Operational Manual

AMB

Audio Management Batch Processor

V1.0

NUGEN Audio

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1. Introduction

The NUGEN Audio AMB system is an off-line file based audio analysis and processing program designed for rapid management of audio content.

A variety of processing modules are available to meet your processing needs:

1. **Loudness analysis and correction** processing designed for rapid assessment and correction of files for loudness and true-peak content to ITU-R BS.1770 (revisions 0-3), and EBU R128 based specifications.
2. **Upmixing** for generating 5.1 and 7.1 audio from stereo input audio using NUGEN Audio's Halo Upmix technology.

AMB is capable of producing detailed post-mortem logs and includes an in-built graphing facility. With a drag and drop interface and/or specific watched folders, AMB automatically handles the processing of files to multiple criteria.

By default, AMB will natively handle WAV and AIFF files containing PCM audio data. Additional expansions are available for the support of other file formats:

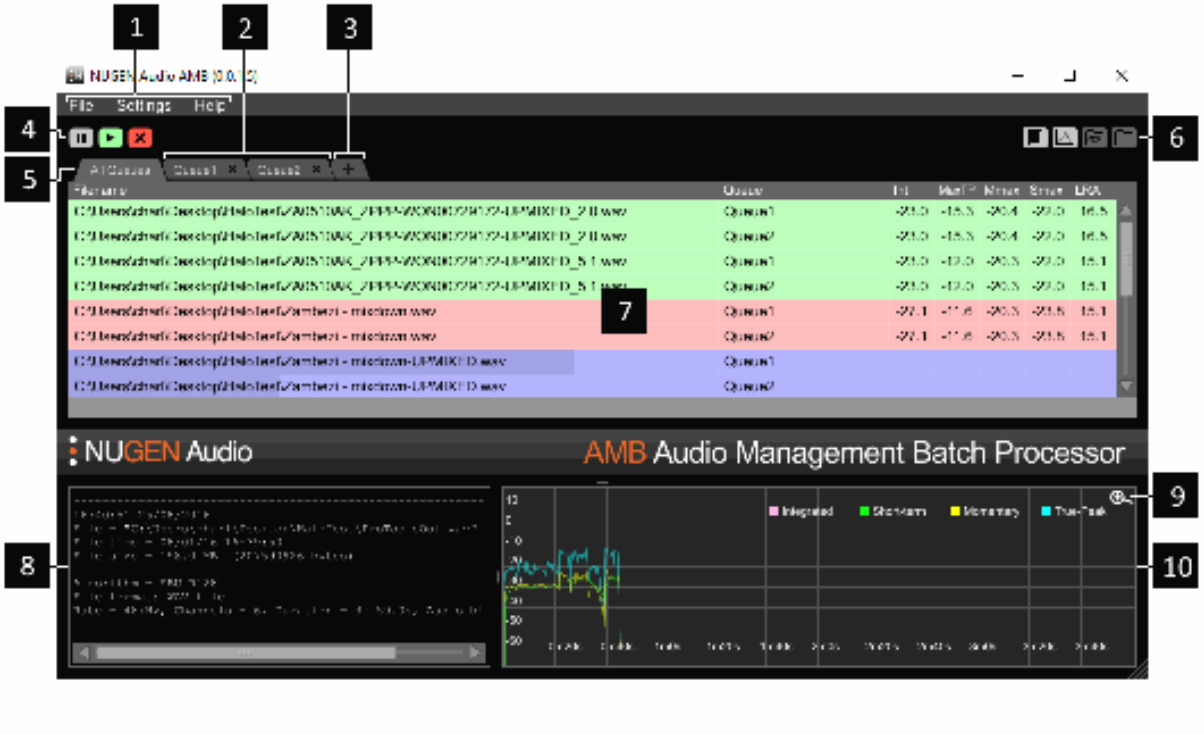
1. **MXF** - supports OP-1a and OP-Atom formats containing PCM data (including D10 encoded audio).
2. **MOV** - supports all Quicktime formats containing PCM data (including files often referred to as ProRes).

2. Interface

2.1 General Layout

The interface is designed to facilitate intuitive operation by following a logical flow from top to bottom, left to right, grouping similar aspects of operation into distinct zones as shown below.

The interface can be resized using the standard corner drag and maximise/restore functions. You can also resize the various panels by dragging the = symbol in the gaps between them.



1. **Drop-down menus**

File	Load Settings...	Loads overall AMB settings files *.amba
	Save Settings	Saves current settings.
	Save Settings As...	Saves current settings as *.amb
	Load Workspace...	Loads a workspace *.ambw
	Save Workspace	Saves the current workspace.
	Save Workspace As...	Saves the current workspace to a new file.
	Add to queue	Browse for files to add to the currently selected queue. Hold down ctrl or shift to add more than one file.
Settings	Edit Global Settings...	Opens the global settings dialog box.
	Edit Settings...	Opens the queue settings dialog box.
Help	Manual	Opens the AMB manual (pdf).
	Visit website	Opens the NUGEN Audio AMB web page.
	About	Opens the credits and version dialog box.

