



# Operational Manual

# ***AMB***

## **Audio Management Batch Processor**

### ***V1.1***



# Contents

<b>1 Introduction</b>	<b>3</b>
<b>2 Interface</b>	<b>4</b>
2.1 General Layout	4
2.2 Processing Queue	7
2.3 Analysis Output	8
2.4 Output Log Graph	9
2.5 Settings	10
2.5.1 Global Settings	10
General settings	10
File settings	11
Other settings	12
Enterprise settings	13
2.5.2 Queue Settings	14
Processes	14
File Handling	15
Decode	18
MXF	19
Upmix	20
Loudness	22
Encode	25
Enterprise	26
Reporting	27
<b>3 Command-line Interface</b>	<b>29</b>
<b>4 File Exclusion List</b>	<b>31</b>
<b>5 Reporting a Problem</b>	<b>32</b>
<b>6 Special Note on the Use of Dolby Trademarks</b>	<b>33</b>
<b>7 Version History</b>	<b>34</b>



# 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).

AMB can also decode and encode Dolby® E encoded WAV files with an optional expansion.

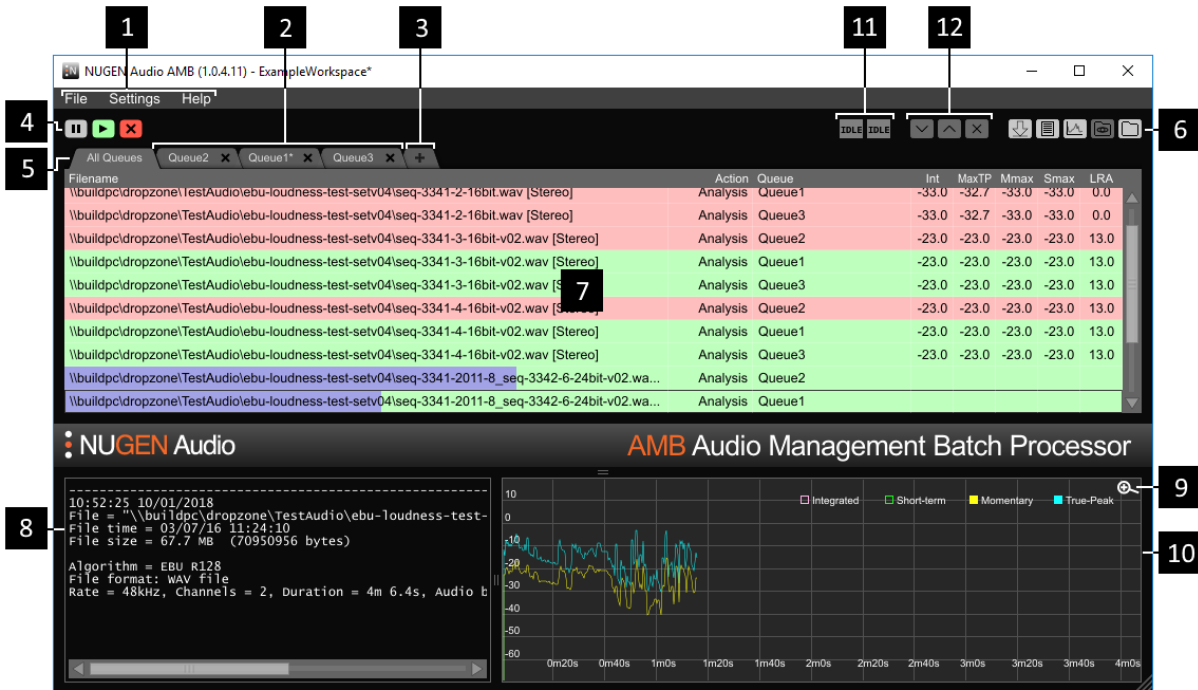
Command line processing and the triggering of external programs is available through the optional Enterprise expansion.

# 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

Menu Item	Description	Functionality
<b>File</b>	Load Settings...	Loads overall AMB settings files *.amb
	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.
<b>Settings</b>	Add to queue	Browse for files to add to the currently selected queue. Hold down ctrl or shift to add more than one file.
	Edit Global Settings...	Opens the global settings dialog box.
<b>Help</b>	Edit Settings...	Opens the queue settings dialog box.
	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) Follow the active process on/off. If you click on an item in the queue, auto-follow will be turned off. Click this button to continue tracking active items. Note that with multiple processing threads you won't track all of the items being processed. Once the currently active item has completed, the log/graph view will automatically jump to the next item that starts.
  - (b) Toggle the log window on/off.
  - (c) Toggle the graph window on/off.
  - (d) View watch folder - if the current queue has a watch folder enabled, clicking this button will open that folder for you. This is disabled when the "All Queues" tab is selected.
  - (e) View output folder - if the current queue creates any output files, clicking this button will open the target folder for you. This is disabled when the "All Queues" tab is selected.

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. The different coloured lines have the following meanings:

Colour	Description
Grey	Pending - this is a queued item that has not yet been processed.
White	Group - if a file contains multiple streams of audio, this line appears as a header to group the sub-items together.
Light Blue	In Progress - this file is currently being processed.
Light Green	Completed successfully - the process completed successfully. If this is on an analysis line then the analysis passed.
Light Red	Completed unsuccessfully - the process completed but the analysis failed.
Dark Red	Failure - something went wrong during the processing of this file. You should check the log for details of the failure.

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, plus a line showing the integrated level. The four traces can be toggled on and off by clicking the title in the key. This information is only available if loudness processing is active in this queue.
11. **Activity icons.** These icons are only available if an Enterprise license is present. The icons represent what the active processing threads are currently doing. One icon is displayed for each thread that is available (initially 2, up to a maximum of 16). The meaning of the text on each icon is described below:

Abbreviation	Meaning	Description
IDLE	Idle	The thread is currently waiting for work.
SPOL	Spooling	The thread is changing from one action to another.
PEND	Pending	The thread is performing checks prior to beginning processing.
CONV	Converting	The thread is converting the format of the file. This is where the file is sent to VLC (if installed) for conversion to WAV.
DEC	Decoding	The thread is decoding audio data. This is where the file is converted from Dolby® formats (if a license is available).
CKMD	Check Metadata	The thread is checking the metadata of the file.
UPMX	Upmix	The thread is upmixing the audio. This is only performed if an Upmix license is available, the queue is configured to upmix, and the file is suitable.
ANLD	Analyse Loudness	The loudness of the audio is being analysed.
COLD	Correct Loudness	The loudness of the audio is being corrected.
VERFY	Verify	The loudness of the audio is begin verified.
UPMD	Update Metadata	The loudness metadata of the audio is being updated.
ENC	Encoding	The audio is being encoded. This is where files are converted to Dolby® formats if a license is available and the queue is configured to do so.
COPY	Copy	The audio is being copied/moved to the target folder.
POST	Post Processing	Audio post-processing is being performed. This is where the file is deleted if it is no longer in use, and if the Enterprise Expansion is available then any configured Post-Processing is performed.

