



## History/Changelog for AACENC

**04/24/01** Public Evaluation ended

**04/20/01** Version 1.0 Stable Released

**04/17/01** Memory access bugs fixed in CBR modes

**04/15/01** More quality improvements in **-production** (professional CBR) mode, small changes to the encoder output

**04/14/01** Quality improvements in **-production** (professional CBR) mode

**04/11/01** Fixed ISO MPEG-4 TNS and LTP profile problems

**04/09/01** New "Improved Human Speech Coding" module (on by default for -extreme and -archive profiles), activated with -ihsc switch

**04/04/01** Some ISO MPEG-4 ADTS header compatibility issues fixed

**04/03/01** -lc (Lo Complexity) profile is now fully MPEG-2 AAC compatible and tested with reference decoders. LC profile needs MPEG-2 AAC decoder (like FAAD) and can't be decoded with MPEG-4 AAC winamp plug in. MPEG-2 AAC LC is also fully compatible with other commercial decoding implementations.

- New -ultra VBR preset for multiple tandem-coding (highest bitrate)
- Lots of small fixes in encoder core

**03/29/01** Tonality estimation fix for -extreme VBR profile. Added console title information (when AACEnc is minimized or windowed)

**03/27/01** Improved coding performance for bitrates of 96 kbits/s and lower

**03/26/01** Some memory access bugs fixed. Fixed a bug in 96 kbits/s bitrate tuning.

**03/20/01** Started tuning psychoacoustic parameters for each CBR bitrate. Encoder quality increased for low bitrate modes.

ADTS headers are now fully ISO compatible (thanks Menno) - and aacenc is fully compatible with new FAAD versions.

**03/05/01** VBR profiles are more robust and higher quality. Added -disable\_ms switch for disabling M/S stereo (this will usually lead to lower quality if CBR is used!)

**02/26/01** Added several VBR profiles (presets) for end users:

- tape (TAPE VBR mode)
- radio (RADIO VBR mode)
- internet (INTERNET VBR mode)
- streaming (STREAMING VBR mode)
- normal (NORMAL VBR mode **recommended**)
- extreme (EXTREME VBR mode)
- archive (ARCHIVE VBR mode, highest quality)

All profiles use following syntax: aacenc -profile\_name -if <infile.wav> [-of <outfile.aac>]

**02/24/01** Tweaks in joint stereo coding in -archive profile. More restrictive M/S switching method applied.

**02/23/01** Better threshold in quiet handling for all VBR modes. more improvements

-archive mode. Better pre-echo control for -vbrhi mode.

**02/21/01** New VBR Mode (-archive) called "Archive VBR", for archive purposes:

- Better high frequency response
- Better pre-echo handling
- Better encoding of voice, human speech, vibrato sound, ...
- Robust transcoding (safety margin of psychoacoustic model)
- Perceptually loseless
- Higher bitrate (240-280 bps avg.)

**02/09/01 (2)** Improved coding performance at low sampling rates (< 32000 Hz)

**02/09/01** Fixed bug that prevented 8000 Hz sampling rate from working

**02/08/01** 22.05 kHz and 24 kHz sampling rates are now working and fully supported.

**02/02/01** Fixed playlist problems in winamp plug-in

**02/01/01** Updated winamp plug-in. Support for tags included (partially), file length bug fixed (if file contains tags).

**02/01/01** Fixed small bugs in quantizer. Added tagging support with switches:

- title "title"
- album "album name"
- artist "artist name"
- year <year>

Tagging support is still not supported by decoder and winamp plug-in. Taginfo.c (C file) provided with package for tag system description. Genre is supported with tag system but not yet used in encoder.

**01/28/01** Added -production switch for highest quality CBR encoding (slow motion). Useful at bit rates of 128 kBits/s and lower.

**01/24/01** Fixed bug of 012401 which prevented base bit-rate changing in VBR and VBRHI modes.

**01/23/01** Improvements in VBR engine, smaller files. Higher quality CBR encoding.

**01/16/01** New command line switches added:

- low\_ath (self measured threshold of hearing, recommended for -vbrhi only)
- raise\_smr <n> (increases Signal to Mask ratio by n dB)
- noshort (debug option, disables block switching, for debug only)

**01/13/01** Implemented temporal (time domain) masking in psychoacoustic model

**01/07/01** New pre-echo control for -vbrhi (total vbr) modes. Solves most pre-echo problems found in test tracks. More tunings for low and medium bitrate CBR modes.

**01/05/01** New adaptive bit reservoir management - affects CBR quality. Some problems in huffman coding fixed. Fixed TNS and LTP coding.

**01/03/01** Integrated pulse noiseless coder. Small bugfixes in core modules.

**12/29/00** More improvements in M/S coding...

**12/28/00** Much improved M/S coding, files are smaller up to 10% - this update improves CBR coding.

**12/27/00** Small bugfixes in quantizer code. Added time vs. real time indicator during encoding.

**12/25/00** Fixed error that produced 'clicks' and drop-outs in low frequency region

(below 1.5 kHz) in VBR and mid-CBR modes.

**12/23/00** Fixed error that crashed aacenc.exe on some tracks encoded with variable bitrate.

**12/22/00** Added support for MPEG-2 AAC LC (Low Complexity) profile in command line encoder.

**12/21/00** Speed and CBR quality improvements

**12/19/00** Improved CBR coding (> 8 kHz, less artifacts), cut-off table adjusted for each bit-rate (no need for -c switch anymore) to give best quality. More psy-model tunings for medium and low bit-rates.

