



## **Configuring TCAM Threshold Based Alarms, Cisco IOS XE Release 3S (Cisco ASR 920 Series)**

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# 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.

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## 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](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

## 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.



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

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## 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.



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

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## Configuring TCAM Threshold Based Alarms

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

### Procedure

	Command or Action	Purpose
Step 1	<b>enable</b> <b>Example:</b> Router> <b>enable</b>	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
Step 2	<b>configure terminal</b> <b>Example:</b> Router# <b>configure terminal</b>	Enters global configuration mode.
Step 3	<b>platform tcam-threshold enable</b> [ <i>app-name</i>   <b>all</b> ] [ <i>threshold_percentage</i>   <b>default</b> ] <b>Example:</b> Router(config)# <b>platform tcam-threshold enable all</b> <b>75</b>	Enables TCAM threshold based alarms. To disable, use the <b>no platform tcam-threshold enable</b> command. <ul style="list-style-type: none"> <li>• <i>app-name</i>—Specifies the name of an application.</li> <li>• <b>all</b>—Selects all applications supported on the router.</li> <li>• <i>threshold_percentage</i>—Specifies the threshold percentage.</li> <li>• <b>default</b>—Uses the default threshold of 80 percent.</li> </ul>
Step 4	<b>platform tcam-threshold alarm-frequency</b> [ <i>frequency-value</i>   <b>default</b> ] <b>Example:</b> Router(config)# <b>platform tcam-threshold</b> <b>alarm-frequency 75</b>	Configures the TCAM Threshold Based alarm frequency <ul style="list-style-type: none"> <li>• <i>frequency-value</i>—Specifies the frequency [1 - 75] at which the alarm should be generated per hour.</li> <li>• <b>default</b>—Sets the default value 1.</li> </ul>
Step 5	<b>end</b> <b>Example:</b> Router(config)# <b>end</b>	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
```

```
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          0xc000  0x0800   2  000000 000000 000000 000000 166

Scale limit: 2000
Threshold configured: 0%
Current usage: 166 (8% 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

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	<a href="https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/mcl/allreleasemcl/all-book.html">https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/mcl/allreleasemcl/all-book.html</a>

### Standards and RFCs

Standard/RFC	Title
No specific Standards and RFCs are supported by the features in this document.	—

## MIBs

MIB	MIBs Link
—	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>

## Technical Assistance

Description	Link
<p>The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies.</p> <p>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.</p> <p>Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.</p>	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for TCAM Threshold Based Alarms

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

**Table 1: Feature Information for TCAM Threshold Based Alarms**

Feature Name	Releases	Feature Information
TCAM Threshold Based Alarms	Cisco IOS XE Release 3.14.0S	This feature was introduced on the Cisco ASR 920 Series Aggregation Services Router (ASR-920-12CZ-A, ASR-920-12CZ-D, ASR-920-4SZ-A, ASR-920-4SZ-D, ASR-920-10SZ-PD, ASR-920-24SZ-IM, ASR-920-24SZ-M, ASR-920-24TZ-M) .

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