Note that a settings file holds the settings used for just one queue. You will need multiple files to use multiple queues. AMB uses the concept of a 'workspace' to group several queues together. When you close AMB, the current workspace will be saved. The next time you launch AMB, the previous workspace will be reloaded and your

queues will be restored.

2. **Queue Tabs.** Each tab represents the items in a queue. You can double-click the tab to display the settings for that queue. Click on the X button within the tab to close the queue (and stop processing items in it) - it will be removed from the workspace. With a tab selected, only the items in the selected queue are visible. Initially, the name of the tab will be automatically generated. Once you save the settings for that queue, the filename you choose will be displayed on the tab instead.
3. **Add Queue.** This button will add an extra queue (if you have sufficient licenses available). By default, AMB will allow you to create 2 queues. Additional queues can be purchased for greater flexibility.
4. **Queue Controls.** These buttons control the currently displayed queue (or all queues if the 'All Queues' tab is active (see below)). The first button pauses the queue - it will flash when the queue is paused and a small pause icon will appear on the queue tab. The second button will unpause the current queue. It will be green when the queue is running. If you are looking at the 'All Queues' tab and some, but not all queues are paused, then both the play button and pause button will be illuminated. The final button will clear the queue. This stops any processing that is currently taking place and removes all items from the queue (both those that have been processed and those that were still waiting). Note that some parts of the process require OS actions such as copying/moving files to complete. These cannot be interrupted so processing may take a moment to come to a halt.
5. **All Queues.** This tab is only visible if you have 2 or more queues in your workspace. With this tab selected, you can see all of the files in all of the queues. An extra column is displayed which indicates which files belong to which queues.
6. **Shortcuts.** These shortcuts (in left to right order) allow you to:
   (a) Toggle the log window on/off.
   (b) Toggle the graph window on/off.
   (c) View watch folder - if the current queue has a watch folder enabled, clicking this button will open that folder for you.
   (d) View output folder - if the current queue creates any output files, clicking this button will open the target folder for you.

   The log and graph information will still be collected if their windows are not displayed.
7. **Processing queue.** This area shows the files queued for processing, and previously processed in this session, in tabulated summary, with results of analysis and any correction applied.
8. **Analysis output window.** Clicking any file in the processing queue will generate a detailed summary of any analysis and correction associated with the current session.
9. **Zoom.** Clicking on this icon opens a new window containing the graph data (see below). You can resize the new window to provide more detailed information.
10. **Output graph.** The graph area provides a thumbnail overview of Short-term, Momentary loudness and True-Peak over time. The three traces can be toggled on and off by clicking the title in the key.

2.2 Processing Queue

This area of the interface gives an overview of the files to be analysed and/or corrected, along with a summary of any loudness data generated.

Drag and drop files here to add to the processing queue. Once data is generated, it is tabulated in summary columns to the right hand side of the window. Corrected files are shown below the original file.

Files may also be added to the queue using the 'Add to queue' option in the File drop-down menu, or added automatically using the watched folder option in the settings dialog. Options are also available here to adjust the results column display.

If you have multiple queues active, and you have the 'All Queues' tab active, adding files will add them to all queues.

Clicking on a file updates the log and graph windows to display the corresponding information.

Files are processed in the order that they were added to queues. Each time a processor becomes available, it takes the next item from the longest queue and processes that file. Initially, AMB will allocate 2 processing threads for handling queues. You can purchase additional licenses for more threads to improve the throughput of files.

2.3 Analysis Output

Clicking any analysed file in the file overview window will call up the analysis details for that file in the analysis output window, showing file location, format, and processing details.



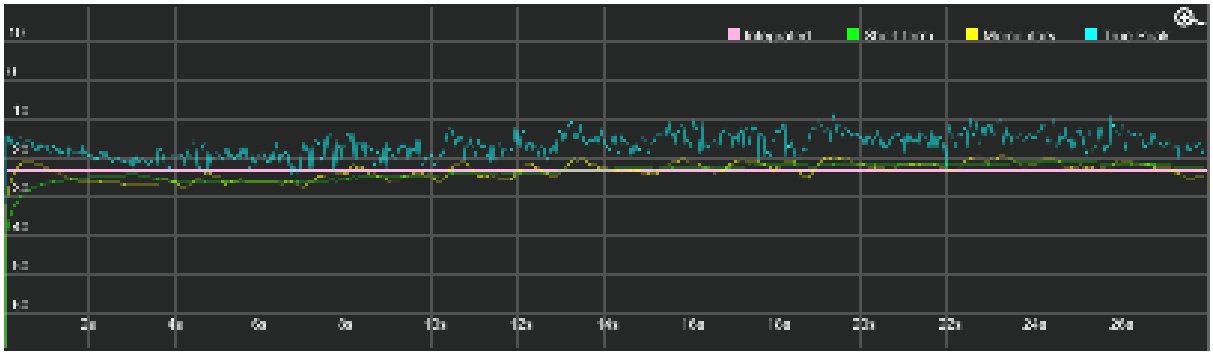
When processing for loudness, values that fail the specification criteria are marked with an exclamation mark.

