Contents

- 1 Introduction
- 2 EDCA AP Parameters
  - 2.1 EDCA AP Parameter Fields
- 3 EDCA STA Parameters
  - 3.1 EDCA STA Parameters Fields
- 4 Original posting

Introduction

According to Wikipedia https://en.wikipedia.orghttp://www.dd-wrt.com/wiki/Wireless_Multimedia_Extensions WMM is part of 802.11e standard and is enabled by default at the kernel from (number-of-build-here) on, because as standard is should be enabled in order 802.11 n networks to be able to reach their maximum throughput.

I noticed that DD-WRT for some time now has supported WMM (Wi-Fi Multimedia) on the QoS section, however there was no explanation on all the settings of what they all done. I have now compiled some info from numerous sites as to what each setting is. At the time of writing DDWRT v23 SP1 (02/Apr/2006) is the latest. no doubt the WMM Support panel on the QoS page will be updated somewhat to show some meaning of the abbreviations.

Below is the QoS Field for WMM Support from the DDWRT v23 SP1 Firmware

EDCA AP Parameters

This affects traffic flowing from the access point to the client station

Queue	Data Transmitted AP to Clients	Priority	Description
AC_BK	Background.	Low	High throughput. Bulk data that requires maximum throughput and is not time-sensitive is sent to this queue (FTP data, for example).
AC_BE	Best Effort	Medium	Medium throughput and delay. Most traditional IP data is sent to this queue
AC_VI	Video	High	Minimum delay. Time-sensitive video data is automatically sent to this queue
AC_VO	Voice	High	Time-sensitive data like VoIP and streaming media are automatically sent to this queue

Configuring QoS options consists of setting parameters on existing queues for different types of wireless traffic. You can configure different minimum and maximum wait times for the transmission of packets in each queue based on the requirements of the media being sent. Queues automatically provide minimum transmission delay for Voice, Video, multimedia, and mission critical applications, and rely on best-effort parameters for traditional IP data.

As an Example, time-sensitive Voice & Video, and multimedia are given effectively higher priority for transmission (lower wait times for channel access), while other applications and traditional IP data which are less time-sensitive but often more data-intensive are expected to tolerate longer wait times.

AC_VO queue is laso used for WMM Power Save, also called Unscheduled Automatic Power Save Delivery U-APSD http://en.wikipedia.orghttp://www.dd-wrt.com/wiki/IEEE_802.11e-2005#APSD. Only IP packets with ToS value 0xb8 DSCP Expedited Forwarding are buffered by AP, and waiting for other RTP packets from STA to be released.

EDCA AP Parameter Fields

CWmin - Minimum Contention Window. This parameter is input to the algorithm that determines the initial random backoff wait time ("window") for retry of a transmission. The value specified here in the Minimum Contention Window is the upper limit (in milliseconds) of a range from which the initial random backoff wait time is determined.

The first random number generated will be a number between 0 and the number specified here. If the first random backoff wait time expires before the data frame is sent, a retry counter is incremented and the random backoff value (window) is doubled. Doubling will continue until the size of the random backoff value reaches the number defined in the Maximum Contention Window.
Valid values for the "cwmin" are 1, 3, 7, 15, 31, 63, 127, 255, 511, or 1024. The value for "cwmin" must be lower than the value for "cwmax".

CWmax - Maximum Contention Window. The value specified here in the Maximum Contention Window is the upper limit (in milliseconds) for the doubling of the random backoff value. This doubling continues until either the data frame is sent or the Maximum Contention Window size is reached. Once the Maximum Contention Window size is reached, retries will continue until a maximum number of retries allowed is reached. Valid values for the "cwmax" are 1, 3, 7, 15, 31, 63, 127, 255, 511, or 1024. The value for "cwmax" must be higher than the value for "cwmin".

AIFSN - The Arbitration Inter-Frame Spacing Number specifies a wait time (in milliseconds) for data frames

TXOP(b) and TXOP (a/g) - Transmission Opportunity for "a" "b" and "g" modes is an interval of time when a WME AP has the right to initiate transmissions onto the wireless medium (WM). This value specifies (in milliseconds) the Transmission Opportunity (TXOP) for AP; that is, the interval of time when the WMM AP has the right to initiate transmissions on the wireless network.b

EDCA STA Parameters

This affects traffic flowing from the client station to the access point.

Queue	Data Transmitted AP to Clients	Priority	Description
AC_BK	Background.	Low	High throughput. Bulk data that requires maximum throughput and is not time-sensitive is sent to this queue (FTP data, for example).
AC_BE	Best Effort	Medium	Medium throughput and delay. Most traditional IP data is sent to this queue
AC_VI	Video	High	Minimum delay. Time-sensitive video data is automatically sent to this queue
AC_VO	Voice	High	Time-sensitive data like VoIP and streaming media are automatically sent to this queue

EDCA STA Parameters Fields

CWmin - Minimum Contention Window. This parameter is input to the algorithm that determines the initial random backoff wait time ("window") for retry of a transmission. The value specified here in the Minimum Contention Window is the upper limit (in milliseconds) of a range from which the initial random backoff wait time is determined.

The first random number generated will be a number between 0 and the number specified here. If the first random backoff wait time expires before the data frame is sent, a retry counter is incremented and the random backoff value (window) is doubled. Doubling will continue until the size of the random backoff value reaches the number defined in the Maximum Contention Window.
Valid values for the "cwmin" are 1, 3, 7, 15, 31, 63, 127, 255, 511, or 1024. The value for "cwmin" must be lower than the value for "cwmax".

CWmax - Maximum Contention Window. The value specified here in the Maximum Contention Window is the upper limit (in milliseconds) for the doubling of the random backoff value. This doubling continues until either the data frame is sent or the Maximum Contention Window size is reached. Once the Maximum Contention Window size is reached, retries will continue until a maximum number of retries allowed is reached. Valid values for the "cwmax" are 1, 3, 7, 15, 31, 63, 127, 255, 511, or 1024. The value for "cwmax" must be higher than the value for "cwmin".

AIFSN - The Arbitration Inter-Frame Spacing Number specifies a wait time (in milliseconds) for data frames

TXOP(b) and TXOP (a/g) - Transmission Opportunity for "a" "b" and "g" modes is an interval of time when a WME Client Station has the right to initiate transmissions onto the wireless medium (WM). This value specifies (in milliseconds) the Transmission Opportunity (TXOP) for Client Station; that is, the interval of time when the WMM AP has the right to initiate transmissions on the wireless network.

Original posting

I have obtained permission to import the following article:

http://www.linksysinfo.org/portal/forums/showthread.php?t=47262

I don't quite have the time just yet. Volunteers?
Please source and link the author.

Thanks, Drakcap 05:48, 7 Sep 2006 (CEST)

Re: Article Permission
Quote:
Originally Posted by drakcap
Toxic,

May I have permission to reproduce your article titled "WMM support on the DD-WRT firmware." on the official DD-WRT Wiki quoting both the source & author of the article?

We can use all the documentation we can get.

Thanks,
Drak

---

yes mate sure. as long as the original link is there thats fine m8

Regards Simon