12. **Item Priority Options.** These buttons are only present if an Enterprise license is available. The up and down arrows allow you to adjust the priority of the selected item in a queue. Note that the queue priority has precedence over the individual item so a low priority item from a high priority queue will be processed before a high priority item from a low priority queue. The 'X' button allows you to remove an item from the queue.

	Processed File	Processing File	Pending File
Increase Priority	No effect	No effect	Boost the ranking of this file for selection by the next available processing thread
Decrease Priority	No effect	Cancel processing and re-add file at the bottom of the list	Decrease the ranking of this file so that it is less likely to be selected by the next available processing thread
Remove File	Remove the file from the queue	Cancel processing and remove the file from the queue	Remove the file from the queue

## 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.

Whilst processing is taking place, additional lines will be added to this display to show the progress of the actions selected in the queue settings. These extra actions can be collapsed to show just the original file.

If you have purchased the **Enterprise Extension** then you can additionally set a priority for each queue, and you can adjust the priority of individual items within a queue. To set the queue priority, see the enterprise tab on the queue settings. To adjust the priority for an individual item, select that item with a mouse (or navigate to it using the cursor keys on the keyboard). Now you can adjust the priority by either pressing the '+' and '-' keys on the keyboard, or by clicking on the Item Priority Options mentioned above.

## 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.

```
-----
09:17:09 07/09/2016
File = "\\buildpc\DropZone\TestAudio\ebu-loudness-test-setv04\seq-3341-7_seq-3342-5-24bit.wav"
File time = 03/07/16 11:24:12
File size = 7.7 MB (8064032 bytes)

Algorithm = EBU R128
File format: WAV file
Rate = 48kHz, Channels = 2, Duration = 28.0s, Audio bits = 24
Analyzing took 1 secs
Source 0 (2 channels):
  Int = -23.0 LUFS
  MaxS = -21.0 LUFS
  MaxM = -19.4 LUFS
  MaxTP = -8.9 dBTP
  LRA = 5.0 LU
```

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

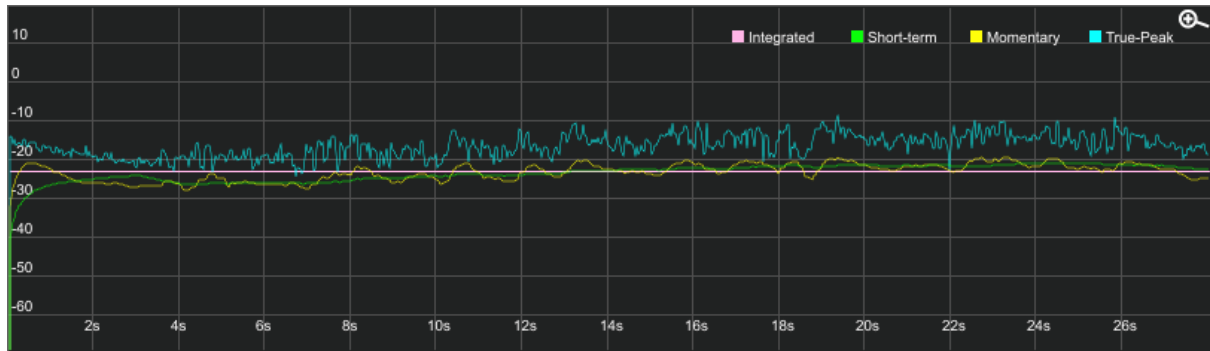
A critical file failure parameter will be marked '!!!'. A corrected file will then not be produced and the file will be marked 'CANNOT CORRECT' in the file overview window. For the file to pass the specifications, the original audio will need some form of compression/limiting.



## 2.4 Output Log Graph

The graph area provides a thumbnail overview of Short-term, Momentary loudness and True-Peak over time, plus an indication of the integrated reading. 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 graph button in the top-right corner. Graphical traces can also be saved as a PNG file by clicking on the 'Export' button.



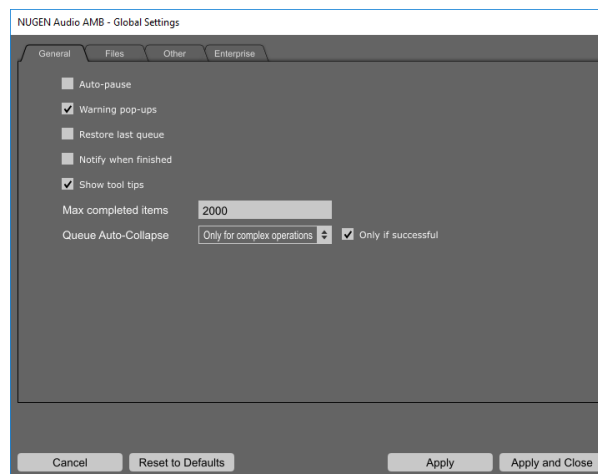
## 2.5 Settings

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

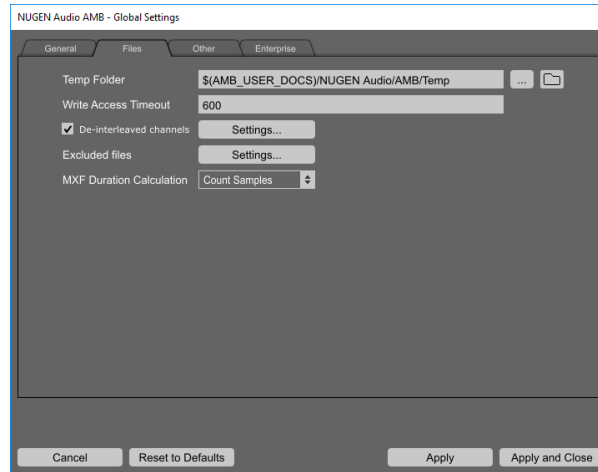
#### General settings



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. **Queue Auto-Collapse.** Here you can specify what happens once an item has finished being processed. As processing is performed, additional lines may be added to the queue to show the progress of the work being undertaken. Once an item has finished being processed, those extra lines can be collapsed to a single line in order to hide the additional work. With this option set to 'Never', the extra items will remain visible. With it set to 'Only for complex operations', anything that requires more than a simple operation (such as an upmix, or an analysis/correction) will be collapsed, but simple operations will remain expanded. If set to 'Always' then everything will be collapsed

to a single line. If the 'Only if successful' box is ticked then if a problem occurs, the collapse will not take place.

## File settings



1. **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 these 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.
2. **Write Access Timeout.** When a file is added to a queue, it is monitored to make sure that it is no longer being modified before processing begins. Three checks are performed:
  - (a) **Last Modified Time.** If the 'last modified' time of the file changes, it is marked as still being updated and will not be processed.
  - (b) **File size.** If the file size changes, it is marked as still being updated and will not be processed.
  - (c) **Write Lock.** AMB attempts to obtain a write-lock on the file to ensure that nothing else is writing to it.

The last check (write lock) can sometimes fail if the file is on a network drive, even if no other process is writing to the file. This setting allows you to specify a time out, after which processing will continue, even if a write-lock cannot be obtained. The timeout is specified in seconds. If you set the timeout to 0 then processing will not continue until a lock can be obtained.

