NUGEN Audio



OPERATION MANUAL

VisLM 3

Industry standard real-time loudness meter

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Introduction

NUGEN VisLM is the industry standard real-time loudness metering solution, fully compliant with the ITU-R BS.1770/1771 metering standard, EBU R128, ATSC A/85 and several other region specific loudness standards.

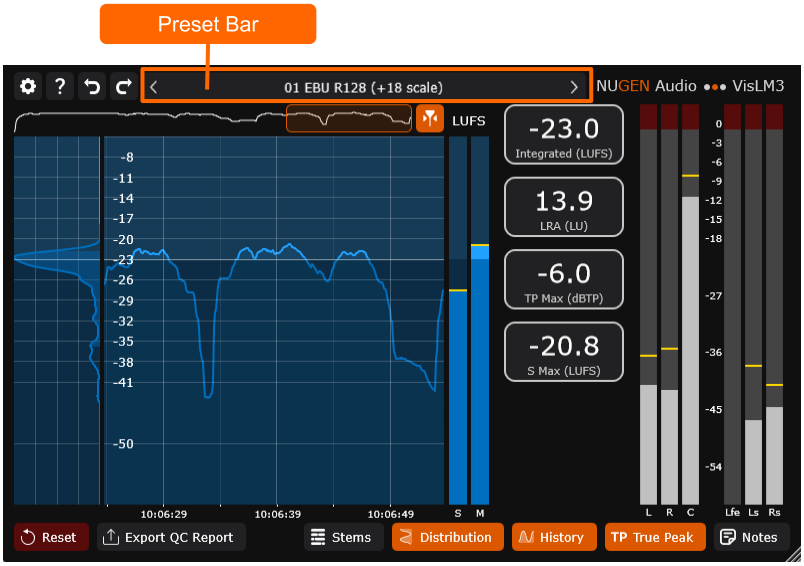
Quick Start Guide

VisLM is intended for use by audio engineers to assist with meeting various loudness delivery standards. Globally, most broadcast audio, digitally streamed audio and game audio, whether sound-for-picture or audio-only content, is either delivered according to a loudness specification or loudness-normalised at play-out.

Where a loudness standard is part of the delivery specification, use of a loudness meter is essential to enable compliant delivery. Where loudness-normalisation is applied at play-out, use of a loudness meter is strongly recommended to allow for minimal (or no) adjustments to the audio during play-out.

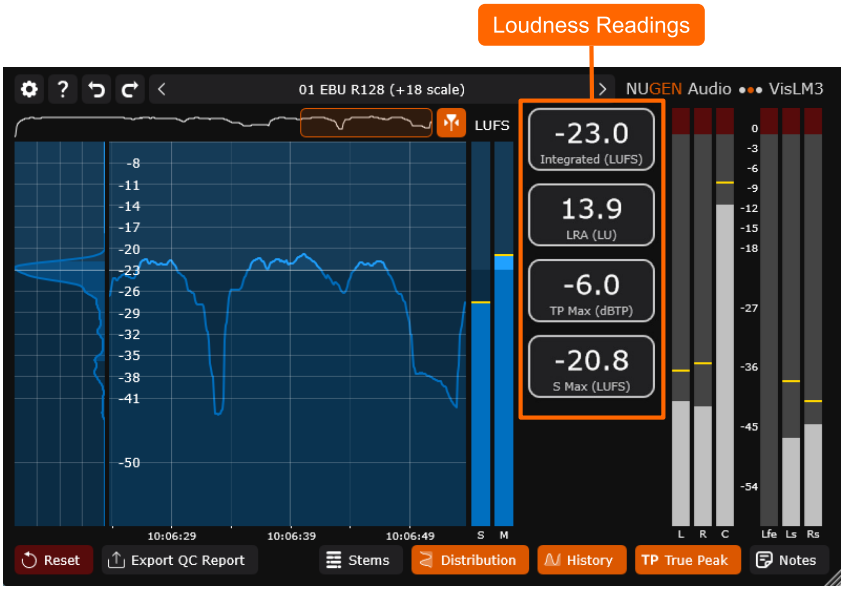
To quickly start using VisLM to measure the loudness of your mix, follow these steps:

1. Insert VisLM onto the master bus of your project.
2. Check your delivery spec and select the preset in VisLM that corresponds to those requirements.



3 Play your mix through VisLM. Note - there are ways to speed up this process for longer mixes (see Offline Measurement).

4 Once your mix has played through, you can see its current loudness readings.



5 For most delivery specs, the most important reading is the “Integrated” Loudness (which can be thought of as the “average” or “overall” loudness). By comparing your reading to the target level, you can see whether your mix is too loud, too quiet or just right for delivery overall.

6 If your mix is on target (there is usually a tolerance around the target value to allow for small discrepancies in loudness), you can click the “Export QC Report” button, and submit your mix, along with the exported “Loudness QC Report.pdf”, which shows that you were on target for loudness (see Settings Panel: Export).



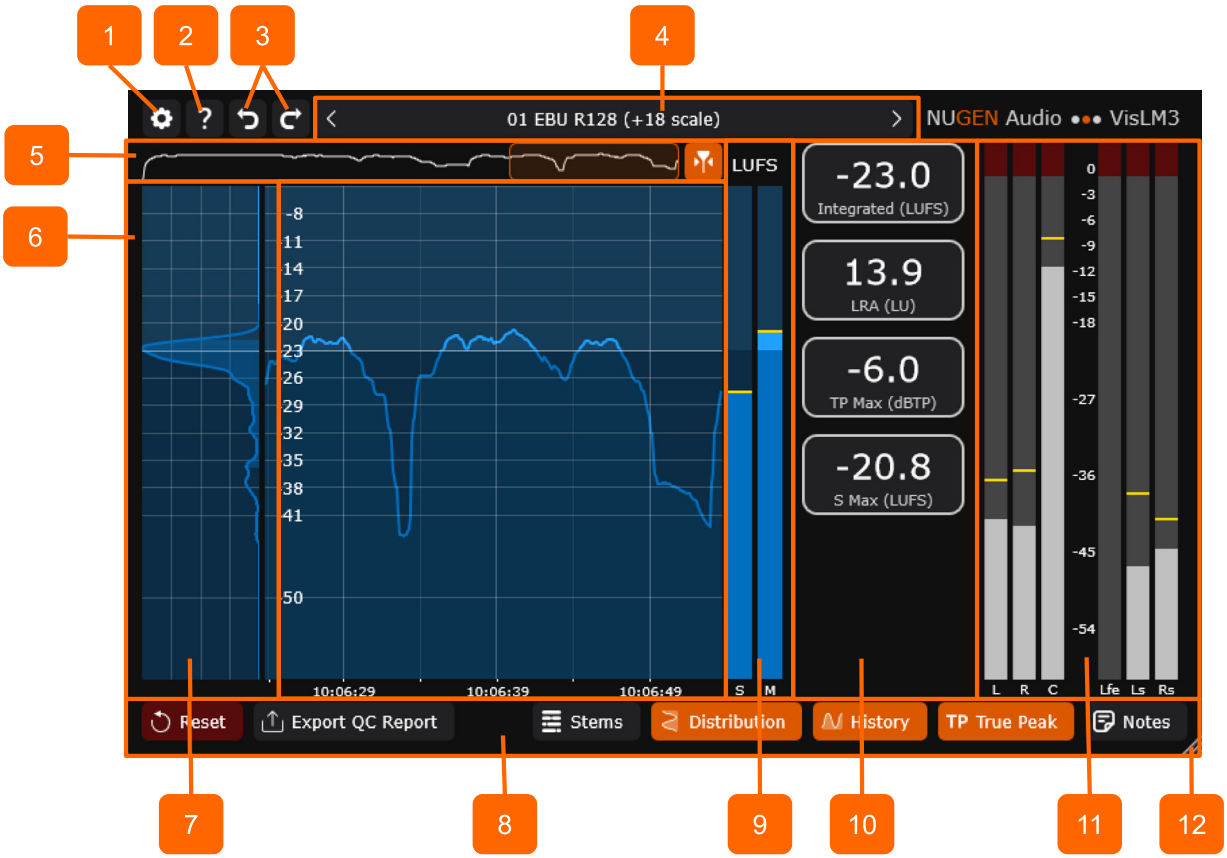
7 If your mix is too loud or too quiet you can use the Macro Bar and the History View to identify problem areas that could be adjusted. As you adjust the mix and play the adjusted audio through VisLM, the loudness readings will automatically adjust to show the new Integrated readings for your entire mix.

