

## Dropping Behavior Overview

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Drop profiles control the dropping behavior of a set of egress queues. They define the range within the queue where random early detection (RED) operates, the maximum percentage of packets to drop, and sensitivity to bursts of packets. Weighted random early detection (WRED) is an extension to RED that enables you to assign different RED drop profiles to each color of traffic.

The purpose of RED and WRED is to signal end-to-end protocols, such as TCP, that the router is becoming congested along a particular egress path. The intent is to trigger TCP congestion avoidance in a random set of TCP flows before congestion becomes severe and causes tail dropping on a large number of flows. Tail dropping can lead to TCP slow-starts, and tail dropping on a large number of flows results in global synchronization.

By default, tail dropping occurs when the length of a queue exceeds a threshold. Drop profiles allow you to employ active queue management by specifying RED and WRED parameters to be applied to an egress queue.

Congestion of an egress queue occurs when the rate of traffic destined for the queue exceeds the rate of traffic draining from the queue; the queue fills to its limit, and any further traffic destined to it must be discarded until there is room in the queue. RED and WRED monitor average queue length over time to detect incipient congestion.

You can combine drop profiles and queue profiles within a queue rule of a QoS profile to specify up to 256 unique queuing behaviors within the router. You can then associate these queuing behaviors in any combination with any of the egress queues.

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