A critical file failure parameter will be marked '!!'. A corrected file will then not be produced and the file will be marked 'CANNOT CORRECT' in the file overview window. For the file to pass the specifications, the original audio will need some form of compression/limiting.

2.4 Output Log Graph

The graph area provides a thumbnail overview of Short-term, Momentary loudness and True-Peak over time. The three traces can be toggled on and off by clicking the title in the key.

The magnifying glass in the right hand corner will open a second, large-scale graph view. From the large scale-view it is possible to toggle between original and corrected file traces (if a corrected file exists) using the '<->' button. Graphical traces can also be saved as a PNG file by clicking on the 'Export' button.

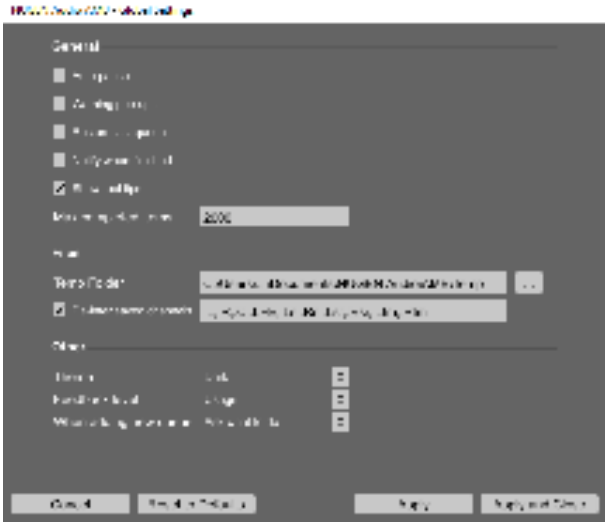


2.5 Settings

The settings are split into two categories. Those that affect AMB as a whole (Global Settings) and those that affect only the currently selected queue. You can open the Global Settings from the Settings menu. To open the settings for a specific queue, either double-click on the tab for the queue, or single-click on the tab and then select Settings->Edit Settings... from the menu. If you have the 'All Queues' tab selected, then the Settings->Edit Settings menu will display all of the available queues in a list so that you can pick the settings you wish to edit.

The available settings will vary depending upon which additional licenses you have purchased.

2.5.1 Global Settings



1. **Auto-pause.** If this option is enabled, applying changes to a queue's setting will automatically pause the queue.
2. **Warning pop-ups.** Some errors, critical to the function of AMB, can display a warning pop-up. If this box is not ticked, the warning will not be displayed.
3. **Restore last queue.** If there are unprocessed items in any queues when AMB is closed, that list of items is saved. If this box is ticked then those items are added back into the queues when AMB is next launched.
4. **Notify when finished.** With this item ticked, a pop-up box will be displayed once processing of all items in all queues is complete.
5. **Show tool tips.** Tick this item to display tool tips for many of the options in AMB.
6. **Max completed items.** This is the maximum number of completed items that should be held in memory for each queue. Once this limit is reached, completing an item will remove the oldest complete item from the list.
7. **Temp folder.** Whilst processing files, AMB stores temporary copies in this folder. If your target corrected folder is a local drive, then it is a good idea to have this temporary files on the same drive so that completed items can simply be moved rather than copied. If your target folder is a network drive then having your temporary folder on a local drive may improve performance.
8. **De-interleaved channels.** With this item ticked, AMB will process de-interleaved files with the specified extensions. They are expected in the ITU channel order and default to .L,.R,.C,.LFE,.Ls,.Rs,.Lsr,.Rsr,.Ltm,.Rtm. If AMB encounters a file with one of these extensions then it will look for others that match. For example, if you have

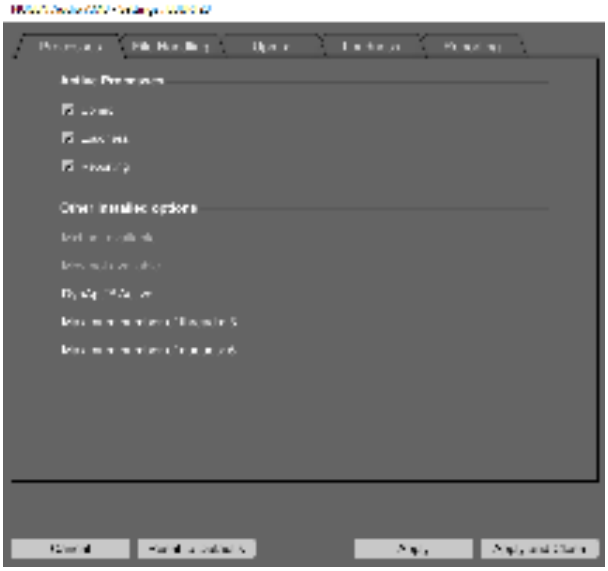
a file called test.L.wav, then AMB will also search for test.R.wav etc. AMB will only process de-interleaved files if all of a 'set' are present. You must have L+R or 5.1 or 7.1 channels in order to continue.

