Quality of Service (QoS) Settings on AP541N Access Point

Objective

Quality of Service (QoS) is a technique used to achieve better performance for a computer network and is also used to enhance the quality of telephone related services and throughput in the data flow of a network. You can specify the QoS parameters on multiple queues to get the desired performance. You can also determine the priority of types of traffic in the network. QoS configuration on access points require parameters to be set (minimum and maximum waiting period) on the network traffic which already exists.

This article explains how to configure QoS on an AP541N access point.

Applicable Device

• AP541N Access Point

Software Version

• AP541N-K9-2.0(4)

QoS

Step 1. Log in to the Access Point Configuration Utility and choose Wireless > QoS Parameters. The QoS Parameters pages opens:
Step 2. From the QoS Presets drop-down list choose one of these options below:

- **Factory Defaults** — Restores the factory default QoS settings. This populates the fields automatically.

- **Optimized for Voice** — Optimizes QoS settings for voice traffic. This populates the fields automatically.

- **Custom** — Choose this if you want to manually configure the QoS parameters.

*Timesaver:* Skip to Step 8 if Custom is not chosen in Step 2.
Note: There are 4 queues which have different priority values as follows:

• Data 0 (Voice) — This is a high priority queue with minimum delay. Time sensitive data like VoIP and other voice based traffic belong to this queue.

• Data 1 (Video) — This is a high priority queue with minimum delay. Time sensitive video data belongs to this queue.

• Data 2 (Best Effort) — This is a medium priority queue with medium delay values. All the general IP traffic belongs to this queue.

• Data 3 (Background) — This is a low priority queue with high delay values. Bulk data transfers and downloading data belongs to this low priority queue because they are not time sensitive.

Step 3. In the AP Enhanced Distributed Channel Access (EDCA) parameters table define the QoS parameters for each queue. AP EDCA QoS parameters are associated with traffic from AP to station. The parameters are as follows:

• AIFS — Enter Arbitration Inter Frame Spacing (AIFS) value to prioritize the time sensitive data like voice and video over data transfers. AIFS is a time period a node has to wait before it is allowed to transmit the frame. Time is measured in slots. Possible values are 1 through 255.

• cwMin — Choose the appropriate cwMin value from the cwMin drop-down list. All the nodes have to choose a random block off interval in the range 0 and Contention Window (CW) and then wait for the chosen number of time slots before you try to access the channel. Initially the value is set to cwMin and when a collision occurs the CW size is
doubled. Values allowed for cwMin are 1, 3, 7, 15, 31, 63, 127, 255, 511, and 1023.

- **cwMax** — Choose the appropriate cwMax value from the cwMax drop-down list. When a collision occurs the contention window size is doubled. This goes on until the CW reaches cwMax. When it reaches cwMax it will again be reset to minimum value. Values allowed for cwMax are 1, 3, 7, 15, 31, 63, 127, 255, 511, and 1023.

- **Max. Burst** — Enter the appropriate Max. Burst value. It specifies in milliseconds the maximum burst traffic size allowed on a wireless network. Traffic burst is a collection of multiple frames sent at one instance which reduces overhead information thus increases the performance. Range of burst size is 0 through 999 milliseconds.

Step 4. (Optional) Wi-Fi Multimedia (WMM) is enabled by default. This allows QoS prioritization and coordination of wireless medium access. Click the **Disabled** radio button to disable QoS control on station EDCA.

**Timesaver:** Skip to Step 6 if WMM is disabled in Step 4.

Step 5. In the Station Enhanced Distributed Channel Access (EDCA) parameters table, define the QoS parameters for each queue. Station EDCA QoS parameters are associated with traffic from station to AP. The parameters are as follows

- **AIFS** — Enter the appropriate AIFS value. AIFS stands for Arbitration Inter Frame Spacing. It is way to prioritize the time sensitive data like voice and video over data transfers. AIFS is a time period a node has to wait before it is allowed to transmit the frame. Time is measured in slots. Possible values are 1 through 255.

- **cwMin** — Enter the appropriate cwMin value. All the nodes have to choose a random back off interval in the range 0 and Contention Window (CW) and then wait for the chosen number of time slots before try’s to access the channel. Initially the value is set to cwMin, when a collision occurs the CW size is doubled. Values allowed for cwMin are 1, 3, 7, 15, 31, 63, 127, 255, 511 and 1023.

- **cwMax** — Enter the appropriate cwMin value. When a collision occurs the contention window size is doubled. This goes on until the CW reaches cwMax. When it reaches cwMax it will again be reset to minimum value. Values allowed for cwMax are 1, 3, 7, 15, 31, 63, 127, 255, 511 and 1023.

- **TXOP Limit** — Enter the appropriate TXOP value. TXOP stands for Transmission Opportunity. It is the time interval from which the station can send any number of frames until it reaches the TXOP limit value. Maximum value of TXOP is 65535 milliseconds.

Step 6. In the No Acknowledgement field, click **On** if you do not want the AP to acknowledge frames which have QoSNoAck as the service class value. This improves the throughput. Click **Off** if you do not want that to happen.

Step 7. In the Automatic Power Save Delivery (APSD) field click **On** to enable APSD. Instead of transmission of the data frames continuously from AP to stations, frames are buffered for a certain amount of time when APSD is enabled. While this occurs, the stations can sleep, which saves power. Buffered frames are sent after the time limit is reached. To disable this feature, click **Off**.

**Step 8.** Click **Apply** to save the settings.
Step 9. Click **OK** to continue.