8 Once you are happy with your mix, if you still want to adjust the overall loudness, you can use a separate tool, like NUGEN Audio’s LM-Correct, to automatically adjust the overall loudness of the mix to a specific target level.

Interface

Main Interface

Below is the main graphical user interface for VisLM 3.



1 **Settings Button.** Opens the Settings Menu.

2 **Manual Button.** Opens the operation manual that was installed with the plug-in (this document).

3 **Undo / Redo Buttons.** Can be used to undo and redo settings changes in the plug-in.

4 **Preset Bar.** The arrows can be used to cycle forward and backwards through the presets. The text displays the current preset name. Clicking the preset name opens the Preset Browser.

5 **Macro Bar.** Displays an overview of all the audio that has been passed through the plug-in since the last reset. See the Macro Bar section below for details.

6 **Distribution View.** Displays a histogram of the distribution of loudness levels over all the audio that has been passed through the plug-in since the last reset. See the Distribution View section below for more details.

7 **History View.** Displays a graph of loudness levels over time. See the History View section below for more details.

8 **View Selectors.** Buttons to toggle on and off different views in the main GUI. The Reset button clears the loudness history in the plug-in. The Export Report button exports a Loudness Report file in the user selected location (see Settings Panel: Export). The Stems button can be used to switch the GUI in and out of Stems Mode.

9 **Loudness Meters View.** Displays real-time loudness meters. See the Loudness Meters View section below for more details.

10 **Readouts View.** Displays numerical loudness information. See the Readouts View section below for more details.

11 **True Peak Meters View.** Displays real-time True Peak meters. See the True Peak Meters View section below for more details.

12 **Interface Resize Handle.** Left-dragging this control will resize the interface. Also, for many DAWs / host applications, resizing the plug-in window bounds will also resize the plug-in interface.

Macro Bar



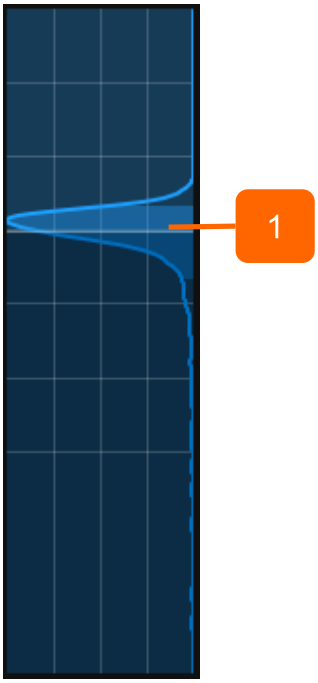
1 **Macro Bar.** This displays an overview graph of the loudness levels over the entire audio that has been played through the plug-in

2 **Macro Visible Region.** The region highlighted in the orange box corresponds to the portion of the audio that is currently visible in History View.

3 **Follow Playhead Button.** This toggles on and off the “follow playhead” function. When enabled, the History View will display the audio immediately around the current playhead as reported by the DAW / Host Application.

4 **Macro Bar Notes and Alerts.** Notes and True Peak over alerts are displayed along the top of the Macro Bar. Note - the True Peak alert level is set in Settings Panel: Alerts with the “TP Max: Max” setting.

Distribution View



The Distribution View can be opened and closed by clicking the Distribution button at the bottom of the main interface.

1 **Distribution View Graph.** Shows a histogram of the distribution of short-term loudness measurements in the audio passed through the plug-in.

History View



The History View can be opened and closed by clicking the History button at the bottom of the main interface.

1 **History Graph.** A graph of the short-term loudness measured for the audio passed into the plug-in.

2 **Loudness Scale.** The scale of the loudness levels displayed on the History View, Distribution View and Loudness Meters View.

3 **History Graph Alerts.** True Peak over alerts are displayed along the top of the Macro Bar. Note - the True Peak alert level is set in Settings Panel: Alerts with the “TP Max: Max” setting.

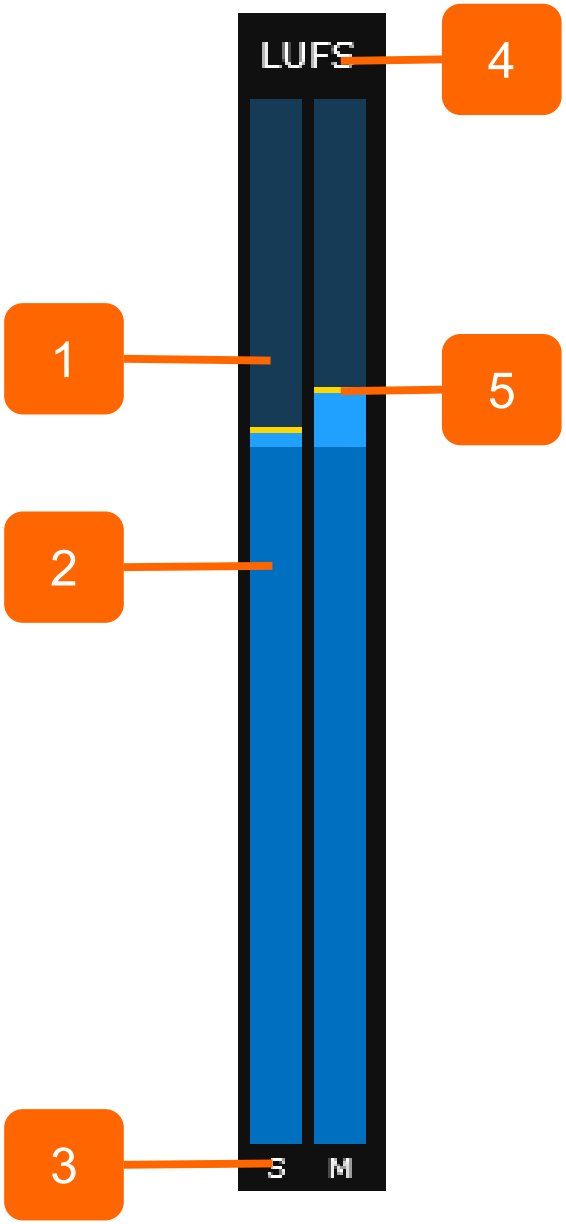
4 **History Graph Notes.** Notes on the timeline are shown on the History Graph. Dragging a note left or right in the timeline will change its timecode. Double-clicking a History Graph Note will open the editor overlay for editing that note. Double-clicking in space on the History Graph will add a note at that timecode position.

5 **History Graph Background.** The colors of the History View background (and the History Graph itself, along with the colours of the Distribution View and the Loudness Meters View) are controlled by the Loudness Settings Panel. These colors can be set to easily indicate target loudness levels and / or loudness levels to avoid, depending on your delivery specification, or preference.

6 **History Graph Inset Tooltip.** As you move the mouse pointer over the History Graph, the mouse pointer location’s timecode, and the values at that timecode for any graphs visible, are displayed here.

