



Adaptive Client Load-Based EDCA

- [Adaptive client load-based EDCA, on page 1](#)
- [Use case for adaptive client load-based EDCA, on page 2](#)
- [Restrictions for adaptive client load-based EDCA, on page 2](#)
- [Configure adaptive client load-based EDCA \(GUI\), on page 2](#)
- [Configure adaptive client load-based EDCA \(CLI\), on page 3](#)
- [Verify adaptive client load-based EDCA configuration, on page 3](#)

Adaptive client load-based EDCA

An adaptive client load-based EDCA mechanism is a wireless medium access control feature that

- dynamically adjusts Enhanced Distributed Channel Access (EDCA) parameters for clients
- responds in real-time to the number of active clients and corresponding load, and
- significantly reduces radio collisions and performance degradation in dense deployments.

Feature Scenario

Run-time EDCA configuration based on active clients and load.

Feature history for adaptive client load-based EDCA

This table provides release and related information for the feature explained in this module.

This feature is available in all the releases subsequent to the one they were introduced in, unless noted otherwise.

Table 1: Feature History for Adaptive Client Load-Based EDCA

Feature Name	Release Information	Feature Description
Adaptive client load-based EDCA	Cisco IOS XE 17.5.1	This Adaptive Client Load-Based EDCA feature dynamically changes Enhanced Distributed Channel Access (EDCA) parameters of clients based on the active client and load that significantly reduce collisions.

Use case for adaptive client load-based EDCA

In a dense multiclient deployment scenario, a customer tested 40 iPads in a classroom or auditorium. He observed channel utilization was 60 to 70 percent.

- The overall AP throughput was lower due to air collision and RTS retries.
- After the adaptive client load-based EDCA feature was enabled, throughput increased by 15 to 20 percent, and collisions decreased by 30 to 40 percent.

Restrictions for adaptive client load-based EDCA

You must disable the 802.11b network if you want to access the 802.11a network.

Configure adaptive client load-based EDCA (GUI)

Adjust EDCA settings to optimize wireless radio performance based on client load using the GUI.

Procedure

- Step 1** Choose **Configuration > Radio Configurations > Parameters** to configure global parameters for 802.11a/n/ac (5-GHz) and 802.11b/g/n (2.4-GHz) radios.
- Step 2** In the **EDCA Parameters** section, select an **EDCA Profile** from the drop-down list.
- Step 3** Click the **Client Load Based Configuration** toggle button to enable or disable this feature. It is enabled by default.
- Step 4** In the **DFS (802.11h)** section for 802.11a/n/ac (5-GHz) radios, enter the local power constraint. You cannot configure power constraint if the **DPTC Support** check box in **Configuration > Radio Configurations > Network** is checked. The valid range for power constraint is 0 dBm to 30 dBm.
- Step 5** From the **Channel Switch Announcement Mode** drop-down list, select either the **Loud** or **Quiet** mode.
- Step 6** Click the **Smart DFS** toggle button to enable or disable this feature. It is enabled by default.
- Step 7** In the **11ax Parameters** section, use the corresponding toggle button to enable or disable the following features:
- **Target Wakeup Time**
 - **Target Wakeup Time Broadcast**
 - **Multiple Bssid**
- Step 8** To enable BSS color for both the 5-GHz and 2.4-GHz radios, check the **BSS Color** check box.
- Step 9** Click **Apply**.
-

Configure adaptive client load-based EDCA (CLI)

Enable adaptive client load-based EDCA on 802.11 radios to optimize wireless traffic management based on client load using commands.

Procedure

Step 1 Enter the global configuration mode.

Example:

```
Device# configure terminal
```

Step 2 Enable client load-based EDCA configuration for 802.11 radios.

Example:

```
Device(config)# ap dot11 {24ghz | 5ghz | 6ghz} edca-parameters client-load-based
```

Use the **no** form of this command to disable the configuration.

Note

To enable the configuration on an 802.11a radio, you must disable the 802.11b network.

Step 3 Return to the privileged EXEC mode.

Example:

```
Device(config)# end
```

Verify adaptive client load-based EDCA configuration

To verify whether the adaptive client load-based EDCA feature is enabled on an 802.11a or an 802.11b radio, use this command:

```
Device# show ap dot11 24ghz network
Device# show ap dot11 5ghz network
EDCA profile type check           : default-wmm
Client Load Based EDCA Config    : Enabled
```

To verify whether the adaptive client load-based EDCA feature is enabled on an 802.11 6-GHz radio, use this command:

```
Device# show ap dot11 6ghz network
.
.
.
EDCA profile type check           : default-wmm
Client Load Based EDCA Config    : Enabled
```

To verify whether the adaptive client load-based EDCA feature is enabled on APs, use this command:

```
Device# show capwap client config
Client Load Based EDCA      : Enabled
```

To view the adaptive EDCA parameters running on the driver, use this command:

```
Device# show controllers dot11Radio 0/1
EDCA Config:
=====
L:Local C:Cell A:Adaptive EDCA params
AC Type CwMin CwMax Aifs Txop ACM
AC_BE L 4 6 3 0 0
AC_BK L 4 10 7 0 0
AC_VI L 3 4 1 94 0
AC_VO L 2 3 1 47 0
AC_BE C 4 10 3 0 0
AC_BK C 4 10 7 0 0
AC_VI C 3 4 2 94 0
AC_VO C 2 3 2 47 0
AC_BE A 4 10 7 0 0
AC_BK A 4 10 3 0 0
AC_VI A 3 4 2 94 0
AC_VO A 2 3 2 47 0
```