3. **De-interleaved channels.** With this item ticked, AMB will process de-interleaved files with the specified extensions. Click on the 'Settings' button to specify the file extensions to use.

AMB Can search for file extensions with a number of different configurations. By default, only stereo, 5.1 and 7.1 are enabled. To change this, select the channel configuration then tick or untick the 'Enabled' tick box as required. When enabled, you can change the extension for the available channels.

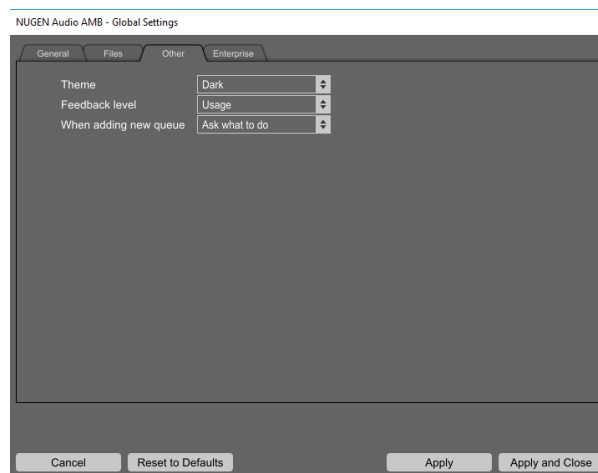
If AMB encounters a file with one of these extensions then it will look for others that match. For example, if you have a file called test.L.wav, then AMB will also search for test.R.wav etc. AMB will only process de-interleaved files if all of a 'set' are present.

4. **Excluded files.** Certain types of file are ignored by AMB (such as intermediate files created by various DAWs, text files, images, etc...). This option allows you to customize this list of files. Prior to version 1.1.4, this list was stored in a text file and

would be overwritten when AMB was updated. Now, your changes will be kept, and the format supports wildcard characters.

5. **MXF Duration Calculation.** This option is only available when an MXF license is present. MXF files can contain metadata that describes how long the file is, however, different software will write this metadata differently. If this metadata is not available or set to zero, then AMB will examine the actual sample data in the file to determine its length, otherwise, it will use the option you provide:
  - **Count Samples.** The metadata is ignored and the number of actual sample is counted. This is the most accurate option, but requires an additional pass of the data in order to determine the number of samples available.
  - **Use metadata as frames.** The value of the metadata is interpreted as a number of frames. Using the framerate (also from the metadata), the actual duration is calculated. If this doesn't match the actual audio data, then either silence is added at the end, or the final audio is ignored.
  - **Use metadata as samples.** The value of the metadata is interpreted as a number of sample. If this doesn't match the actual audio data, then either silence is added at the end, or the final audio is ignored.

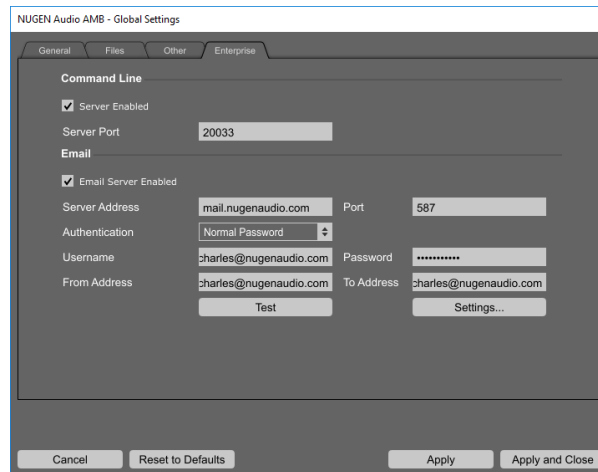
## Other settings



1. **Theme.** This allows you to choose the 'look' of AMB.
2. **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.
3. **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.

## Enterprise settings

This page is only available if an Enterprise License is available.



**Command Line.** AMB can be controlled via an extra command-line utility. This is discussed in more detail [here](#).

1. **Server Enabled** Check this box to turn on the enterprise server. This is required in order to support [command line processing](#).
2. **Server Port** This is the port that the server listens to for connections from the command line tool. By default, this is set to 20033, but it can be set to any port that is not already in use.

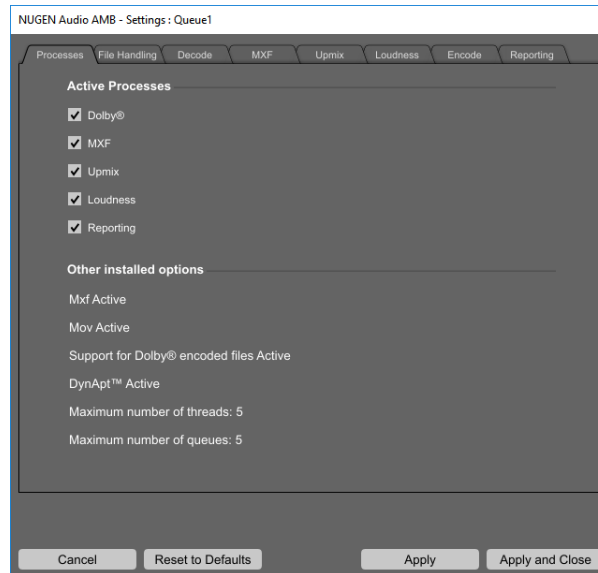
**Email.** AMB can be configured to send emails to an existing email server via SMTP to notify users when a problem occurs.

1. **Email Server Enabled.** Untick this option to turn off the sending of emails.
2. **Server Address.** This is the IP address or hostname of the email server.
3. **Port.** This is the port that your email server is listening on.
4. **Authentication.** The type of password authentication to use.
5. **Username/Password.** If your email server requires you to log-in, this allows you to specify the username and password to use.
6. **From/To Address.** This is who the email should appear to be from, and who it should be sent to. Note that you can override the to address for individual queues if desired.
7. **Test.** Click this button to send a test email. If the server settings are correct, the email should be sent to the 'To Address' immediately, otherwise an error will be reported.
8. **Settings...** You can specify under what circumstances an email should be sent:
  - (a) **File Failed.** Tick this box to send emails whenever a file fails a loudness analysis.
  - (b) **File Error.** Tick this box to send emails whenever file processing fails. For example, this could be due to file read/write errors, unrecognised file formats, unspecified routings, etc.
  - (c) **All Processing Complete.** Tick this box to send an email when all processing is complete (i.e. there are no longer any items waiting to be processed).