9. **Theme.** This allows you to choose the 'look' of AMB.
10. **Feedback level.** AMB can report back information about the kinds of files and processes you are performing and the time those processes take. This is useful feedback for us and will help us make sure we are concentrating on optimising the relevant features. The information gathered is anonymous and doesn't contain any personal information. You can turn this option to 'Off' if you would rather not take part. There is also a 'Debug' level. A NUGEN Audio Service Engineer may ask you to select this level should you encounter any issues. This passes additional license information to enable us to identify the feedback associated with a particular process.
11. **When adding a new queue.** The first time you add a new queue, you will be asked whether you wish to load an existing file, or create a new one. You can change this behaviour by selecting a different option here.

2.5.2 Queue Settings

Processes

This page allows you to configure which processes you wish to apply and also provides you with a summary of the licenses you have available. When a module is enabled, a corresponding tab will appear to allow you to configure that process more thoroughly.

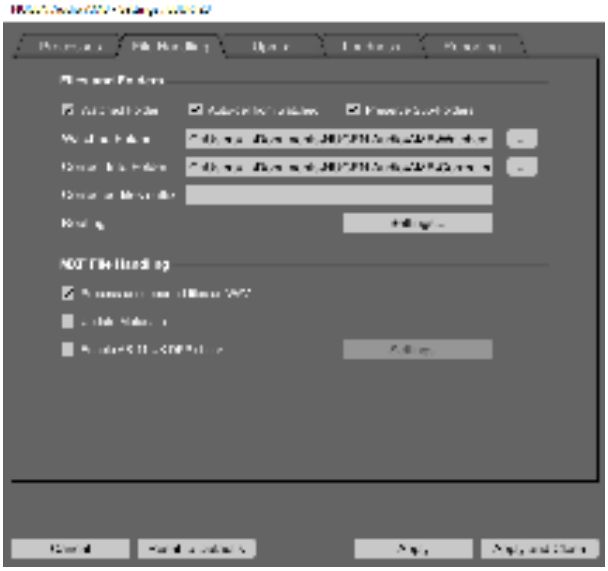


1. **Upmix.** Turns the upmix module on and off. You can currently upmix from stereo to 5.1 or 7.1.
2. **Loudness.** Turns the loudness module on and off. With this, you can analyse and correct to a variety of loudness standards.
3. **Reporting.** This is a global enable for the reporting options.
4. **Mxf.** This control will be ticked if you have a license for the native processing of Mxf files. The Mxf expansion supports Op-1a and Op-Atom files containing PCM data (including D10 formatted audio).
5. **Mov.** This control will be ticked if you have a license for the native processing of Mov files. The Mov expansion supports all Mov files containing PCM audio data.

6. **DynApt™ .** This control will be ticked if you have a license for the NUGEN Audio DynApt™ expansion. This can be used to alter the dynamics of a file to meet loudness requirements or to re-purpose audio from cinema to TV to podcast (for example).
7. **Maximum number of threads.** By default, AMB will process files using two threads. This means that up to two files can be processed simultaneously. If you are running AMB on a server machine with multiple cores, you will probably be able to get better performance by processing more files simultaneously. You can purchase additional thread licenses in order to open up this feature.
8. **Maximum number of queues.** By default, AMB allows you to set up two queues. These queues can provide different processing on different files, or you could set them up to perform different processing on the same files. If you are targeting multiple markets, you may need more than two queues, in which case additional licenses can be purchased to allow this.

File Handling

This tab allows you to configure how files are handled by AMB.