7 **Time Scale.** This bar displays the timecode of the relevant points in the History View. Left-dragging the scale allows for zooming in or out to different time resolutions.

Loudness Meters View



1 **Loudness Meters Background.** The colors of the Loudness Meters View background (and the Loudness Meters themselves, along with the colours of the Distribution View and the History View) are controlled by the Loudness Settings Panel. These colors can be set to easily indicate target loudness levels and / or loudness levels to avoid, depending on your delivery specification, or preference.

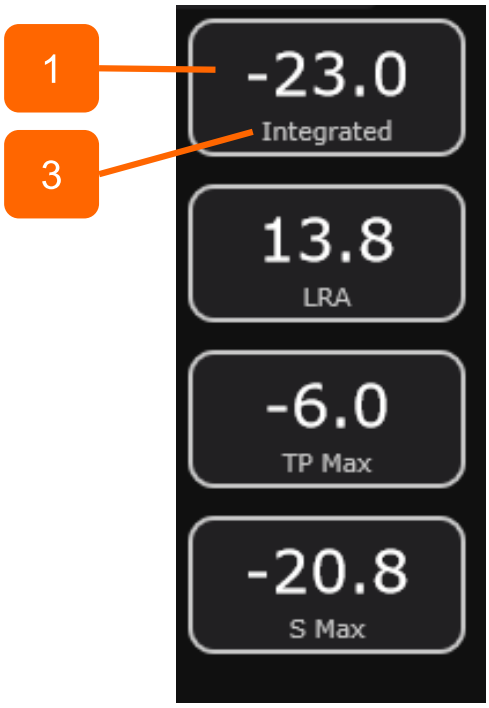
2 **Loudness Meters.** These give real time visual feedback for the current loudness levels in the audio being passed through the plug-in.

3 **Loudness Meter Labels.** These indicate what loudness measurement the specific Loudness Meters represent (Short-Term or Momentary).

4 **Loudness Meter Units Label.** This displays the units that the meter readings are currently in.

5 **Loudness Meter Peak Level Indicators.** These represent the highest level that the Loudness Meter has reached in the last X seconds. Settings for the peak level indicators can be found in the Loudness Settings Panel.

Readouts View

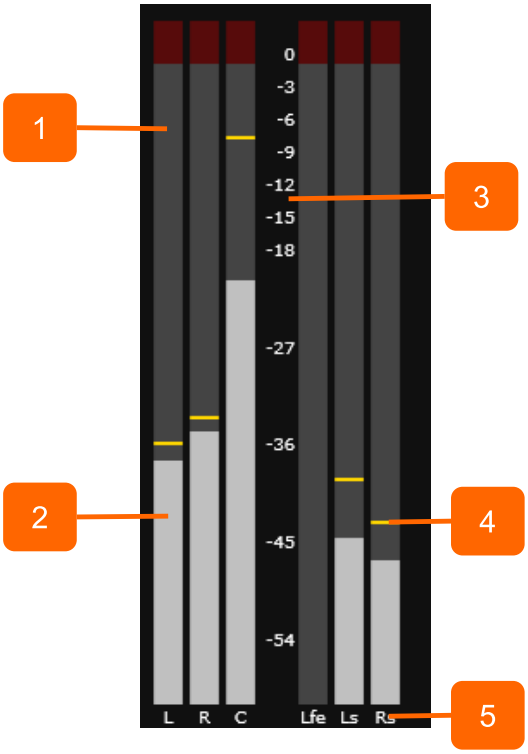


1 **Readouts.** These are numerical readouts of the loudness measurements of the audio that has been passed through the plug-in. The Readout Settings Panel can be used to specify which readouts are visible. The Alerts Settings Panel can be used to set alerts on minimum and maximum values for the different

readouts. If an alert is triggered, the background of the readout lozenge will be highlighted in a different color.

2 **Readout Label.** This indicates what loudness measurement the numerical readout above represents.

True Peak Meters View



The True Peak Meters View can be opened and closed by clicking the True Peak button at the bottom of the main interface.

1 **True Peak Meters Background.** The colors of the True Peak Meters View background (and the True Peak Meters themselves) are controlled by the True Peak Settings Panel.

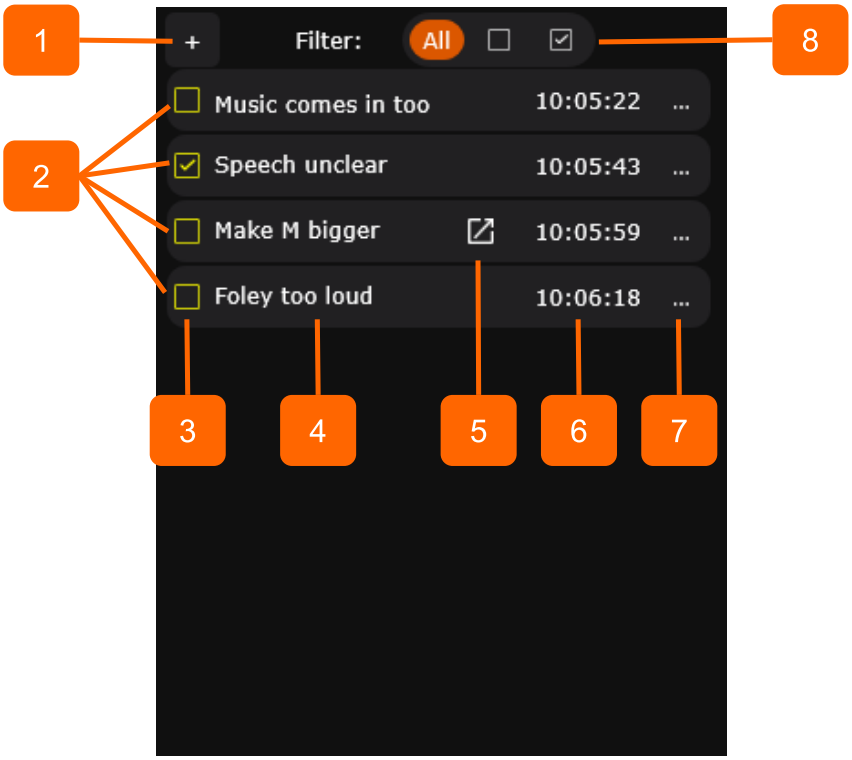
2 **True Peak Meters.** These give real time visual feedback for the current True Peak levels in the audio being passed through the plug-in (as defined by ITU-R BS.1770). True Peak is an international standard inter-sample peak level measurement, designed to represent the true maximum level of the audio

signal, including codec conversions and conversion to analogue, further down the production chain.

3 **True Peak Meters Scale.** This is the scale that the True Peak meters are calibrated against (the units are dBTP).

4 **True Peak Meters Peak Level Indicators.** These represent the highest level that the True Peak Meter has reached in the last X seconds. Settings for the peak level indicators can be found in the True Peak Settings Panel.

Notes View



The Notes View can be opened and closed by clicking the Notes button at the bottom of the main interface.

1 **Add Note Button.** Clicking this will add a new note at the current playhead position, and open the editor overlay for editing that new note.

2 **Notes List.** The list of all notes in the session, in timecode order. This list can be filtered with the Note Filter interface.

3 **Note Done Tickbox.** Each note can be ticked on or off (useful for noting tasks that need completing at that timecode, and then ticking them when they are done.

4 **Note Description.** Each note has a description. This could be a comment (for internal purposes, or for external QC) or could be a note of a task to do.

5 **Note Link URL.** Optionally, each note may have a URL (web address) associated with it. This could be used to link out to a ticket / task / bug in an external task tracking system.