## 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.

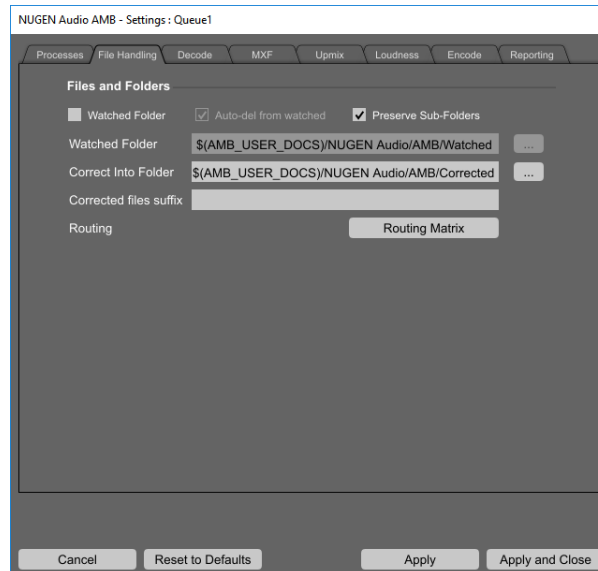


1. **Dolby®** . Turns the Dolby® module on and off (license required). With this module enabled, AMB can convert WAV files to and from Dolby® E encoded streams. Activating this module will add two tabs labelled 'Encode' and 'Decode' for configuring options.
2. **Mxf**. Turns the native processing of Mxf files on and off (license required). The Mxf expansion supports Op-1a and Op-Atom files containing PCM data (including D10 formatted audio). Activating this module will add a tab labelled 'MXF' for configuring options.
3. **Upmix**. Turns the upmix module on and off (license required). You can currently upmix from stereo to 5.1 or 7.1. Activating this module add a tab labelled 'Upmix' for configuring options.
4. **Loudness**. Turns the loudness module on and off (license required). With this, you can analyse and correct to a variety of loudness standards. Activating this option adds a tab labelled 'Loudness' for configuring options.
5. **Reporting**. This is a global enable for the reporting options.
6. **Mov**. If a license is available, the Mov Expansion will enable the native processing of Mov files containing PCM audio data.
7. **DynApt™** . If a license for the NUGEN Audio DynApt™ expansion is available, you will have access to some additional settings in the 'Loudness' tab. 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).
8. **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.
9. **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. Note that like most text-entry fields in the settings, there are a number of macros that are available that will be expanded when being processed. Using these macros allows the configuration settings to be more portable between systems. A macro follows the form `$(macro_name)` where the 'macro\_name' part is replaced by an item in the following table:

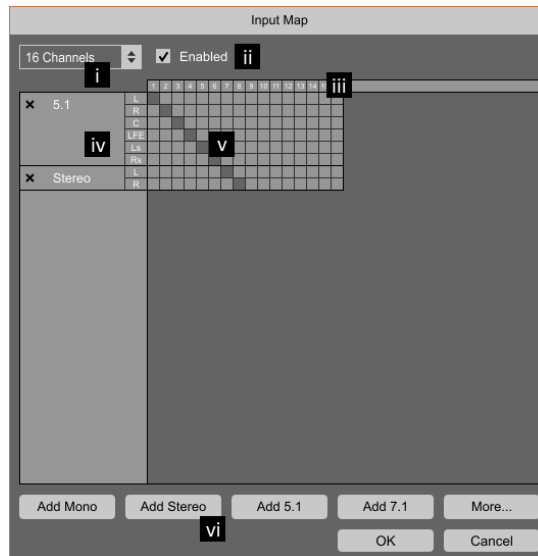


Variable	Description
AMB_USER_DIR	The user folder for the currently logged-in user
AMB_USER_DOCS	The documents folder for the currently logged-in user
AMB_TEMP_FOLDER	The settings value for the temp folder
AMB_WATCH_FOLDER	The settings value for the watch folder
AMB_LOG_FOLDER	The settings value for the log folder
AMB_DETAILED_LOG_FOLDER	The settings value for the detailed log folder
AMB_GRAPH_IMAGE_FOLDER	The settings value for the graph image folder
AMB_QUEUE_NAME	The name of the current queue (as displayed in the tab)
AMB_QUEUE_FOLDER	The folder containing the queue settings file for this queue
AMB_UPMIX_FILE	The file to be upmixed (after decoding / conversion)
AMB_UPMIXED_FILE	The output of upmixing process
AMB_ANALYSIS_FILE	The file to be loudness analysed
AMB_CORRECTION_FILE	The file to be loudness corrected
AMB_CORRECTED_FILE	The output of the loudness correction process
AMB_TARGET_FILE	The final file in the output folder
AMB_XML_LOG_FILE	The XML log file
AMB_TXT_LOG_FILE	The text log file
AMB_CORRECTED_FOLDER	The settings value for the corrected folder
AMB_SOURCE_FOLDER	The folder the original file was loaded from
AMB_SOURCE_FILE	The original file being processed
AMB_CONVERTED_FILE	The file after conversion
AMB_DECODED_FILE	The file after decoding
AMB_WORKSPACE_NAME	The name of the workspace (as displayed in the title bar).
AMB_WORKSPACE_FOLDER	The folder containing the currently loaded workspace.
AMB_LIMITER_ACTIVE	If the True Peak limiter was active, this is replaced with the text "Limited" otherwise it is removed.
AMB_INT	The integrated loudness.
AMB_INT_DIAL	The intergated loudness of dialogue portions of the audio (only available if DynApt™ is active).
AMB_TP	The maximum True Preak value.
AMB_MMAX	The maximum momentary reading.
AMB_SMAX	The maximum short-term reading.
AMB_LRA	The maximum Loudness Range.
AMB_MDBI	The maximum level of the dialogue below the integrated loudness (only available if DynApt™ is active).
AMB_MMAI	The maximum level of the momentary reading above the integrated loudness (only available if DynApt™ is active).
AMB_MSAI	The maximum level of the short-term reading above the integrated loudness (only available if DynApt™ is active).
AMB_DB_ADJ	The dB adjustment applied (only valid if DynApt™ is disabled).

Note that you can also specify any environment variable and it will also be replaced. If an environment variable is defined with one of the names mentioned above then it will take precedence over the internal macro. Macros are recursive so if you specify a macro which contains another macro then that will be expanded too.

- (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.





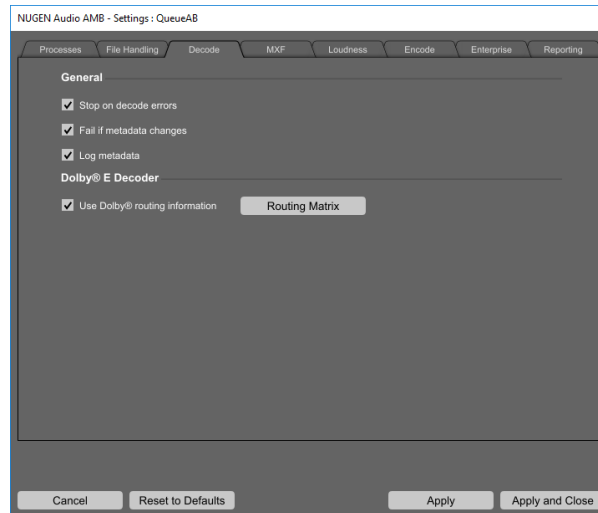
- i. You can configure the routing based on the number of channels in the incoming file.
- ii. You can enable/disable processing of specific channel counts. If a specific channel count has been disabled, processing files with that number of channels will fail.
- iii. The number of channels is displayed 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 clicking the appropriate Add button. If there are not enough file channels available for the specified channel configuration to be added then the button will be greyed out. The most common stream formats are available on the main interface, but additional arrangements can be chosen by clicking on the "More..." button. This pops up a list of other formats to choose from. Each format is defined as three numbers X/Y/Z where X is the number of front channels, Y is the number of surround channels and Z is the number of LFE channels. The following table describes the speakers used in each layout:

