

Cisco cBR-8 Supervisor TCAM Voltage Value Adjustment Modification History

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1. Background

The ternary content-addressable memory (TCAM) voltage value on the Cisco® cBR-8 supervisor (PID: CBR-CCAP-SUP-160G) shipped before March 18, 2016 is not set within the optimal operating range. The voltage values, before the adjustment, do not damage hardware or affect hardware longevity. Adjusting the voltage value prevents potential random TCAM memory bit errors.

A random single-bit error would be corrected by ECC memory and does not affect the system. However, a random multiple-bit error would cause a supervisor reload. There are no known incidences attributed to TCAM voltage values, and the probability of a supervisor reload due to TCAM voltage value is low.

2. Recommendations

Cisco recommends proactive adjustment of supervisor voltage values by executing a Cisco IOS® Software command during a maintenance window as a preventive measure. With time, as components age, the probability of getting random memory bit errors increases when the memory voltage values are not adjusted.

The command to adjust voltage values is available in Cisco IOS-XE Software Release 3.18.1S and later releases.

3. Verifying TCAM Voltage Value

3.1 Using show platform hardware slot voltage margin tcam Command

Effective with Cisco IOS-XE Software Release 3.18.0SP, to view the TCAM voltage value, use the **show platform hardware slot slot number voltage margin tcam** command in privilege exec mode.

IMPORTANT: To get accurate status, you must wait for the system to complete its boot-up. Wait for another five minutes and then execute this command.

The following example shows that the TCAM voltage value needs adjustment:

```
Router#show platform hardware slot r0 voltage margin tcam
Load for five secs: 2%/0%; one minute: 5%; five minutes: 4%
Time source is NTP, 10:08:44.665 CST Mon Jun 20 2016
This supervisor needs an update to the TCAM voltage setting. Please refer to
the applicable Cisco IOS Release Notes for details.
```

```
Router#show platform hardware slot r1 voltage margin tcam
Load for five secs: 2%/0%; one minute: 5%; five minutes: 4%
Time source is NTP, 10:08:44.665 CST Mon Jun 20 2016
This supervisor needs an update to the TCAM voltage setting. Please refer to
the applicable Cisco IOS Release Notes for details.
```

The following example shows that the TCAM voltage value does not need adjustment:

```
Router#show platform hardware slot r0 voltage margin tcam
Load for five secs: 5%/1%; one minute: 6%; five minutes: 10%
Time source is NTP, 09:27:38.804 CST Mon Jun 20 2016
This supervisor has the correct TCAM voltage setting, no further action
required.
```

```
Router#show platform hardware slot r1 voltage margin tcam
```

```
Load for five secs: 2%/0%; one minute: 5%; five minutes: 10%
Time source is NTP, 09:27:47.887 CST Mon Jun 20 2016
This supervisor has the correct TCAM voltage setting, no further action
required.
```

3.2 Using show diag slot eeprom detail Command

To view the **fab version** and **PCB serial number** values to identify if the supervisor needs to adjust the TCAM voltage values, use the **show diag slot slot number eeprom detail** command in privilege exec mode.

When the **fab version** of the supervisor is less than or equal to 7, and the **PCB serial number** is less than CAT2011XXXX (not including CAT2011XXXX), the TCAM voltage values might need adjustment.

The following examples show that the TCAM voltage value adjustment is required:

```
Router#show diag slot R0 eeprom detail
Slot R0 EEPROM data:
      EEPROM version           : 4
      Compatible Type          : 0xFF
      Controller Type          : 2945
      Hardware Revision         : 3.0
      PCB Part Number           : 73-14659-07
      Board Revision            : A0
      Top Assy. Part Number     : 800-38808-07
      Top Assy. Revision        : A0
      Product Identifier (PID)  : CBR-CCAP-SUP-160G
      Version Identifier (VID)  : V05
      CLEI Code                 : CAUCAALAAA
      Deviation Number          : 0
      Fab Version              : 03
      PCB Serial Number        : CAT2003E0BX
      RMA Test History          : 00
      RMA Number                 : 0-0-0-0
      RMA History                : 00
      Manufacturing Test Data    : 00 00 00 00 00 00 00 00
      Field Diagnostics Data    : 00 00 00 00 00 00 00 00
```

```
Router#show diag slot R1 eeprom detail
Slot R0 EEPROM data:
      EEPROM version           : 4
      Compatible Type          : 0xFF
      Controller Type          : 2945
      Hardware Revision         : 3.0
      PCB Part Number           : 73-14659-04
      Board Revision            : A0
      Top Assy. Part Number     : 800-38808-04
      Top Assy. Revision        : B0
      Product Identifier (PID)  : CBR-CCAP-SUP-160G
```

```
Version Identifier (VID) : V02
CLEI Code                : CAUCAABAAB
Deviation Number        : 0
Fab Version           : 03
PCB Serial Number    : CAT1935E0TR
RMA Test History        : 00
RMA Number              : 0-0-0-0
RMA History             : 00
Manufacturing Test Data : 00 00 00 00 00 00 00 00
Field Diagnostics Data  : 00 00 00 00 00 00 00 00
```

4. How to Adjust the Voltage Value

4.1 Downloading the Software

You can download the Cisco IOS-XE Software releases from Cisco.com at

<https://software.cisco.com/download/release.html?mdfid=286283913&softwareid=282046477&release=3.15.0S&relind=AVAILABLE&rellifecycle=ED&reltype=latest>

4.2 Automatic Voltage Value Adjustment

Effective with Cisco IOS-XE Software Release 3.18.0SP, the software automatically checks and applies the TCAM voltage value adjustment during supervisor boot-up.

Note: Do not disrupt power when boot-up is in progress.

4.3 Manual Voltage Value Adjustment

To manually enable the TCAM voltage value adjustment feature, use the following commands:

- **test platform hardware yoda-tcam R0 voltage margin enable**
- **test platform hardware yoda-tcam R1 voltage margin enable**

Note:

- It takes approximately five seconds for a supervisor installed in a Cisco cBR-8 chassis.
- Execute these commands only once for each board.
- Do NOT disrupt power while executing these two commands.

Example:

```
Router#test platform hardware yoda-tcam R0 voltage margin enable
Enable TCAM voltage margin successfully.
```

```
Router#test platform hardware yoda-tcam R1 voltage margin enable
Enable TCAM voltage margin successfully.
```

After adjusting and applying the values, these same commands would display the following message:

```
Router#test platform hardware yoda-tcam R0 voltage margin enable
TCAM voltage margin has already been enabled.
```

```
Router#test platform hardware yoda-tcam R1 voltage margin enable
```

TCAM voltage margin has already been enabled.




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