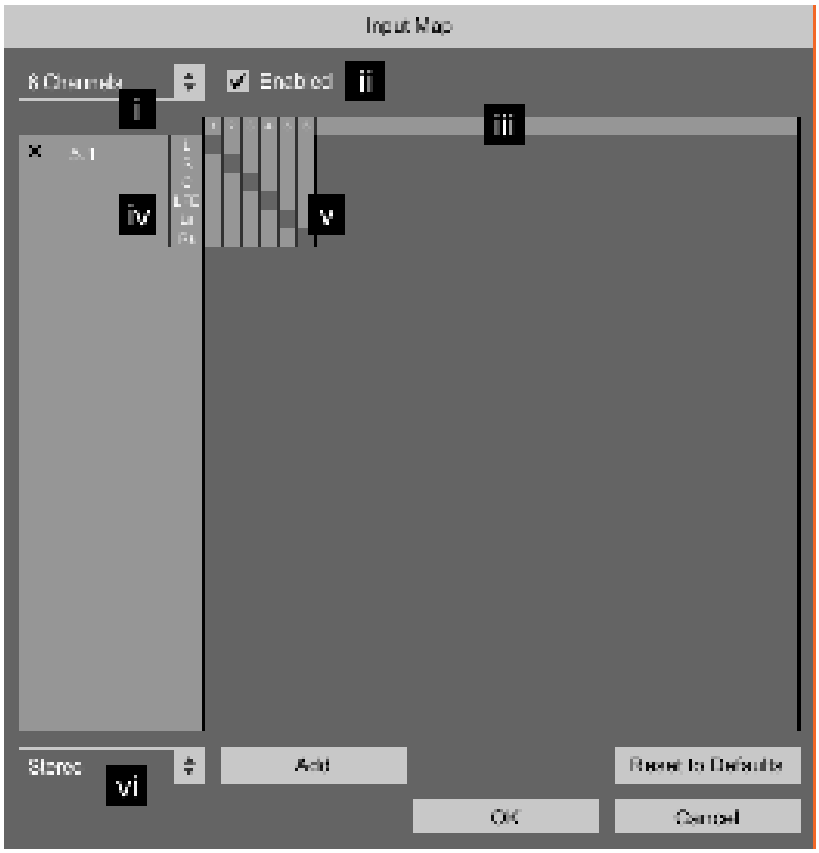


1. **Files and Folders** This section allows you to specify folders used for various actions. You can type in the path directly or click on the button to the right to browse to the desired path.
   (a) **Watched Folder.** In addition to the drag and drop method, files can also be added to the queue using the watched folder option for fully automated processing.
   (b) **Auto-del from watched.** With this tick-box ticked, any items successfully processed from the watch folder will be deleted once processing is complete. This option is only available if parsing of a watch folder is turned on, and auto-correction is also turned on.
   (c) **Preserve Sub-Folders.** With correction turned on, dragging an entire directory into the watch folder can result in the processed files ending up in slightly different locations. With this option turned off, each file will be processed and then placed directly in the 'Correct Into Folder'. With this option turned on, the directory structure will be preserved and a new folder will be created inside the 'Correct Into Folder' that contains the files.
   (d) **Watched Folder path.** This is the folder that is watched for new entries.

(e) **Correct Into Folder path.** With auto-correct turned on, this folder specifies where corrected files are placed after processing.

(f) **Corrected files suffix.** Type a suffix to be appended to corrected files here to make corrected files easier to identify if required.

(g) **Routing.** Click on the settings button to specify how files with different numbers of channels are handled.



i. You can configure the routing based on the number of channels in the incoming file.

ii. You can enable/disable processing of specific channel counts. If a specific channel count has been disabled, processing files with that number of channels will fail.

iii. The number of channels is displayed along the top axis.

iv. The different streams to be processed are displayed on the left. Click on the X button to remove a stream.

v. Click the grid to select which file channels are assigned to which stream.

vi. New streams can be added by selecting the number of channels and clicking the Add button.

vii. The Reset to Defaults button resets **ALL** of the routings for **ALL** of the channels back to the default values.

viii. Click OK to accept your changes, or Cancel to discard them.

2. **MXF File Handling.** If you have purchased the MXF expansion, then you will have additional options for how you process MXF files. Without the MXF expansion, MXF files are first converted to WAV files before being processed (in the same way as any other non-native file format is).

(a) **Process unsupported files as WAV.** With this tick-box ticked, any MXF file that is not in a supported format will be converted to a WAV and processed in the same way that other non-native files are processed. If you un-tick this box then non-supported MXF files will trigger a failure.

AMB supports the OP-1a and OP-Atom operating patterns, and any audio in the file must be in either PCM or D10/AES3 format.

(b) **Update Metadata.** Part of the MXF specification says that any program that modifies an MXF file should add some specific metadata to say that a modification had taken place. With this option turned on, AMB will add that metadata, with it turned off, it will not.

(c) **Enable AS-11 UK DPP checks.** Globally enable/disable AS-11 checks as required by the UK DPP. For specific tests, click on the 'Settings' button.

i. **Skip line-up if present.** With this option turned on, AMB will ignore any line-up tone found at the beginning of the file. This is done by looking for the 'Line up start' metadata and then skipping forward to the 10-hour time-code mark in the file. Specifically, there is no checking for a line-up tone in the audio. If some audio needs to be skipped, this overrides the 'Ignore Head' setting.

ii. **Reject if shim information is missing/invalid.** This version of AMB has been written with the UK DPP shims for SD and HD content version 1.1. With this option turned on, if there is no shim information in the file, or if the version does not match, then the file will fail.

iii. **Reject missing details.** With this option turned on, AMB will check for the required metadata. If any is missing then the file will fail. Note that the contents of the metadata are not validated. The list of items checked are:

Section	Item
AS-11 Core metadata	Series Title Program Title Episode Title Number Shim Name Shim Version Audio Track Layout Primary Audio Language
AS-11 UKDPP metadata	Production Number Synopsis Originator Copyright Year Secondary Audio Language Tertiary Audio Language Audio Loudness Standard

iv. **Copy side-car file.** AMB will look in the same folder as the mxf file for a file with the same name but the xml extension. If this option is turned on and that file exists, it will copy the file to the 'Corrected Folder' upon completion. N.B. The file is not modified in any way.

v. **Log all metadata to the log file.** With this option turned on, all discovered metadata is sent to both the log window and the log file.

vi. **Process M&E tracks** The definition of what each channel contains is part of the 'Audio Track Layout' metadata extracted from the file. Some of those tracks may be marked as M&E in which case they do not normally need processing (as they will usually be loudness corrected once mixed with the dialog from another language). With this option turned on, they will processed in addition to the rest of the audio.