Format	L	R	C	LFE	Ls	Rs	S	Lb	Rb
1/0/0 (mono)			X						
2/0/0 (stereo)	X	X							
2/1/0	X	X					X		
2/1/1	X	X		X			X		
2/2/0	X	X			X	X			
2/2/1	X	X		X	X	X			
3/0/0	X	X	X						
3/0/1	X	X	X	X					
3/1/0	X	X	X				X		
3/1/1	X	X	X	X			X		
3/2/0	X	X	X		X	X			
3/2/1 (5.1)	X	X	X	X	X	X			
3/3/0	X	X	X		X	X	X		
3/3/1	X	X	X	X	X	X	X		
3/4/0	X	X	X		X	X		X	X
3/4/1 (7.1)	X	X	X		X	X		X	X

- vii. Click **OK** to accept your changes, or **Cancel** to discard them.

## Decode

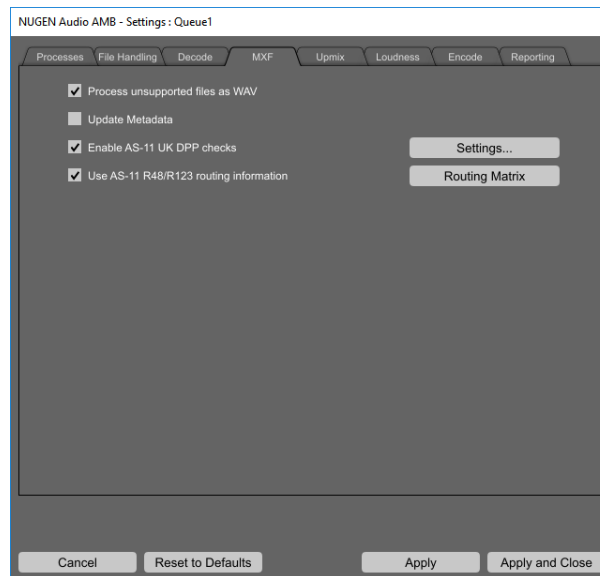
This tab allows you to configure how Dolby® E encoded files are processed. In order to process DolbyE files, AMB first converts them to PCM format before processing them as usual. AMB can then optionally re-encode the audio back into a Dolby® E encoded file. This tab only appears if you have purchased a Dolby® license and have enabled the Dolby® option in the 'Processes' tab.



1. **Stop on decode errors.** When files are decoded, the decoder may detect errors in the audio stream and momentarily mute the output as a result. If this option is turned on, these mute errors will stop processing and flag this file as failed. With this option turned off, the decoding will continue, as will the rest of the processing. You can use this option for decoding files that are known to contain an error, but where that momentary audio glitch is deemed acceptable.
2. **Fail if metadata changes.** When Dolby® E files are decoded, the metadata associated with the Dolby® E stream is saved into a special block inside the PCM WAV file. This metadata is then used when the file is re-encoded at the end of processing. However, the standard metadata block only contains a single 'frame' of metadata so if the metadata changes during the audio then the changes and timing information cannot be stored in the resulting WAV file. With this option turned on, AMB will fail to process a file where the metadata changes over time. If this option is turned off, a warning will be displayed in the log but processing will continue as if no change had occurred. The first frame of metadata will be used as the source of information when the audio is re-encoded.
3. **Log metadata.** Turn this option to log all metadata to the log window.
4. **Use Dolby® routing information.** Turn this option on to use the routing information in the Dolby® metadata to inform AMB about how to process the file. You can use the 'Routing Matrix' button to decide which program configurations you wish to support. These routings will then show up in the routing options of the processing tabs so that you can select how you wish to process them. With this option turned off, the decoded Dolby® E file will be treated as any other WAV file and the processing will be based on the number of channels rather than any routing information.

## MXF

This tab allows you to configure how MXF files are handled by AMB. This tab only appears if you have purchased an MXF license and enabled the MXF processing option.



1. **Process unsupported files as WAV.** With this tick-box ticked, any MXF file that is not in a supported format will be sent to VLC (if installed) for conversion 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.

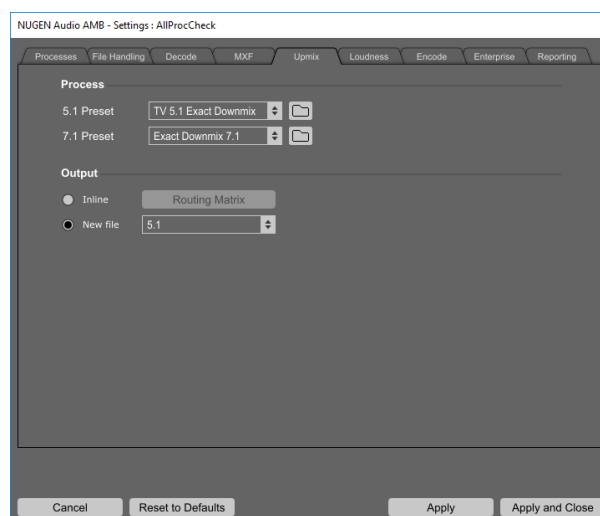
2. **Update Metadata.** Part of the MXF specification says that any program that modifies an MXF file should add some specific metadata to say that a modification had taken place. With this option turned on, AMB will add that metadata, with it turned off, it will not.
3. **Enable AS-11 UK DPP checks.** Globally enable/disable AS-11 checks as required by the UK DPP. For specific tests, click on the 'Settings' button.
  - (a) **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.
  - (b) **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.
  - (c) **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

- (d) **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.
- (e) **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.
4. **Use AS-11 R48/R123 routing.** With this option enabled, the metadata of the file is checked for AS-11 routing information. If routing information is available then that is used to determine channel layout rather than the channel-count based routing information set up in the File Handling tab. Click on the 'Routing Matrix' button to choose which routings you wish to support. Once enabled in this tab, those routings will show up in the routing matrix settings of the processing tabs so that you can choose how AMB should process those files. If this option is disabled, the file is processed based on the number of channels in the file as specified in the 'File Handling' tab.

## 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. This tab will only appear if you have an Upmix license and have activated upmixing in the 'Processes' tab.



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 'Routing Matrix' 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. If you have a license for MXF/Dolby® file processing, you must also set up the appropriate routing information on those tabs before they will show up here.

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 source routing from the list and the available source and destination mappings will be displayed. Note that the list will only contain routings where there are at least one stereo and one surround stream.

With the routing selected, check the radio buttons next to the desired stereo source and surround target.