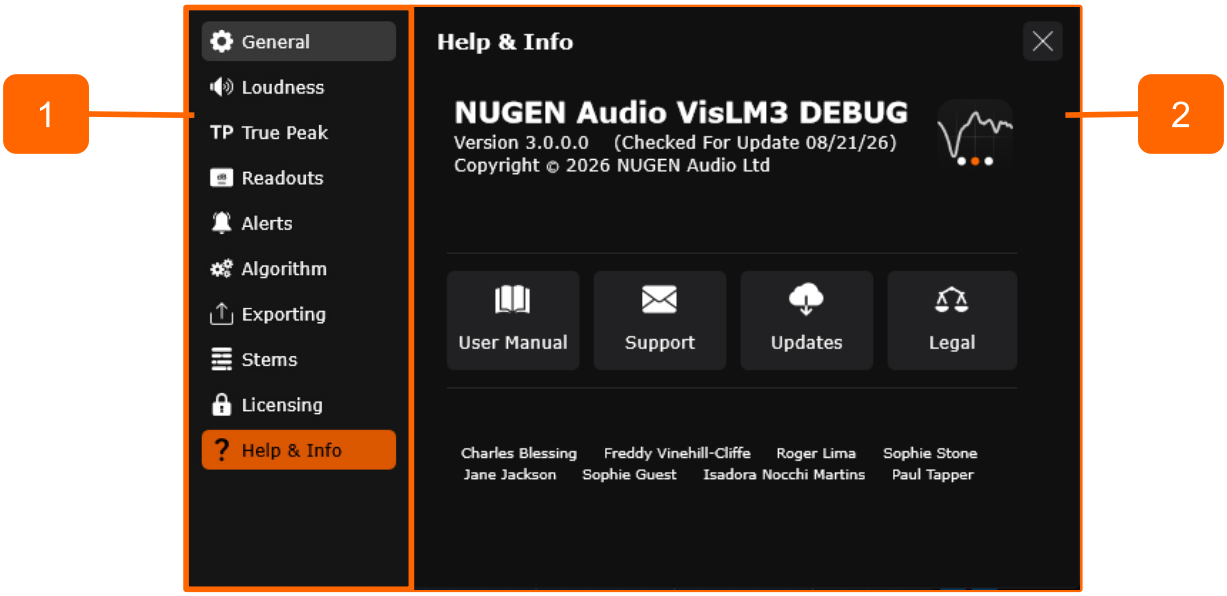
6 **Note Timecode.** Each note is located at a specific timecode.

7 **Note Edit Button.** Clicking this button will open the editor overlay for editing that note.

8 **Note Filter.** This can be used to filter which notes are visible in the list.

Notes are saved and loaded with the session, and display as an icon at the relevant point in the timeline on the History View and Macro Bar.

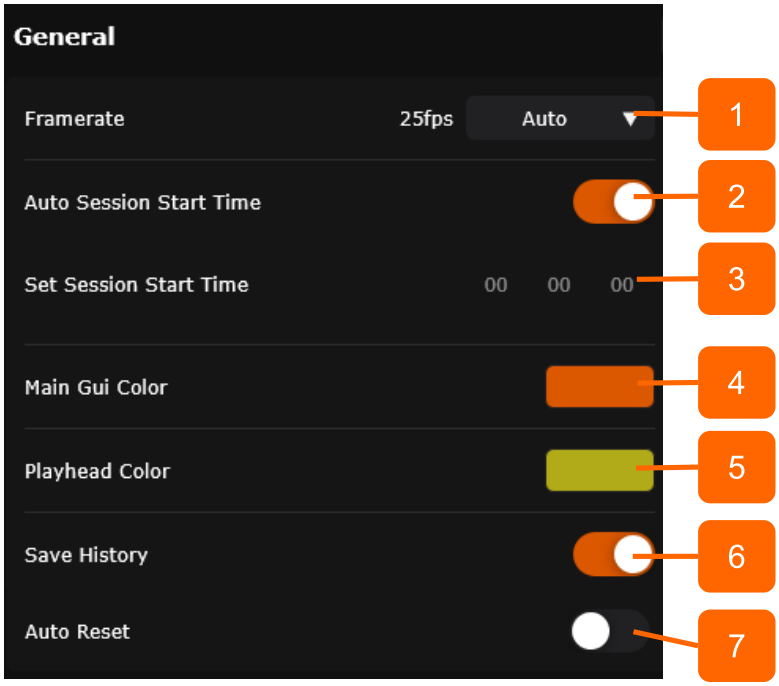
Settings Menu



1 **Settings Panel Selector Buttons.** Use these to switch between different settings panels.

2 **Settings Panel.** Depending on which settings panel is currently displayed, this will show a selection of controls for changing the functionality of VisLM, or carrying out other tasks. When there are too many controls to be displayed at the same time, this will include a scroll bar to allow access to all the controls for this panel (the mouse-wheel may be used to scroll view).

Settings Panel: General



1 **Framerate selector.** This can be used to specify the framerate that will be used by the plug-in when displaying timecodes. The default value is “Auto” which will cause the plug-in to query the DAW / Host application for the current session framerate. For DAWs that do not support querying the framerate, the drop down control can be used to manually specify the framerate to use.

2 **Auto Session Start Time.** When toggled on, this will cause the plug-in to query the DAW / Host application for the current session start time.

3 **Set Session Start Time.** For DAWs / Host applications which do not support querying the session start time, you can disable Auto-Session Start Time and then use this control to manually specify the start time.

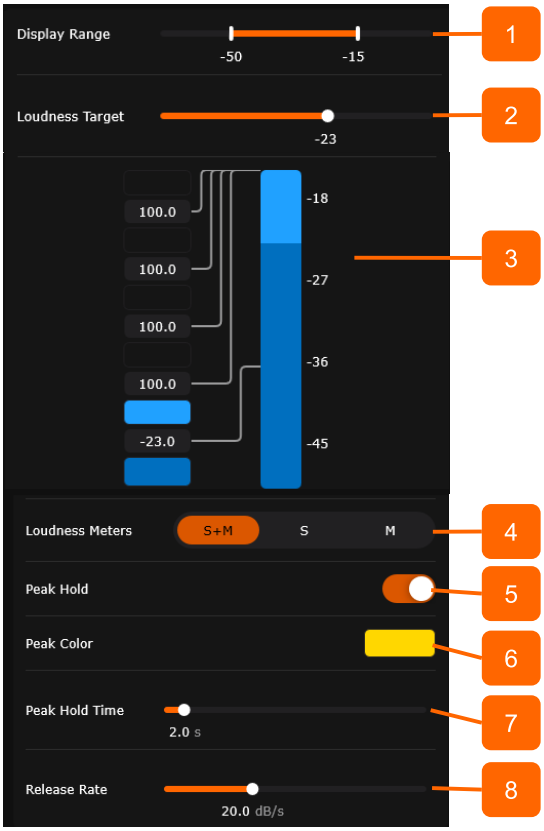
4 **Main Gui Color.** This can be used to change the main color used on the plug-in graphical user interface (GUI). This will affect buttons, the Macro Bar visible region highlight, the NUGEN Audio logo, and other interface elements. Note - this setting is overridden by the “stem color” when in Stems Mode

5 **Playhead Color.** This controls the color used for displaying the playhead position in the Macro Bar and History View.

6 **Save History.** The determines whether saving the session containing the plug-in, will also save the loudness history currently stored in the plug-in. By default this is set on, but you may wish to switch it off if the plug-in has stored a large amount of loudness history that you do not need to retain (for example, when the plug-in is being used to monitor a live stream).

7 **Auto-Reset.** When set on, this option causes the plug-in to reset all the loudness history, metering and readings, every time the transport stops, and then starts again in a different location. This can be useful for some specific work-flows, particularly for short-form content.

Settings Panel: Loudness



1 **Loudness Display Range.** This specifies the range of loudness values displayed on the main interface. It does not affect the readings and is a visual change only. You are safe to change this to your personal preference.