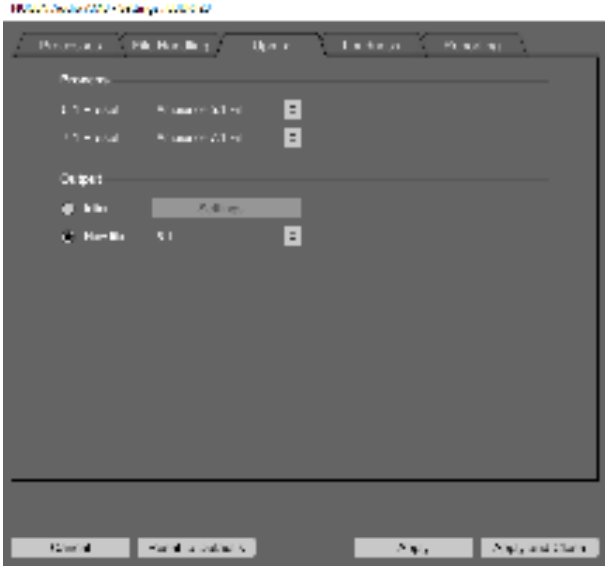
vii. **Default 4/16-channel layout** If the 'Audio Track Layout' metadata is missing from the file, you will need to tell AMB how to interpret the audio

tracks that it is receiving. These options allow you to specify the layout based on the R123 standard.

		Audio Track Numbers															
EBU Reference code	Prog Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
R48:2a	Stereo	St. Final Mix LR		Silence													
R123:4b	Stereo with M&E	St. Final Mix LR		St. M&E LR													
R123:4c	Stereo with Audio Description	St. Final Mix LR		St. Aud Desc LR													
R123:16c	Stereo, 5.1 and M&E	St. Final Mix LR		St. M&E LR		5.1 Final Mix LRCLfeLsRs						5.1 M&E LRCLfeLsRs					
R123:16d	5.1 Two Languages	5.1 Lang 1 LRCLfeLsRs						Other		5.1 Lang 2 LRCLfeLsRs						Other	
R123:16f	Three Languages	Lang 1 LR		Not used		Lang 2 LR		Not used		Lang 3 LR		Not used		Other		Other	

Upmix

This tab allows you to configure the way that files are upmixed using NUGEN Audio's proprietary Halo Upmix technology. Please note that at this time, the upmixing can only be applied to stereo audio to upmix it to 5.1 or 7.1.



1. **5.1 Preset.** This is the preset used to upmix files to 5.1 format.
2. **7.1 Preset.** This is the preset used to upmix files to 7.1 format.
3. **Inline.** If this radio button is selected, then upmixing will occur inline. That is, you must provide a file that has the source stereo data, but also has enough channels to contain the 5.1 or 7.1 upmixed audio. To configure how this takes place, click on the settings button. Note that you must already have set up the stereo and surround streams for the desired number of input channels in the File Handling tab.

   The upmix configuration display you are shown here looks very like the routing configuration panel from the File Handling tab, however, you cannot change the file channels. Select the number of channels in the source file from the list and the available source and destination mappings will be displayed. Note that the list will

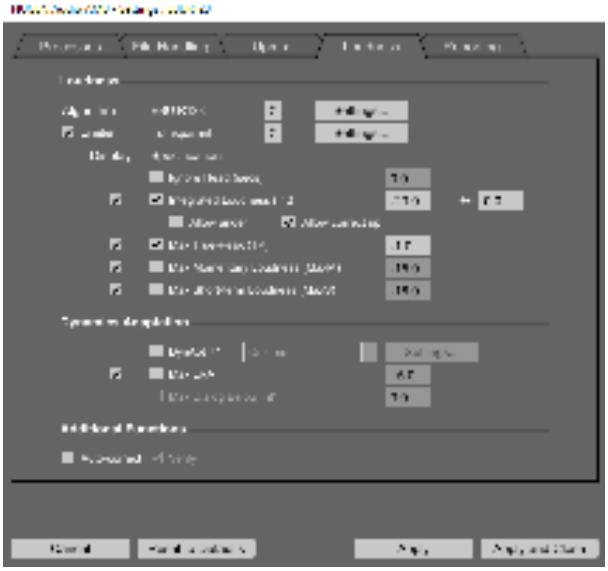
only contain channel counts where the routing includes at least one stereo and one surround stream.

With the number of channels selected, select the radio buttons next to the desrired stereo source and surround target.

4. **New File.** With this radio button selected, files will be upmixed to a new file.

Loudness

This tab allows you to configure all of the options related to analysis and correction of loudness parameters.



1. **Auto-correct** Check this option to auto-correct the files to the specifications into the 'Correct into folder' which is specified on the 'File Handling' tab.
2. **Verify** Checks the corrected file for conformity. This requires another scan, creating the possibility for an iterative process to exactly meet all requirements.
3. **Display options.** The left column of tick-boxes allows you to choose which items are displayed in the analysis summary of the process queue. Note that only LRA is available from the Dynamics Adaptation section unless you have a DynApt™ license and DynApt™ processing is turned on.
4. **Specifications.** The specification options are in the second column and allow you to choose which criteria you wish to test for. If these tick-boxes are ticked, then incoming audio is compared against the corresponding values and will pass or fail as appropriate.
   (a) **Algorithm** In this area the fundamental analysis algorithm is selected, governing all loudness calculations made by this instance of AMB. AMB is capable of performing calculations compliant with ITU-R BS. 1770-1, ITU-R BS. 1770-2/3[1], EBU R128 (2010)[2], EBU R128 (EBU mode), Dialog Gate & Leq(m). Current loudness standards are based around these algorithms eg. ATSC A/85, ARIB TR-B32, AGCOM 219/9/CSP etc. although many delivery specifications simply refer to the algorithm directly.