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

Note that the presets that are available are actually preset files saved out from the NUGEN Halo Upmix plug-in. If you have access to the Halo Upmix plug-in then you can transfer your preferred settings to AMB by copying the preset files.

The preset files are stored in the following locations:

**Windows:** C:\Users\

**OS X:** /Library/ApplicationSupport/NUGEN Audio/HaloUpmix\_1/Presets

Within these folders you will see a 5.1 and a 7.1 folder. These contain a folder called user which then contains the preset files you have saved. To make these appear in AMB, copy them to the folder:

**Windows:** C:\ProgramData\NUGEN Audio\AMB\Presets\Upmix

**OS X:** /Library/Application Support/NUGEN Audio/AMB/Presets/Upmix

For example, if you had saved a 5.1 preset called 'My Upmix Preset' on your Windows system, you would copy the file:

C:\Users\

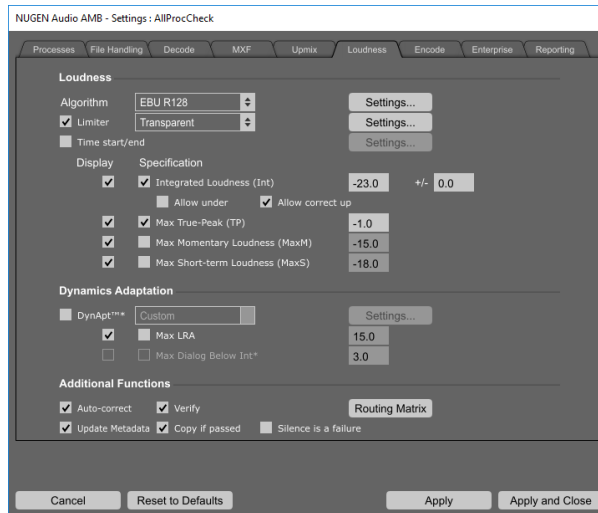
and paste it to:

C:\ProgramData\NUGEN Audio\AMB\Presets\Upmix\5.1\My Upmix Preset.nap

The list of available presets is loaded when the settings panel is opened, so just close and re-open the settings panel to refresh the list and this new preset will appear. You can access the folder that AMB loads its presets from by clicking on the icon next to the 5.1/7.1 preset selection.

## Loudness

This tab allows you to configure all of the options related to analysis and correction of loudness parameters. This tab will only appear if you have a Loudness license and have activated it in the 'Processes' tab.



- Algorithm.** In this area the fundamental analysis algorithm is selected, governing all loudness calculations made by this queue. AMB is capable of performing calculations compliant with ITU-R BS. 1770-1, ITU-R BS. 1770-2/3<sup>1</sup>, ITU-R BS. 1770-4, EBU R128 (2010)<sup>2</sup>, EBU R128 (EBU mode), Dialog Gate, Leq(a) & 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.
- 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'.
  - 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.
  - Algorithm.** This is the actual algorithm to use.
  - 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. For older standards, there was no formal specification for the weighting that should be used in these channels and the weighting is therefore configurable for forward compatibility. From version 4 of the ITU-R BS. 1770 standards, the weightings are now defined based on speaker placement, so the weighting is no longer configurable. The weighting is listed as a dB offset.
- 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.
- Limiter Settings.**
  - 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.

<sup>1</sup>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

<sup>2</sup>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) **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.
5. **Time start/end.** Use this parameter to limit the portion of audio that AMB processes. 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.
6. **Time start/end Settings.** The processed region can be defined in one of four ways. For each of those four options, you can enable or disable the start/end/duration. For the timecode options, if the file contains no timecode information, it is assumed to start at 00:00:00:00. If a frame-rate is specific in the file metadata, that is used to determine the meaning of the "frames" portion of the timecode, otherwise the frame-rate is assumed to be 25fps.
- (a) **Time Head/Tail.** You specify the amount of time (in seconds) that should be ignored at the beginning and end of the file. This is ideal if you always have a fixed amount of padding either side of the audio you need to process.
- (b) **Time Head/Duration.** You specify the amount of time (in seconds) that should be ignored at the beginning of the file, and the duration that should be processed. This is ideal when you always have a fixed amount of padding at the beginning, and know that the programme audio is always of a fixed length.
- (c) **Timecode Start/End.** You specify the timecode for the start and end of processing.
- (d) **Timecode Start/Duration.** You specify the timecode for the start of processing and the duration that should be processed.
7. **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.
8. **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) **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 quieter than the specified limit. Louder audio will be reduced but quieter audio will not be turned up.
- iii. **Allow Correct Up.** Allow correct up will raise the level of audio with integrated loudness lower than the target value. With this option turned off, audio that is too quiet will fail and will not be corrected.
- (b) **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.



- (c) **Max Momentary Loudness.** <sup>3</sup> Sets the target value for MaxM. Overall file level will be reduced to ensure this target value is not exceeded.
- (d) **Max Short-term Loudness.** <sup>3</sup> Sets the target value for MaxS. Overall file level will be reduced to ensure this target value is not exceeded.

9. **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 the Maximum Momentary Loudness and Maximum Short-term Loudness 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™ expansion 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.

10. **Additional Functions**

- (a) **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. With this option turned off, files will be compared against the criteria specified above and will fail if they do not meet the desired targets, however, no correction will take place.
- (b) **Verify.** Checks the corrected file for conformity. This requires another scan, creating the possibility for an iterative process to exactly meet all requirements.

<sup>3</sup>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™ expansion.

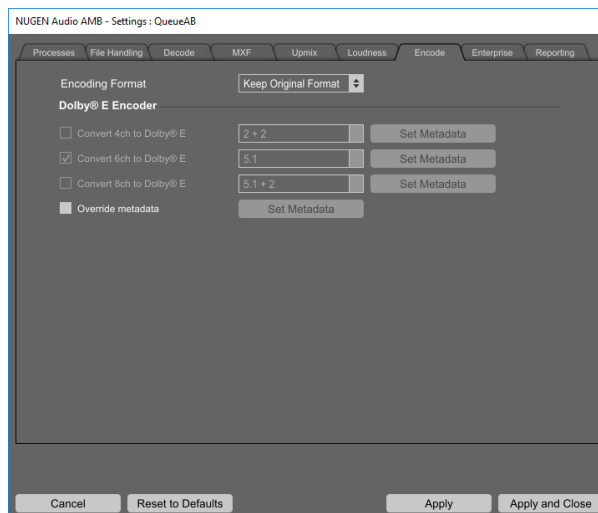


With this option turned off, files that require heavy use of the limiter in order to be corrected may not exactly meet the target values set.