2 **Loudness Target.** This is used to give a visual indication of the target loudness level on the History View and Distribution View. Note - it does not change the level of alerts or the color banding of the loudness meters (unless you are in Stem Mode).

3 **Loudness Meter Colour Splits.** Use this interface to change the colors displayed on the Loudness Meters, Distribution View and History View, and the transition points between the different colors. This is a visual change only. You are safe to change this to your personal preference - however, it is recommended that you include an obvious color transition point at the level your delivery spec requires for the Integrated Loudness, which is effectively your overall target loudness level.

4 **Loudness Meters Visible:** Use this to select between viewing Short Term, Momentary or both Short Term and Momentary Loudness Meters.

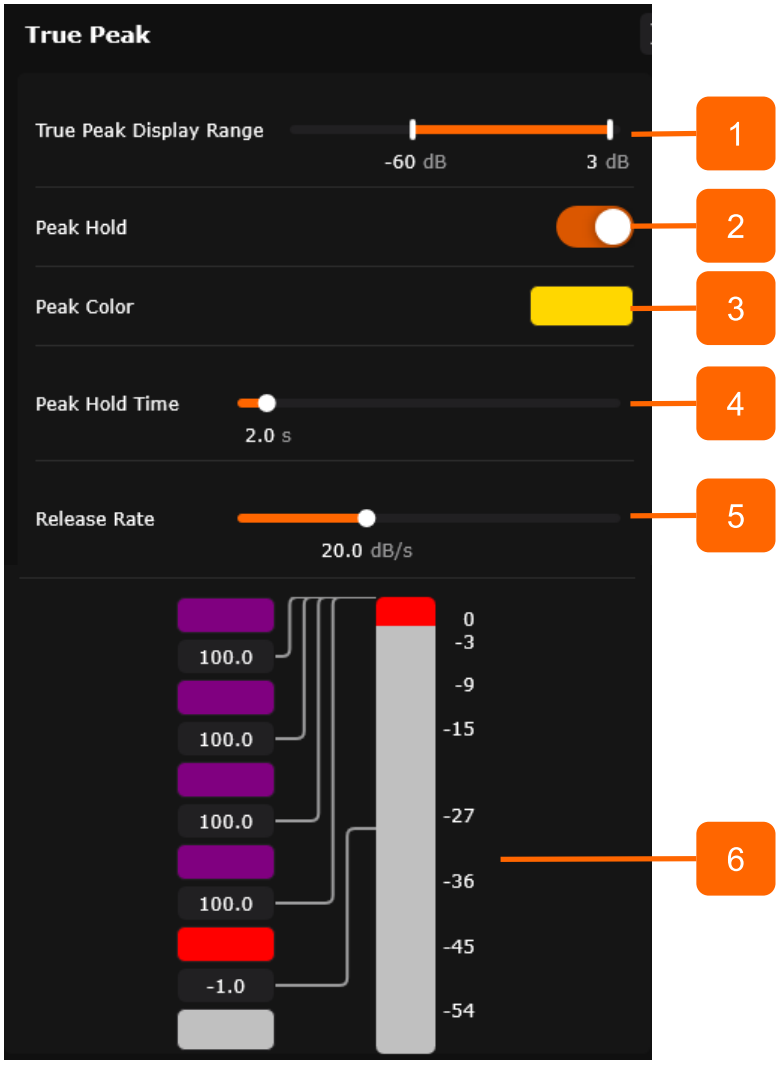
5 **Peak Hold Active:** Toggle on and off the visibility of the peak hold indicators on the Loudness Meters.

6 **Peak Color:** This determines the color of the peak level indicators on the Loudness Meters. Click the color box to bring up a color picking interface.

7 **Peak Hold Time.** This specifies the time that the peak indicators on the Loudness Meters will hold the maximum level that they reach before releasing back down to the current levels of the meters.

8 **Release Rate.** This specifies the speed at which the Loudness Meters peak indicators release (go back down) after having reached a high level.

Settings Panel: True Peak



1 **True Peak Range.** This specifies the range of True Peak values displayed on the main interface. It does not affect the readings and is a visual change only. You are safe to change this to your personal preference.

2 **Peak Hold Active:** Toggle on and off the visibility of the peak hold indicators on the True Peak meters.

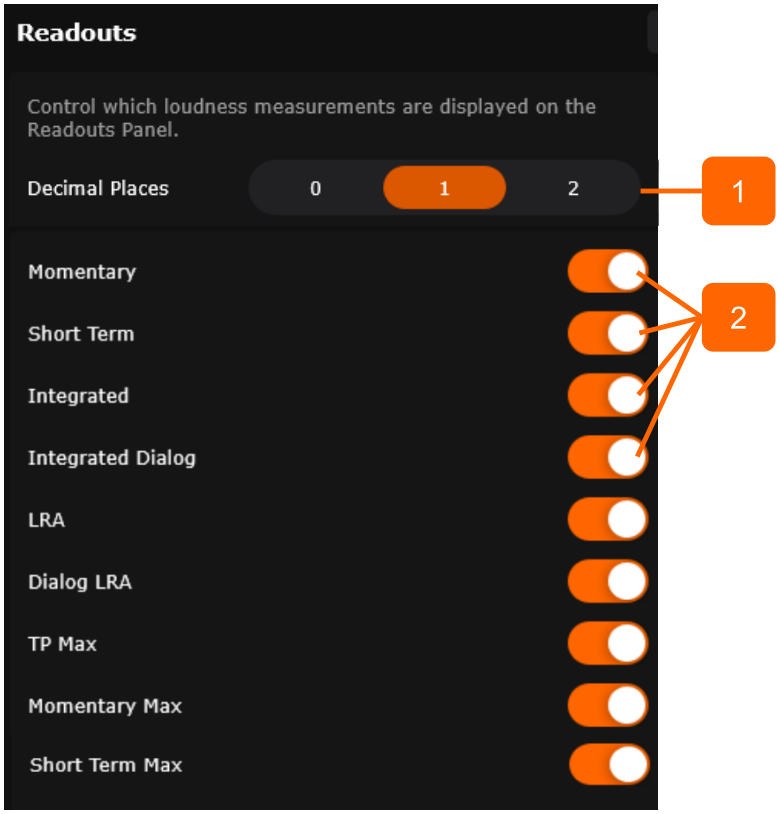
3 **Peak Color.** This determines the color of the peak level indicators on the True Peak meters. Click the color box to bring up a color picking interface.

4 **Peak Hold Time.** This specifies the time that the peak indicators on the True Peak meters will hold the maximum level that they reach before releasing back down to the current levels of the meters.

5 **Release Rate.** This specifies the speed at which the True Peak meters peak indicators release (go back down) after having reached a high level.

6 **True Peak Meter Colour Splits.** Use this interface to change the colors displayed on the True Peak Meters, and the transition points between the different colors. This is a visual change only. You are safe to change this to your personal preference - however, it is recommended that you include an obvious color transition point at the maximum level your delivery specification requires for your True Peak levels. Note - to adjust the level which is considered a “TP over” for the purposes of seeing the true peak alerts in the History View and Macro Bar, you need to set that level in Settings Panel: Alerts with the “TP Max: Max” setting.