**12/18/00** New VBR mode (-vbrhi) introduced, which is higher quality than normal -vr mode. New math library provided, now supporting Intel(R) Pentium IV optimizations and slightly improved Pentium III optimizations.

**12/14/00** Fixed error in huffman bitcounter which produced increased bit-rate for some tracks. Most of the time-critical functions ported to Intel(R) SPL Library for better use of MMX(TM) and SIMD(TM) instructions.

**12/10/00** More optimizations in huffman coding - faster and more stable functions

**12/08/00** Faster and more stable code

**12/05/00** Small changes and bugfixes in core modules

**12/03/00 (2)** Fixed some access violation bugs from latest build

**12/03/00** Code more stable and slightly faster

**12/01/00** VBR algorithm updated. Slightly larger files but with fixed 'drop-out' mid-frequency artifacts.

**11/29/00 (2)** Fixed some problems with previous (1129) update. More CBR parameters tweaking.

**11/29/00** Small changes in quantizer

**11/27/00** Tonality estimation speed-up

**11/26/00** Quantizer core optimized, AACENC is now 20-40% faster. Fixed overflow error at very high bit-rates (320-512 kbits/s).

**11/25/00** Bugfixes in quantizer module

**11/21/00** Beta 2 released, no time limits, decoder supplied, speed improvements.

**11/14/00** Some speed improvements and small bug fixes.

**11/12/00** Fixed tonality measure flaw in psy model, MDCT filterbank updated. Huffman coding improved even more.

**11/11/00** More optimizations in huffman coding

**11/10/00** Optimized huffman coder - now produces 5% smaller VBR files and higher quality CBR files. Removed limit in VBR which prevented aacenc from using frames larger than 128 kbits/s (per channel)

**11/09/00 (2)** Fixed a bug in quantizer core which produced clipping in some cases.

**11/09/00** ADIF header bug fixed. Bit reservoir usage is changed and aacenc.exe is now producing 100% ISO AAC compatible files.

**11/08/00** More accurate VBR psy-model, produces slightly larger files

Additional changes to pre-echo detection model

**11/06/00** Pre-Echo detection highpass filter set to 8000 Hz, should help in reducing short-blocks where not necessary. VBR psy-model changed, using lower ISMR values than earlier build.

**11/05/00** CBR bit allocation algorithm changed

**11/04/00 (2)** Memory and pointer usage bug fixes

**11/04/00** Updated tonality measure calculation, old tonality measure produced artifacts in steady sound conditions.

**11/03/00** Fixed array-overflow bug in quantizer core - some heavy artifacts (loss of spectrum lines) occurred because of this bug.

**11/02/00 (2)** Self-tuning module improved, better threshold adjustment

**11/02/00** Added self-tuning module in psychoacoustic model. Improves quality at all bit-rates.

**11/01/00 (2)** Improved psychoacoustic model (problem with detail loss @128 kbits/s)

**11/01/00** 'Mono' bug fixed. AACENC now encodes mono files at full quality @64 kbits/s. M/S coding updated.

**10/31/00** Changes in block switching algorithm. Affects all bit-rates.

**10/30/00** Bit reservoir usage fixed. M/S coder updated, fixed BMLD threshold generator.

**10/29/00** Lots of quality fixes in noise shaper, M/S coder and psychoacoustic model. -vr and -lt\_psy are disabled at the moment.

**10/28/00** Non-Linear psychoacoustic model improved. Fixed some bit-reservoir problems and quantizer normative limitations.

**10/26/00** New tool added: **adaptive cut-off**. Improved noise shaping, fixed some bugs in noise shaping.

**10/24/00 (2)** AACENC now preserves all frequencies up to sampling frequency

**10/24/00** Improved quantizer and psy-model. New features added: **-ltq** switch for lowering absolute threshold of hearing (ATH) and **-lt\_psy** which forces more restrictive psychoacoustic model (this option improves sound at higher bit rates, like 192 kbits/s). Please read whatsnew.txt found inside .zip file

**10/23/00** Minor changes in quantizer strategy. Math library updated.

**10/22/00** More improvements in psy-model, especially affect low bitrates! Non-linear model introduced, but not yet tuned-up. Some M/S coding bugs fixed.

**10/21/00 (2)** AWS almost complete, needs some fine tuning, but mostly is debugged and tuned up

**10/21/00** Minor VBR Quantization bug fixed. More AWS tuning.

**10/20/00 (2)** More tuning in advanced block switching (AWS), affects quality.

**10/20/00** Advanced block switching more tuned-up (and some bugs in switch module fixed). More changes in psy-model, some internal structures removed that required extra memory, updated unpredictability measure estimation.

**10/19/00 (2)** Fixed bug in quantizer which caused encoder to hang on some signals and to enter endless loop.

**10/19/00** CMDCT is now the default analysis function in psychacoustic model.  
Fixed quantizer bug that may produce larger quantizer coefficients than allowed by standard.  
Block switching formula changed completely (but still needs advanced tuning).  
Encoder speed decreased because of quality issues (will be faster in next major beta).

**October 19th 2000:** History logging started

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