- (c) **Update Metadata.** When processing WAV files containing a Broadcast WAVE 'bext' chunk (see [EBU Tech. Doc 3285](#)), the metadata will be updated with the loudness readings. Note that the loudness values will match the chosen algorithm. If you have the Dolby® extension and the WAV file contains the Dolby® metadata chunk (see [EBU Tech Doc 3285 supplement 6](#)), then the dialnorm will be updated. When encoding the file, the dialnorm will also be passed to the encoder.
- (d) **Copy if passed.** If you are just analysing files and have the "Auto-correct" option turned off, then this option tells AMB what to do with files that pass. If this option is on then files that meet the analysis criteria are copied to the output folder. This allows you to sort files that pass or fail by adding all files to the watch folder with "Auto-del from watched" turned on. After processing is complete, the watch folder will contain all files that failed the criteria, and the output folder will contain all files that passed.
- (e) **Silence is a failure.** If the overall loudness reading is less than -100 LUFS then the input audio is considered 'silent'. If this tick box is checked, then that audio will trigger a failure, otherwise it will pass without correction.
- (f) **Routing Matrix.** Set up the channel arrangement of files using the 'Routing Matrix' button in the 'File Handling' tab (and optionally in the Decode and MXF tabs) then click this button to set up which channels you wish process.

## Encode

This tab allows you to specify if/how files are encoded after processing is complete. This tab is only visible if you have have a Dolby® license and have enabled the expansion in the 'Processes' tab.

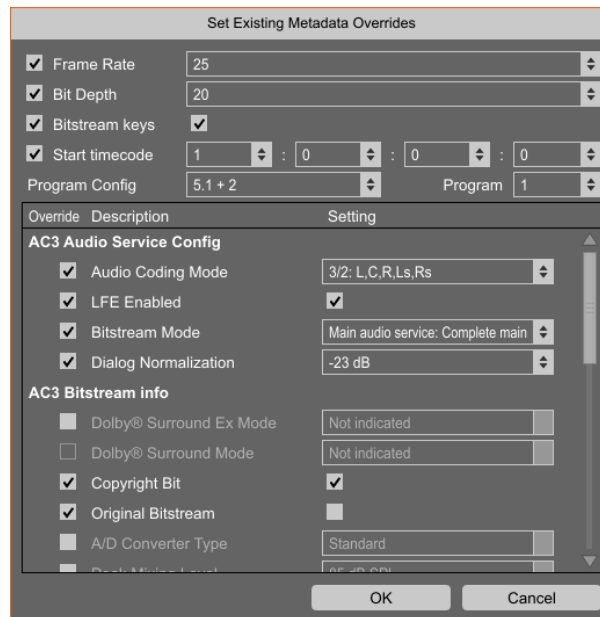


1. **Encoding Format.** Here you can select what output format you expect.
  - (a) **None.** The file is left in whatever format it is in after processing. If the file was originally a Dolby® E file, it will have been decoded to a PCM WAV, and that is how it will stay.
  - (b) **Keep Original Format.** If the file required decoding, it will be re-encoded to the original format. Note that if the original file was not a natively supported format, and required conversion by VLC prior to processing, it will not be converted back to its original format. This option only applies to natively supported formats.

(c) **Dolby® E** . If the file is suitable for conversion to Dolby® E then it will be encoded, otherwise it will not.

2. **Convert \*ch to Dolby® E** . These options are for encoding 4,6 or 8 channel files into DolbyE when they were originally in PCM WAV format. The tick box on the left allows you to enable/disable the option. With the option enabled, you can select the intended program configuration and then click the 'Set Metadata' button to select the metadata you wish to use (described in more detail below).
3. **Override metadata**. This option allows you to override the metadata stored in a Dolby® E stream when you are processing a file that was originally a Dolby® E file. Note that this does not allow you to change the program configuration, just change the metadata associated with each program. To set the metadata you wish to change, click on the 'Set Metadata' button.

Clicking the 'Set Metadata' buttons will display a pop-up that looks like this:



The options are slightly different depending on whether you are setting overrides for an existing Dolby® file or a new one. The check-boxes down the left-hand side will only show up if you are overriding existing data and they allow you to specify whether you wish to override that particular element or not. When creating a new file, they do not appear as all settings are mandatory. The 'Program Config' option is also disabled for the 'new file' settings as the config is specified in the main 'Encode' tab.

Note that if you are setting values for an existing Dolby® file then the 'Program Config' option allows you to specify the settings for an existing file with that configuration. As mentioned earlier, you cannot change the program config in an existing file.

Note also that in the settings for new files, the Dialog Normalization setting will be greyed out if the Update Metadata option is turned on in the loudness tab. This is because the reading will be taken from the loudness calculations directly.

## Enterprise

This page is only available if you have an Enterprise License.

**Post Processing.** After all other processing is complete, you have the opportunity to perform a post-processing operation by executing a command-line process. Two example

operations are provided to add the date to the output filename, and convert the output to mp2 format.

The operations are defined in a file installed in the following locations:

**Windows:** C:\Program Files (x86)\NUGEN Audio\AMB\amb.runpreset

**OSX:** /Library/Application Support/NUGEN Audio/AMB/amb.runpreset

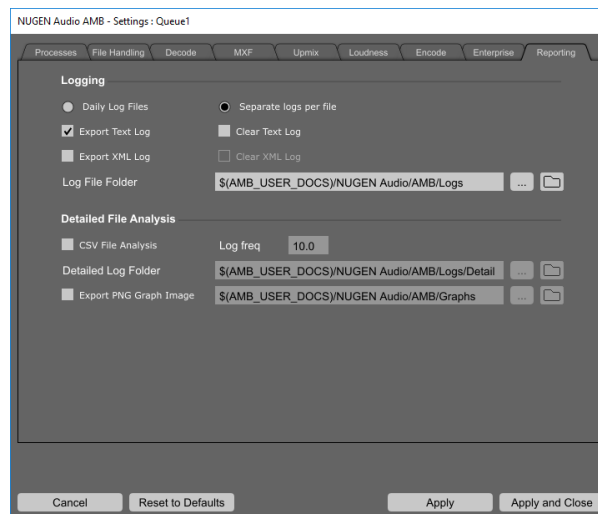
This is a plain text file and contains detailed instructions on how to add and remove additional operations.

**Emails.** If you have configured AMB to send emails in the general settings, you can override the default emails that are sent and who they are sent to here.

**Priority.** When a processing thread is ready to start processing a new file, it picks a file from the queue that currently has the most outstanding items to process. If you have a preference that all files in a given queue are processed first, you can specify a queue priority. The queue with the highest number will be processed first.

## 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. Note that because AMB supports multiple threads, using the same log file for everything could cause conflicts. AMB will cache the logging for each file it is processing and when processing is complete, the entire cached log will be written to the shared file.
  - (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) **Clear Text Log.** If you are logging to separate logs per file, ticking this box will delete the log file when processing starts. If you decide to manually change a

file and the re-process it, the log file would normally contain the results of the original analysis/correction and the results of the new analysis/correction. With this box ticked, the log will contain just the results of the most recent version.

- (e) **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.
  - (f) **Clear XML Log.** As for 'Clear Text Log', but clears the XML log.
  - (g) **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) **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.
  - (b) **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.
  - (c) **Detailed Log folder.** This is the location where the detailed CSV logs will be stored.
  - (d) **Export PNG Graph Image.** With this box ticked, AMB will automatically save out a PNG of the graph for each file it processes.
  - (e) **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.