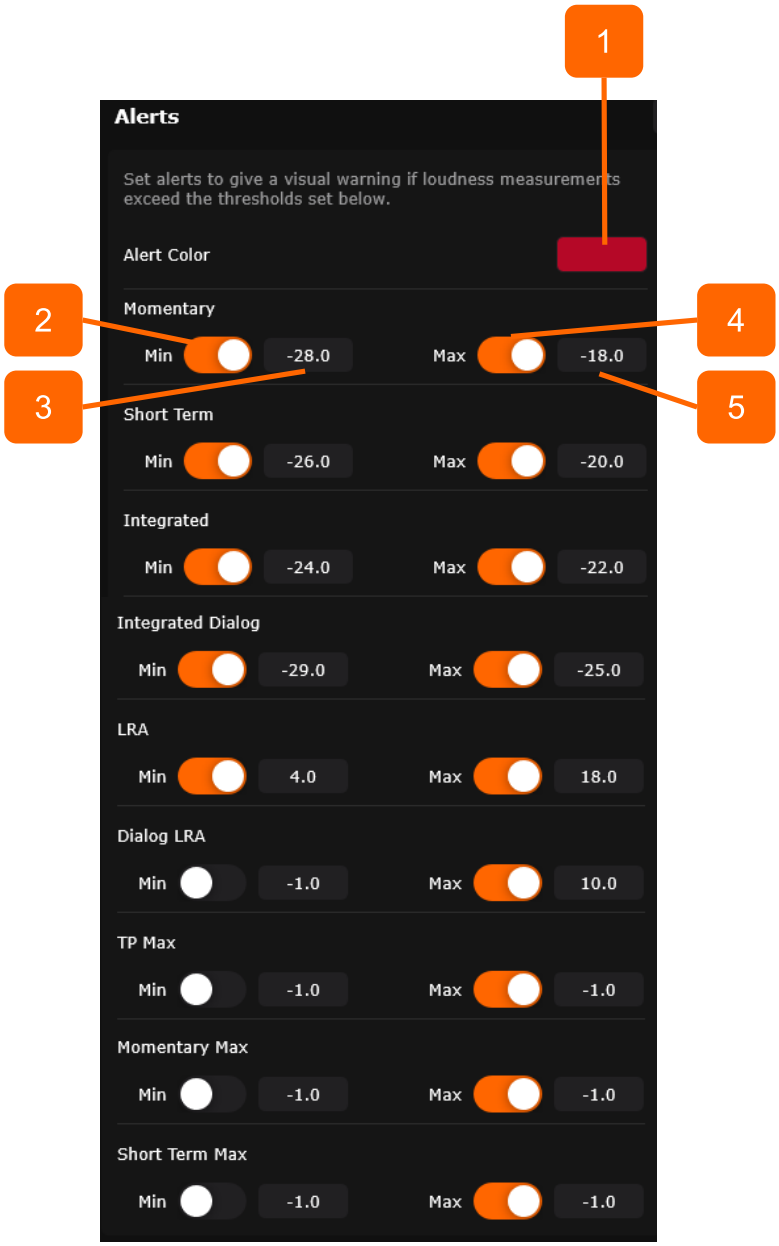
Settings Panel: Readouts



1 **Decimal Places.** This determines the number of decimal places used to display loudness readings.

2 **Readout Selectors.** Select which numerical values are displayed on the main interface in the Readouts View.

Settings Panel: Alerts



1 **Alerts Color.** This specifies what color alerts will be displayed with on the Readouts View.

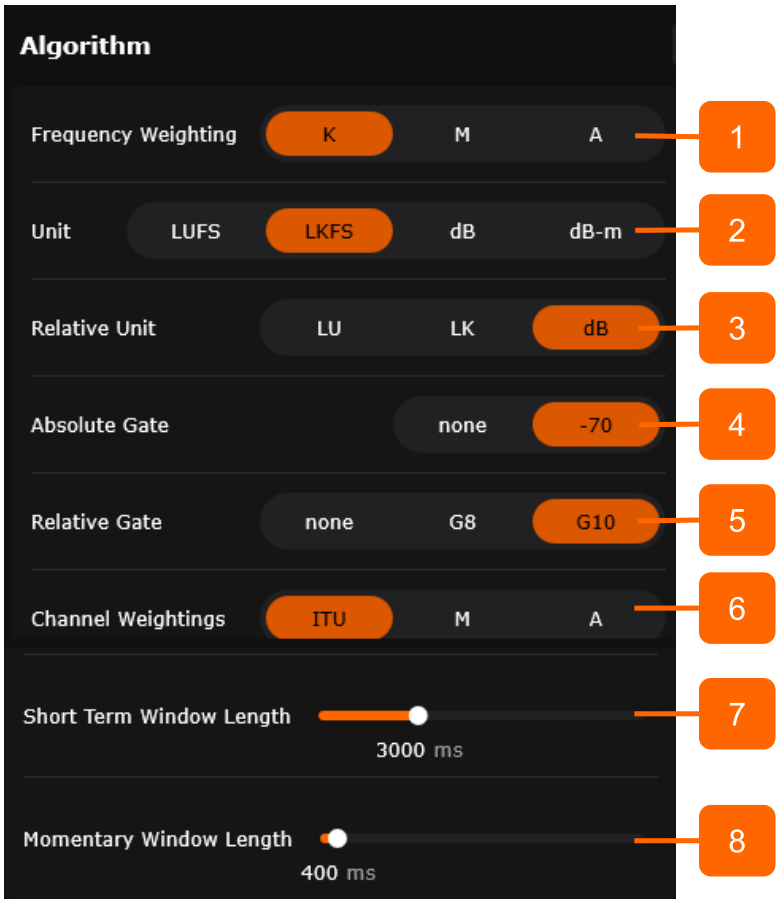
2 **Minimum Alert Enabled.** This enables / disables the alert for the given reading going below the specified minimum level.

3 **Minimum Alert Level.** The level that the minimum alert triggers at when enabled.

4 **Maximum Alert Enabled.** This enables / disables the alert for the given reading going above the specified maximum level.

5 **Maximum Alert Level.** The level that the maximum alert triggers at when enabled.

Settings Panel: Algorithm



1 **Frequency Weighting.** Different loudness algorithms utilize different frequency weightings. It is recommended to use a “Factory Preset” unless you are confident.

2 **Unit.** Different loudness specifications indicate the use of different loudness unit naming conventions. It is recommended to use a “Factory Preset” unless you are confident.

3 **Relative Unit.** Specifies what naming convention should be used for relative loudness measurements.

4 **Absolute Gate.** Different algorithms utilize different absolute gates. The absolute gate causes the algorithm to ignore audio below a certain level. It is recommended to use a “Factory Preset” unless you are confident.