[1]Our implementation of the ITU-R BS.1770-3 algorithm is also ITU-R BS.1770-2 compliant, so you can use this setting to cover both requirements

[2]The EBU R128 (2010) algorithm is a legacy setting. This uses the G8 gating system superseded by the G10 gate in the current EBU R128 algorithm.

(b) **Algorithm Settings** Clicking on this button opens up another display where you can tweak the values of the selected algorithm. Note that if you adjust any of these values then the Algorithm setting in the main page will display 'custom'.

i. **Short Term Sliding Window** This is the period over which the short-term loudness is calculated. You should only change this if your delivery specifically states a different value.

ii. **Algorithm** This is the actual algorithm to use.

iii. **Channel weight L/R Rear Surround** This is the channel weighting that should be assigned to the rear/additional channels in a 7.1 mix. At the time of writing, there was no formal specification for the weighting that should be used in these channels and the weighting is therefore configurable for forward compatibility. The weighting is listed as a dB offset.

(c) **Limiter** With this option turned on, a look-ahead True-Peak limiter is applied to the audio to make sure that the specified MaxTP is not exceeded. If this option is turned off, but the MaxTP criterion is still set then the incoming audio will be gain-adjusted to make sure that peak-overs do not occur.

(d) **Limiter Settings**

i. **Look Ahead.** This is the number of samples to look ahead for peak-overs. The larger this value is, the smoother gain adjustments prior to a peak-over will be.

ii. **Release** This is the time in milliseconds over which the gain adjustment is released. The larger this value is, the smoother gain adjustments after a peak-over will be.

(e) **Ignore Head.** Use this parameter to cause AMB to ignore the front section of audio in a given file. This is useful where test and alignment tones are present, which should not be included in the loudness measurement. This section of the file is also left out of any file processing adjustments made.

(f) **Integrated Loudness.** Files will be assessed and or corrected to the defined value. In some situations, it can be possible for a file to fail to comply with a single target value, as other requirements require gain reduction that reduces the integrated loudness below the target. In these situations, AMB will indicate that this condition has not been met.

i. **Tolerance.** The +/- parameter allows a tolerance to be applied, passing audio within the tolerance range.

ii. **Allow Under.** The Allow under option will allow the integrated value to be reduced in order to meet potential conflicts arising from the need to meet the max parameters settings below if selected.

iii. **Allow Correct Up.** Allow correct up will raise the level of audio with integrated loudness outside the integrated loudness value.

(g) **Max True-Peak.** Sets the target value for maximum True-Peak level. Overall file level will be reduced to ensure this target value is not exceeded. As extremely short sections of audio can cause the reduction in level of the entire file a back-stop peak-limiter option is available as an alternative method of preventing Max True-Peak being exceeded.

(h) **Max Momentary Loudness.**[3] Sets the target value for MaxM. Overall file level will be reduced to ensure this target value is not exceeded. This setting is unavailable if DynApt™ is turned on - use the Max Momentary Above Int option instead.

[3]This applies a simple gain offset which may conflict with the Integrated Loudness correction. To correct for both Integrated and Short-term/Momentary values use the DynApt™ extension.

(i) **Max Short-term Loudness.**[3] Sets the target value for MaxS. Overall file level will be reduced to ensure this target value is not exceeded. This setting is unavailable if DynApt™ is turned on - use the Max Short-term Above Int option instead.

5. **Dynamics Adaptation** With the exception of the LRA test criteria, this section is disabled unless you have purchased and activated a valid license for the DynApt™ add-on.

   DynApt™ is a proprietary algorithm which analyses the loudness levels throughout a piece of audio and then carefully reduces the loudness range of the audio, according to several measures, while preserving the short-term dynamics and ”space” in the audio, and ensuring the dialog level results in good intelligibility. The end result is audio that has been re-purposed for different play-out contexts, while doing minimal damage to the original sound and feel of the audio. Example uses are re-purposing cinema sound-tracks for TV broadcast, or re-purposing radio broadcast programming for podcast.

   (a) **DynApt™ Presets** Use this option to select the target audience for the DynApt™ algorithm. To customise the settings, click on the settings button to the right.

   (b) **DynApt™ Settings** Here you can set the specific settings used by the DynApt™ algorithm.

      i. **Loudness Compression Ratio** When DynApt™ reduces MMAI and MSAI the Loudness Compression Ratio controls how hard or soft the compression will be, with 1.0 being very hard and 0.3 being very soft.

      ii. **Macro Transition Threshold** DynApt™ respects the transitions in the original audio. The Macro Transition Threshold controls the detection of transitions. A lower number will detect more transitions.

      iii. **Time Smoothing (secs)** DynApt™ processing is generally applied in a time-smoothed way. The parameter Time Smoothing controls how many seconds the processing is smoothed over.