## 3. Command-line Interface

AMB supports control via command-line interface if you have purchased an Enterprise license. AMB is supplied with a tool called AMBCmd. You can type AMBCmd -h at the command line which displays the following help:

AMBCmd : A command line interface for communicating with AMB.

Usage: AMBCmd [options]

```

-? -h          --help          Show this information.
-r <host name>  --remote       Specifies the name of the host to connect to.
-p <port number> --port         Specifies the port to connect to.
-s <settings file> --settings  Specifies the name of the settings to use.
                                     This should just be the settings file name
                                     with no path and no extension. If no settings
                                     file is specified, the file will be added to
                                     all queues.
-a <file/folder> --add         Specifies the name of the file to be
                                     processed. You may specify multiple files on
                                     one command line and they will all be added to
                                     the most recently specified queue.
                                     The filename must be from the point of view of
                                     the host and must be quoted if it contains
                                     spaces.
-f            --force         Forces files to be reprocessed. Without this
                                     flag, any files that are being processed or
                                     have already been processed will not be
                                     reprocessed.
-v            --verbose       Extra information is output to aid debugging.
-q            --quiet        No output is shown.
-x            --exit         Exit as soon as the files are added to the
                                     queue. Without this flag, AMBCmd will not exit
                                     until all files have been processed.
-c <settings file> --clear    Stop processing and clear all files in the
                                     specified queue. Note that specifying a clear
                                     command will cause all other processing
                                     commands to be ignored.
-k            --clearall     Stop processing and clear all files in all
                                     queues. Note that specifying a clear command
                                     will cause all other processing commands to
                                     be ignored.

```

Return codes:

```

-100  Invalid parameters passed on the command line
-99   Failed to connect to the server
-98   Connected to server, but it didn't reply with the expected response
-97   Connected to server but it is a different version than was expected
-96   The queue specified is not valid
-95   The file specified is not valid
-94   No files were specified on the command line
-93   The server sent back an invalid response to a file processing request
-92   There was an unknown server error whilst waiting for files to process
-91   Server sent back a response for an unknown file ID
-90   Server said work was complete but our internal list does not match
-89   The connection to the server was lost unexpectedly
-88   The server rejected the request to force processing
-87   The server said it would not supply updates about processing files

0    No error - everything went okay
1    The help was displayed
2    Processing of some files was cancelled on the server
3    There was an error processing one or more files

```

The AMBCmd tool connects to AMB via a TCP connection, so it can be run from a remote computer. Note that the command-line tool is platform agnostic to you can run the Windows command-line tool to connect to AMB running on Windows or OSX and vice-versa. Be aware that the path names you specify must be relative to the machine running AMB. There are options in the [Global Settings](#) for enabling/disabling this functionality, and for setting the



port that AMB uses for communication. If you change the port in AMB, you must use the `-p` option in `AMBCmd` to specify the port. By default, `AMBCmd` attempts to connect to a copy of AMB running on the same machine. If you are using AMB remotely, you can specify the IP address or name of the machine on which AMB is running using the `-r` option.

On Windows, the `AMBCmd.exe` is installed to the same directory as AMB. It has no dependencies and can be copied to wherever is most convenient.

On OSX, the `AMBCmd` executable is installed to the `/usr/local/bin` folder and is therefore included in the search path so it can be executed from anywhere.



## 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](mailto: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. Special Note on the Use of Dolby Trademarks

Dolby Laboratories encourages use of Dolby trademarks to identify soundtracks that are encoded with Dolby technologies. This is an effective way to inform listeners of the soundtrack format, and the use of a standard logo promotes easy recognition in the marketplace. However, as with all trademarks, Dolby trademarks may not be used without permission. Dolby Laboratories therefore provides a trademark agreement for companies that wish to use Dolby trademarks.

This agreement should be signed by the company that owns the program material being produced. Recording studios or production facilities that provide only audio production or encoding services for outside clients generally do not require a trademark license. If you would like more information on obtaining a Dolby trademark license, please contact Dolby Laboratories, or visit [www.dolby.com/GettingLogos](http://www.dolby.com/GettingLogos).

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# 7. Version History

- 1.0.0
  - Initial release.
- 1.0.1
  - Various bug fixes and stability improvements.
  - Added a menu shortcut for closing a workspace without closing the application.
  - Added workspace name to title bar.
  - Created a default workspace if one hadn't been previously saved.
- 1.0.2
  - Various bug fixes and stability improvements.
  - Improved buffering of audio files to increase performance.
  - Added support for using environment variables in settings (use the \$(variable\_name) format).
  - Improved watch folder support - better handling of large files.
  - Added a copy-to-clipboard context menu to the log window.
- 1.0.3
  - Fixed launching VLC to convert files in OSX.
- 1.1.0
  - Added support for Dolby® E encoded files.
  - Added support for mono and quad routings.
  - Added support for ITU BS.1770-4.
  - Added support for Leq(a).
  - Added support for more routing options.
  - Saved queues when saving the workspace.
  - Improved stability when changing settings whilst files are being processed.
  - Added the 'track active items' button.
  - Improved iterative corrections for large gain applications than miss on the first attempt.
  - Fixed support for daily logs.
  - Added buttons to the settings panels to open folders.
  - Stored the last used settings on the graph panel.
  - Fixed a bug in the "Allow Under" option.
  - Fixed a bug where using DynApt™ but not correcting TP would result in silence.
  - Fixed a 64-sample latency issue when using DynApt™ .
  - Fixed a 64-sample silence issue when using "Ignore head" option.
- 1.1.1
  - Enterprise: Added command-line support.
  - Added support for skipping based on timecode.
  - Added support for settings processing duration.
- 1.1.2
  - Fixed logging to XML files when Daily Log is turned on.
  - Added support for including analysis results in the output filename.
  - Added a splash screen on loading.
  - Fixed a bug in temporary filename generation.



### 1.1.3

- Enterprise: Added support for sending emails.
- Improved DynApt™ setting conflict detection.
- Fixed a bug in the default DynApt™ settings.
- Enterprise: Added a queue priority setting.
- Added failure on silence detection option.
- Fixed a looping issue with TP correction where no gain adjustment was required.
- Added collapsible queue view.

### 1.1.4

- Added toggle for using metadata for sample count in MXF files.
- Added new macros (AMB\_SOURCE\_FOLDER, AMB\_QUEUE\_FOLDER, AMB\_WORKSPACE\_FOLDER).
- Improved multi-file processing speed by optimising buffered I/O.
- Improved feedback if unable to access output folder.
- Keyboard control for the tree view is now available.
- Moved file extension exclusions to the settings and added a .\* filter.
- Added support for clearing logs.
- Enterprise: Added per-item priorities.
- Enterprise: Added the ability to remove items from the queue.
- Enterprise: Added support for clearing a queue from the command line (-c/-clear <settings >for a single queue, -k for all queues).
- Enterprise: Improved feedback in the command line tool when something goes wrong.
- Fixed a bug in reading some formats of MXF file.
- Reset cached information when a file changes.
- Fixed a potential crash on completing all work if queue collapsing is turned on.
- Fixed column visibility bug.
- Fixed auto-tracking.

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