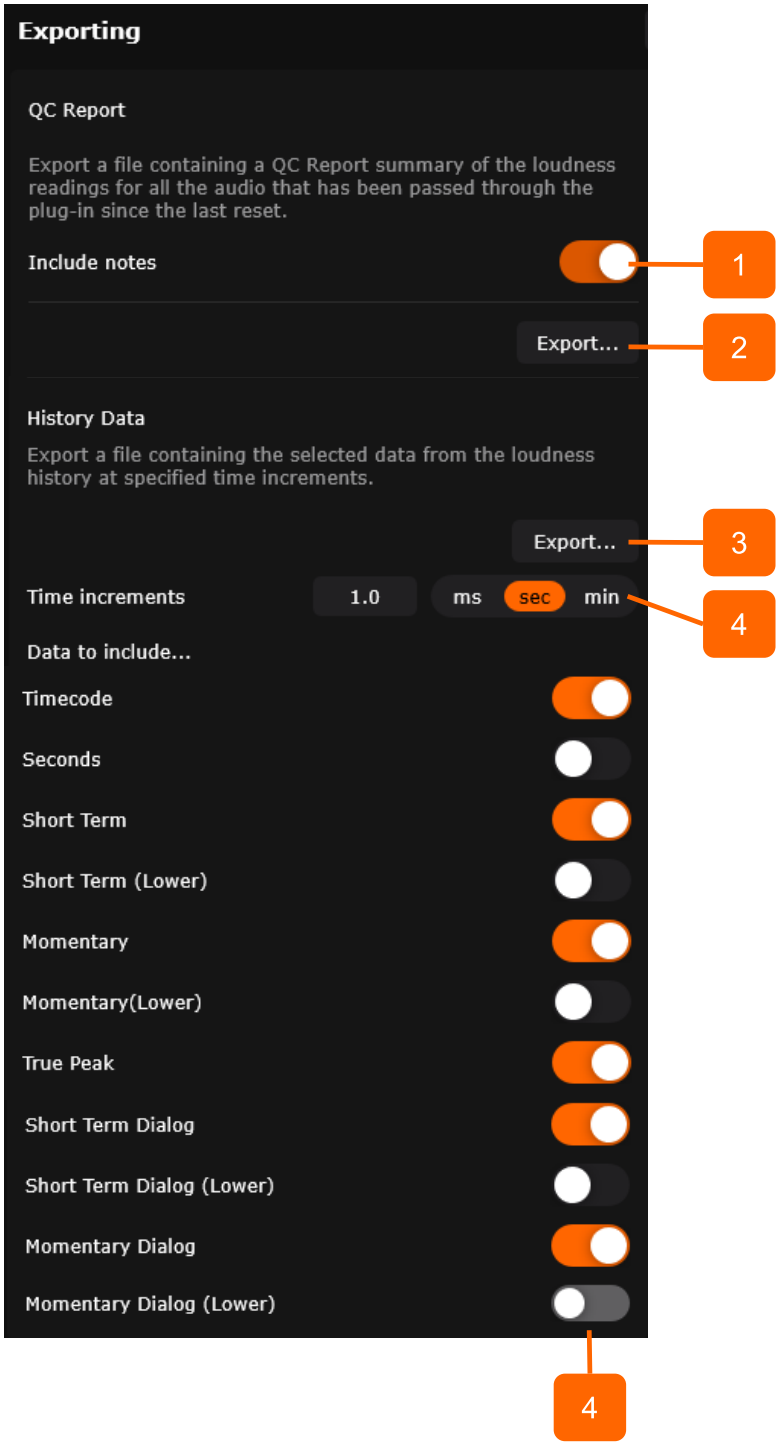
5 **Relative Gate.** Different algorithms utilize different relative gates. The relative gate causes the algorithm to ignore audio below a certain level relative to the absolute gated reading. It is recommended to use a “Factory Preset” unless you are confident. Note - the Relative Gate is never applied to the Dialog Loudness readings

6 **Channel Weightings.** Different loudness algorithms utilize different channel weightings (so that different channels contribute different amounts to the overall loudness measurement). It is recommended to use a “Factory Preset” unless you are confident.

7 **Short Term Window Length.** Sets the length of the short term loudness window - this is usually specified by the relevant loudness standard.

8 **Momentary Window Length.** Sets the length of the momentary loudness window - this is usually specified by the relevant loudness standard.

Settings Panel: Exporting



1 **Include Notes.** Determines whether or not to include notes in the QC Report file.

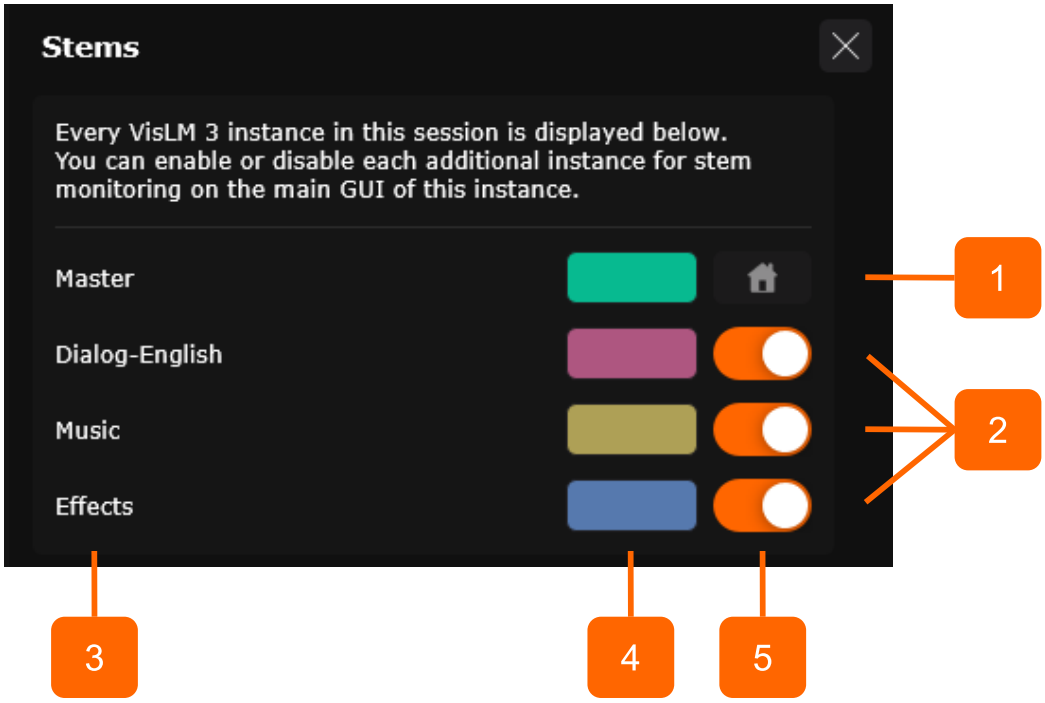
2 **QC Report Export Button.** Opens the system interface to allow you to select the location and filename for a Loudness QC Report file (.pdf or .txt) which will contain an overview of the loudness readings for the audio that has been played through the plug-in.

3 **History Data Export Button.** Opens the system interface to allow you to select the location and filename for a History Data file (.csv) which will contain a comma-separated-values formatted table of loudness readings for the audio that has been played through the plug-in at different time increments. This file can be loaded in many spreadsheet applications, including Microsoft Excel and Google Sheets.

4 **History DataTime Increments.** Use this to specify the time increments you want in the History Data export file. The minimum increment is 100ms.

5 **History Data Selectors.** Selects which readings are included in the History Data export file. Note - where there are two readings with the same name apart from the addition of “(Lower)”, these indicate that the reading output to the file will be the maximum of that value over the time increment, or the minimum of that value over the time increment. For example, if the time increment is 1 minute, then the reading “Short Term” refers to the maximum Short Term loudness reading over that minute, and the reading “Short Term (Lower)” refers to the minimum Short Term loudness reading over that minute.

Settings Panel: Stems



1 **Stem Row for This Instance.** These are the stem settings linked to the instance of the plug-in currently being displayed.

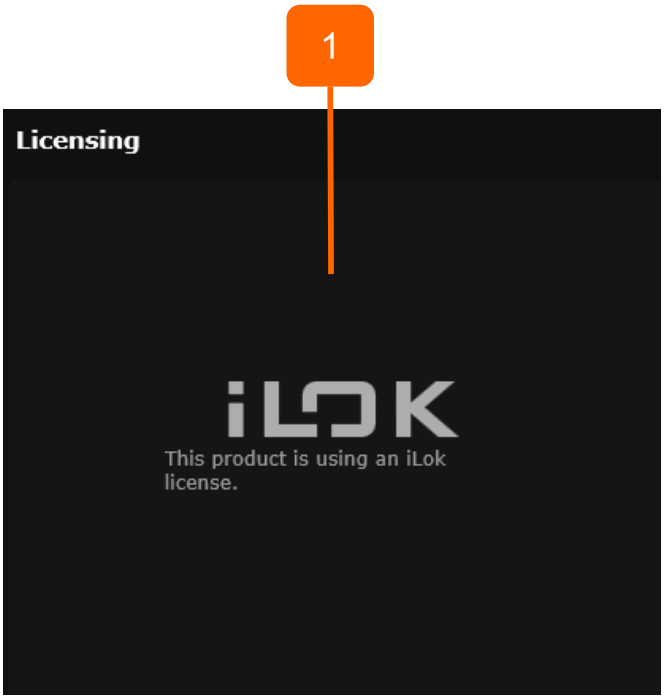
2 **Stem Rows for Other Instances.** These are the stem settings linked to other instances of the plug-in.

