



Real-Time Access Points Statistics

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Information About Access Point Real-Time Statistics

From Cisco IOS XE Bengaluru 17.5.1 onwards, you can track the CPU utilization and memory usage of an AP, and monitor the health of an AP, by generating real-time statistics for an AP.

SNMP traps are defined for CPU and memory utilization of APs and the controller. An SNMP trap is sent out when the threshold is crossed. The sampling period and statistics interval can be configured using SNMP, YANG, and CLI.

Statistics interval is used to process the data coming from an AP, and the average CPU utilization and memory utilization is computed over time. You can also configure an upper threshold for these statistics. When a statistic value surpasses the upper threshold, an alarm is enabled, and an SNMP trap is triggered.

Configuring Access Point Real-Time Statistics (GUI)

Procedure

- Step 1** Choose **Configuration > Tags & Profiles > AP Join**.
- Step 2** Click **Add**.
The **Add AP Join Profile** page is displayed.
- Step 3** Click the **AP** tab.
- Step 4** Under the **AP** tab, click the **AP Statistics** tab.
- Step 5** Click the **Monitor Real Time Statistics** toggle button to **Enabled** status.
- Step 6** Click the **Trigger Alarm for AP** toggle button to **Enabled** status.

- Step 7** In the **CPU Threshold to Trigger Alarm** field, enter the threshold percentage of CPU usage. When the CPU usage crosses this threshold, an alarm is triggered.
- Step 8** In the **Memory Threshold to Trigger Alarm** field, enter the threshold percentage of memory usage. When the memory usage exceeds this threshold, an alarm is triggered.
- Step 9** In the **Interval to Hold Alarm** field, enter the time, in seconds, for which the alarm is held before it gets triggered.
- Step 10** In the **Trap Retransmission Time** field, enter the time, in seconds, between retransmissions of the alarm.
- Step 11** In the **Sampling Interval** field, enter the value, in seconds. The sampling interval defines how often data is collected from the AP.
- Step 12** In the **Statistics Interval** field, enter the value, in seconds. The statistics interval defines the interval for which statistics are to be calculated for the AP.
- Step 13** Click **Apply to Device** to save the configuration.

Configuring Access Point Real-Time Statistics (CLI)

To configure AP real-time statistics for an AP profile, follow the steps given below.

Procedure

| | Command or Action | Purpose |
|---------------|--|---|
| Step 1 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 2 | ap profile <i>ap-profile-name</i> Example: Device(config)# ap profile <i>ap-profile-name</i> | Configures the AP profile. The default AP join profile name is <i>default-ap-profile</i> . |
| Step 3 | stats-timer 0-65535 Example: Device(config-ap-profile)# stats-timer 60 | Configures the statistics timer. This command is used to change the frequency of the statistics reports coming from the AP. |
| Step 4 | statistics ap-system-monitoring enable Example: Device(config-ap-profile)# statistics ap-system-monitoring enable | Enables monitoring of AP real-time statistics (CPU and memory). |
| Step 5 | statistics ap-system-monitoring alarm-enable Example: Device(config-ap-profile)# statistics ap-system-monitoring alarm-enable | Enables alarms for AP real-time statistics (CPU and memory). |

| | Command or Action | Purpose |
|---------------|---|---|
| Step 6 | statistics ap-system-monitoring cpu-threshold <0-100> <i>percentage</i> Example: Device(config-ap-profile)# statistics ap-system-monitoring cpu-threshold 90 | Defines the threshold for CPU usage on the AP (percentage) to trigger alarms. |
| Step 7 | statistics ap-system-monitoring mem-threshold <0-100> <i>percentage</i> Example: Device(config-ap-profile)# statistics ap-system-monitoring mem-threshold 90 | Define the threshold for used memory usage on the AP (percentage) to trigger an alarm. |
| Step 8 | exit Example: Device(config-ap-profile)# exit | Exits from AP profile configuration mode and returns to global configuration mode. |
| Step 9 | trapflags ap ap-stats Example: Device(config)# trapflags ap ap-stats | Enables or disables sending AP-related traps. Traps are sent when statistics exceed the configured threshold. |

