platform tcam-threshold alarm-frequency** [*frequency-value* | **default**]
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**platform tcam-threshold enable** [*app-name*	**all**] [*threshold_percentage*	**default**] **Example:** `Router(config)# platform tcam-threshold enable all 75`	Enables TCAM threshold based alarms. To disable, use the **no platform tcam-threshold enable** command. • *app-name*—Specifies the name of an application. • all—Selects all applications supported on the router. • *threshold_percentage*—Specifies the threshold percentage. • default—Uses the default threshold of 80 percent.
Step 4	**platform tcam-threshold alarm-frequency** [*frequency-value*	**default**] **Example:** `Router(config)# platform tcam-threshold alarm-frequency 75`	Configures the TCAM Threshold Based alarm frequency • *frequency-value*—Specifies the frequency [1 - 75] at which the alarm should be generated per hour. • default—Sets the default value 1.

	Command or Action	Purpose
Step 5	**end** **Example:** `Router(config)# end`	Returns to privileged EXEC mode.

Verifying TCAM Threshold Based Alarms

- Use the **show platform hardware pp active tcam utilization** *app-name* **detail** *asic-id* command to display the TCAM utilization for the applications.

  Following is a sample output using the **show platform hardware pp active tcam utilization** command to display the TCAM utilization for ACL application on ASIC 0:

```
Router# show platform hardware pp active tcam utilization acl detail 0
```

```
Router Tcam Utilization per Application and Region
ES == Entry size == Number of 80 bit TCAM words

App/Region                Start     Num Avail  ES  Region    Range     Used
     Range     Num Used
-------------------------------------------------------------------------------
ACL                      0x8000    0x1000     2   000000    000000    000000
    000000    172

Scale limit: 4000
Threshold configured: 4%
Current usage: 172 (4% approx.)
```

- Use the **show platform hardware pp active tcam usage** command to display the alarm status for the applications:

```
Router# show platform hardware pp active tcam usage
```

```
TCAM Size: Num of 80 bit entries: 0x010000, Number of Blocks: 16

Nile Tcam Application Table
New Column
Thld Alarm State = 1 if Threshold alarm raised, 0 if alarm cleared

App/Region            Start Index      Num Entries      Entry Size       Num
 Regions      Profile ID       Blk_sel_bits4    Bsb3             Bsb2
      Bsb1             Thld Alarm S...
-------------------------------------------------------------------------------
UCASTV4               000000           0x3000           1                34
               19                        0                0
0             0x7        1
MCASTV4               0x3000           0x1000           2                109
                4                        0                0
0             0x18       0
INGRESS_VLAN_TRANS    0x5000           0x1000           1                25
                16                       0                0
0             0x20       0
```

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS Commands	Cisco IOS Master Command List, All Releases
Cisco ASR 903 Router Configuration Guides	Cisco ASR 903 Router Configuration Guides

Standards and RFCs

Standard/RFC	Title
None	—

MIBs

MIB	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/support