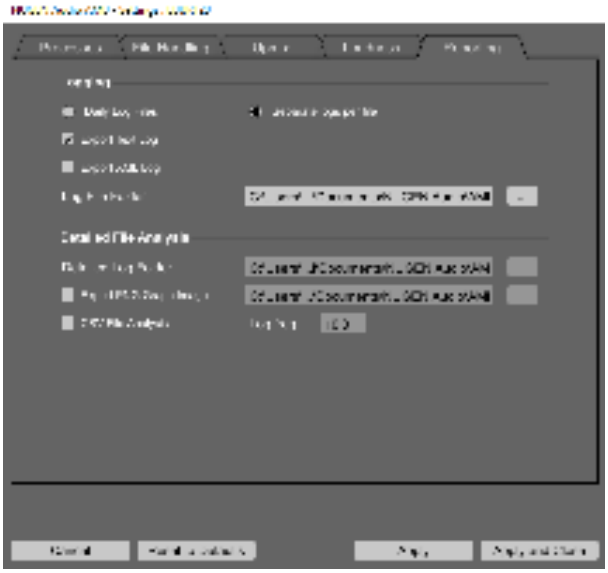
      iv. **Ignore Transitions Relative to Integrated** DynApt™ will ignore transitions it detects if the loudness levels on both sides of the transition are sufficiently low. This level is controlled by the Ignore Transitional Relative to Integrated parameter.

   (c) **Max LRA.** This function sets the maximum allowable LRA (Loudness Range) value for the file. If the DynApt™ extension is not available then marking this criteria as required will cause the file to fail if it is not met. AMB will only correct for LRA when DynApt™ is available.

   (d) **Max Dialog Below Int.** Only available when using DynApt™ . This is a measure of the difference between the integrated loudness of the whole file compared with the integrated loudness of the sections containing dialog. This will be reduced to make sure that the target level is not exceeded.

Reporting

The reporting tab allows you to specify what information is logged out when files are processed. You can disable all reporting on the processes tab.



1. **Logging** Logging can be enabled to store a history of what has happened to a file whilst it has been processed.
   (a) **Daily Log Files.** With this option selected, AMB will generate log files where the name is the current date. This way, any work that is performed is grouped based on the day it was done.
   (b) **Separate logs per file.** With this option selected, AMB will use the name of the file being processed as a base for the log file name.
   (c) **Export Text Log.** Tick this box to generate log files in a human-readable format. This contains the same information that is displayed in the log window in AMB.
   (d) **Export XML Log.** Tick this box to generate log files in XML format. This format is more easily processed by external programs, but is still formatted in a way that can be easily read by a human being.
   (e) **Log File Folder.** This specifies the target location for the log files.
2. **Detailed File Analysis** Detailed information can be saved out on a per-file basis.
   (a) **Detailed Log folder.** This is the location where the detailed CSV logs will be stored.
   (b) **Export PNG Graph Image** With this box ticked, AMB will automatically save out a PNG of the graph for each file it processes.
   (c) **Graph Folder** You can specify where the PNG files are saved. The filename used will be the same as the original file with PNG as the extension.
   (d) **CSV File Analysis** Tick this box to export a detailed log of the various loudness parameters to a comma separated value (CSV) file. This file can be imported into graphing and analysis packages (eg. MS Excel) for additional examination.
   (e) **Log frequency** This parameter specifies the time between logs, in seconds. Note that making this number very small will slow down the processing of files and could generate very large files.

3. Command-line interface

AMB does not support a command-line interface at this time.

4. File exclusion list

The file exclusion list is a list of file types (file extensions) that AMB will automatically ignore. This will speed operation and avoid AMB listing 'unsupported' files in the processing queue.

This list is contained within the file "ExcludeExtns.txt" which can be found in the AMB install directory, and can be manually edited to add/remove file exclusions to suit your operational requirements.

By default:

On OSX ExcludeExtns.txt is found in
Macintosh HD/Library/Application Support/NUGEN Audio/AMB

On Windows ExcludeExtns.txt is found in
C:\Program Files (x86)\NUGEN Audio\AMB

5. Reporting a problem

If you encounter a problem with any of NUGEN Audio's products, please let us know, to help us improve them.

Please email NUGEN Audio at support@nugenaudio.com giving a clear explanation of the problem. Please state how frequently you've experienced the problem. If there are any particular steps you need to go through to see the problem, please detail these.

Your query will be handled more quickly if you include the following information:

1. Operating system (OSX/Windows)
2. Operating system version
3. CPU type and speed
4. RAM size

If you are having problems with a specific file then including a link to that file and the settings you are using to process it would also be very helpful.

Please be patient with any problems you may experience, particularly with products at a beta stage of release. At NUGEN Audio we take problems with our software seriously, and will endeavour to correct them as quickly as possible.

6. Version History

1.0 Initial release.

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