Example

The following example shows how to configure AP real-time statistics.

```
Device(config)# ap profile default-policy-profile
Device(config-ap-profile)# statistics ap-system-monitoring enable
Device(config-ap-profile)#statistics ap-system-monitoring sampling-interval 90
Device(config-ap-profile)#statistics ap-system-monitoring stats-interval 120
Device(config-ap-profile)#statistics ap-system-monitoring alarm-enable
Device(config-ap-profile)#statistics ap-system-monitoring alarm-hold-time 3
Device(config-ap-profile)#statistics ap-system-monitoring alarm-retransmit-time 10
Device(config-ap-profile)#statistics ap-system-monitoring cpu-threshold 90
Device(config-ap-profile)#statistics ap-system-monitoring mem-threshold 90
Device(config)# trapflags ap ap-stats
```



Note The **sampling-interval**, **stats-interval**, **alarm-enable**, **alarm-hold-time**, and **alarm-retransmit**, keyword configurations are optional.

Monitoring Access Point Real-Time Statistics (GUI)

Procedure

Step 1 Choose **Monitoring > Wireless > AP Statistics**.

- Step 2** Click the **General** tab.
- Step 3** Click an AP name. The **General** window is displayed.
- Step 4** To view the AP Statistics data, click the **AP Statistics** tab.

The following information is displayed:

- **Memory alarm last send time:** Displays the time of the last memory trap sent.
- **Memory Alarm Status:** Displays the state of the memory alarm. An alarm can be **ACTIVE**, **INACTIVE**, **INACTIVE_SOAKING**, **ACTIVE_SOAKING**. An alarm is soaked until the configured hold time has passed.
- **Memory alarm raise time:** Displays the last time the memory alarm was active.
- **Memory alarm clear time:** Displays the last time the memory alarm was inactive.
- **Last statistics received:** Displays the time of the last statistics report received from the AP.
- **Current CPU Usage:** Displays the latest percentage of CPU usage reported.
- **Average CPU Usage:** Displays the average CPU usage calculated.
- **Current Memory Usage:** Displays the latest percentage of memory usage reported.
- **Average Memory Usage:** Displays the average memory usage calculated.
- **Current window size:** Displays the window size. The window size is calculated by dividing the statistics interval by the sampling interval. The average CPU and memory usage is calculated by the window size.
- **CPU alarm last send time:** Displays the time of the last CPU trap sent.
- **CPU Alarm Status:** Displays the state of the CPU alarm. An alarm can be **ACTIVE**, **INACTIVE**, **INACTIVE_SOAKING**, **ACTIVE_SOAKING**. An alarm is soaked until the configured hold time has passed.
- **CPU alarm raise time:** Displays the last time the CPU alarm was active.
- **CPU alarm clear time:** Displays the last time the CPU alarm was inactive.

- Step 5** Click **OK**.

Verifying Access Point Real-Time Statistics

To verify AP real-time statistics, run the **show ap config general | section AP statistics** command:

```
Device# show ap config general | section AP statistics
!Last Statistics
AP statistics : Enabled
Current CPU usage : 4
Average CPU usage : 49
Current memory usage : 35
Average memory usage : 35
Last statistics received : 03/09/2021 15:25:08
!Statistics Configuration
Current window size : 1
Sampling interval : 30
```

```
Statistics interval : 300
AP statistics alarms : Enabled
!Alarm State - Active, Inactive, Inactive_Soaking, Inactive_Soaking
Memory alarm status : Active
Memory alarm raise time : 03/09/2021 15:24:29
Memory alarm clear time : NA
Memory alarm last send time : 03/09/2021 15:24:59
CPU alarm status : Inactive
CPU alarm raise time : 03/09/2021 15:24:25
CPU alarm clear time : 03/09/2021 15:25:05
CPU alarm last send time : 03/09/2021 15:25:05
!Alarm Configuration
Alarm hold time : 6
Alarm retransmission time : 30
Alarm threshold cpu : 30
Alarm threshold memory : 32
```

To verify the statistics reporting period, run the **show ap config general | i Stats Reporting Period** command:

```
Device# show ap config general | i Stats Reporting Period
Stats Reporting Period : 10
```

