



Adaptive Client Load-Based EDCA

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Feature History for Adaptive Client Load-Based EDCA

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

These features are 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

| Release | Feature | Feature Information |
|----------------------------------|------------------------------------|---|
| Cisco IOS XE Bengaluru 17.5.1 | Adaptive Client Load-Based EDCA | 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. |

Information About Adaptive Client Load-Based EDCA

The static EDCA configuration is good for small number of clients. In an enterprise multiclient deployment scenario, access points (APs) experience excessive collisions as the number of clients increases resulting in significant performance degradation. To overcome such a scenario, the Adaptive Client Load-Based EDCA feature has been introduced.

This feature dynamically changes EDCA parameters of clients based on the active client and load that significantly reduce collisions.

Feature Scenario

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

Use Case

In a dense multiclient deployment scenario, when a customer was testing 40 iPads in a class room or auditorium setup, he observed that the channel utilization was 60 to 70 percent. The overall AP throughput was less because of air collusion and RTS retries.

After the adaptive client load-based EDCA feature was enabled, the overall throughput increased by 15 to 20 percent and collision 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.

Configuration Workflow

- [Configuring Adaptive Client Load-Based EDCA \(GUI\)](#)
- [Configuring Adaptive Client Load-Based EDCA \(CLI\)](#)

Configuring Adaptive Client Load-Based EDCA (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, from the EDCA Profile drop-down list, choose an EDCA profile. |
| Step 3 | Click the Client Load Based Configuration toggle button to enable or disable. It is enabled by default. |
| Step 4 | For 802.11a/n/ac (5-GHz) radios, in the DFS (802.11h) section, 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 between 0 dBm and 30 dBm. |
| Step 5 | From the Channel Switch Announcement Mode drop-down list, choose either the Loud or Quiet mode. |
| Step 6 | Click the Smart DFS toggle button to enable or disable. It is enabled by default. |
| Step 7 | In the 11ax Parameters section, enable or disable the following, using the corresponding toggle button: <ul style="list-style-type: none"> • Target Wakeup Time • Target Wakeup Time Broadcast • Multiple Bssid |
| Step 8 | Enable BSS color globally for the 5-GHz and 2.4-GHz radios by checking the BSS Color check box. |

Step 9 Click **Apply**.

Configuring Adaptive Client Load-Based EDCA (CLI)

Procedure

| | Command or Action | Purpose |
|---------------|---|---|
| Step 1 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 2 | ap dot11 {24ghz 5ghz 6ghz} edca-parameters client-load-based Example: Device(config)# ap dot11 24ghz edca-parameters client-load-based | Enables client load-based EDCA configuration for 802.11 radios. 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 | end Example: Device(config)# end | Returns to privileged EXEC mode. |

Verifying 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 the following 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 the following 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 the following command:

```
Device# show capwap client config
```

```
Client Load Based EDCA      : Enabled
```

To view the Adaptive EDCA parameters running on the driver, use the following 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
```