3 **Stem Name.** Click the stem name to change it. This stem name change will be reflected in other instances of the plug-in.

4 **Stem Color.** Click the stem color to change it. This stem color change will be reflected in other instances of the plug-in. The stem color determines how the stem will display on the main GUI when in “Stem Display” mode.

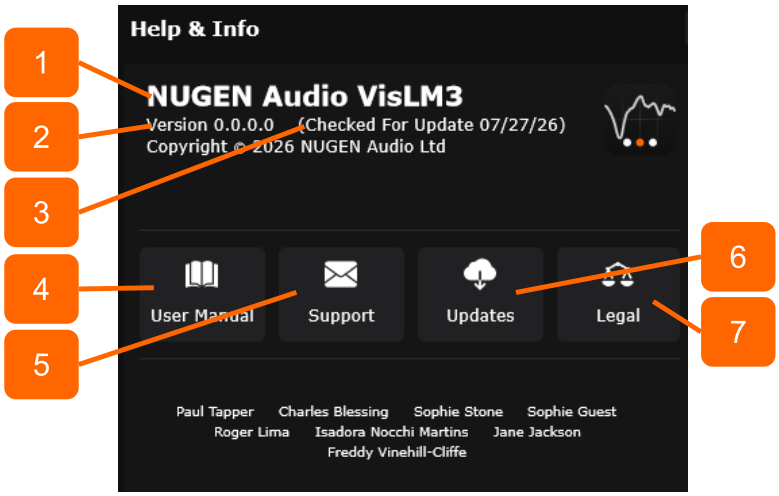
5 **Stem Enabled.** These can be toggled on and off. When on, the corresponding stem will be visible in this instance of the plug-in when in “Stem Display” mode.

Settings Panel: Licensing



1 **Licensing Information.** A display of information about the current licensing state of the plug-in.

Settings Panel: Help & Info



1 **Plug-in Name.** The name of this plug-in.

2 **Installed Version Number.** Displays the version number of the plug-in currently running on this system.

3 **Checked for Update Date.** The most recent date that the plug-in checked with the NUGEN Audio server for an updated version of the plug-in.

4 **Open User Manual Button.** Open the user manual installed with the plug-in (this document).

5 **Contact Support Button.** Clicking this will create an email, in the system's default email client, which you can fill in with the details of your support query, to then send and open a support ticket with NUGEN Audio.

6 **Check for Updates Button.** Clicking this will cause the plug-in to contact the NUGEN Audio server to check if there is a more recent version of the plug-in than the one currently installed on this system. The plug-in will need to be able to access the internet for this to work correctly.

7 **Legal Button.** Clicking this will display some legal notices.

Preset Browser



1 **Preset Filters.** These can be used to filter the list of displayed presets.

2 **Current Preset.** The highlighted preset represents the currently selected preset. If the plug-in settings do not currently match any of the presets, no preset is shown as selected.

3 **Presets List.** A list of the presets. Clicking an item in this list will select that preset, which will update the settings of the plug-in to match that preset's settings.

4 **Preset Browse Button.** Clicking this button will open the folder on your machine which stores User Presets (as *.nap files). A saved User Preset can be easily shared with other users, by copying the corresponding *.nap file into the correct folder on the new machine.

5 **Preset Save Button.** Clicking this will save your current preset, as a *.nap file, into the User Presets folder.

6 **Set As Default Button.** Clicking this will set the current preset as the default to be used for new instances of the plug-in (note - depending on the DAW / Host Application, this may only take effect after restarting your DAW / Host Application).

7 **Edit Name / Description Button.** Can be used to change the name and description of the current preset.

8 **Delete Preset Button.** Can be used to delete User Presets (but not Factory Presets).

Stems Mode



VisLM can be used to monitor multiple stems, in the same session, at the same time. This can be achieved by inserting an instance of VisLM on each of the stems tracks in your session that you wish to monitor, and switching your main instance into “Stems Mode” (by clicking the “Stems” button along the bottom of the main GUI).

To help with easy identification, each instance of VisLM, in the session, will have a specific color and name associated with it. It is recommended that complex session set-ups with multiple stems, should include the required instances of VisLM in the session template.

The Settings Panel: Stems can be used to change the different stem names and colours.

When additional instances of VisLM are added to a session, all instances will automatically switch into Stems Mode, but this can be overridden with the “Stems” button on the main GUI.

Most of the Stems Mode GUI is the same as the normal GUI. The differences are detailed below.

1. **Stem Header.** In Stems Mode, each instance of VisLM displays a header bar, with that stem’s color and name, for easy identification. Clicking the header allows changing the stem name (this can also be done in the Settings Panel: Stems).
2. **Metering Graphs.** These graphs are the same as for the normal GUI, but they display information for all the stems simultaneously.
3. **Stem Readouts View.** As for the normal Readouts View, this area displays numerical loudness information for the various stems.
4. **True Peak Meters View.** As for the normal GUI True Peak Meters View, this displays the True Peak level of the currently visible stem.

Offline Measurement

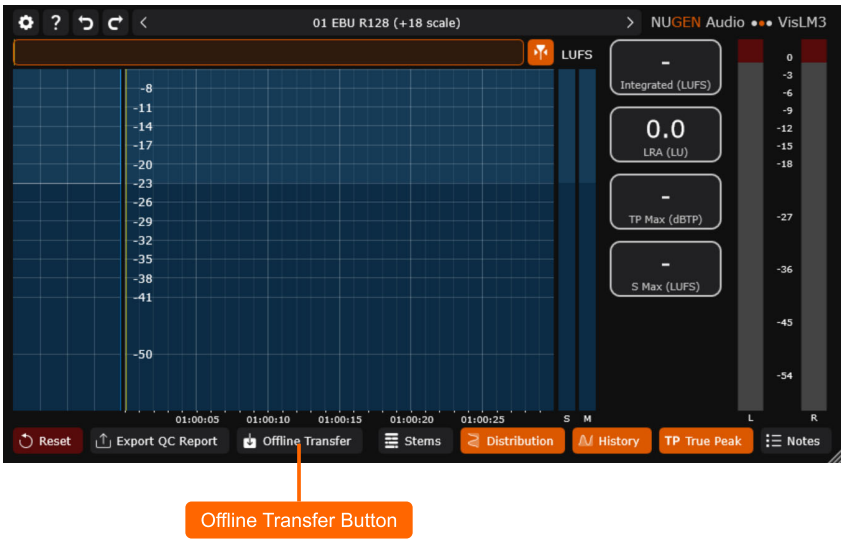
For situations where you already have an audio mix that you want to measure the loudness of, it can be time-consuming to use a real-time plug-in, and play the entire mix to get the overall readings.

As a way of greatly speeding up this process, VisLM can be used to generate faster-than-real-time measurements.

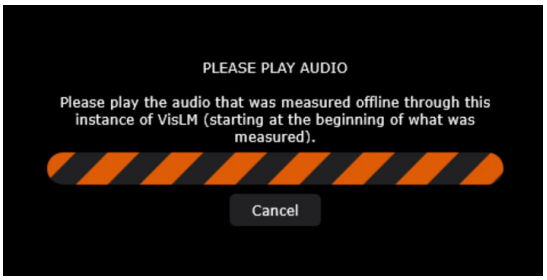
To generate offline measurements in Pro Tools, select the audio you want to measure (which may require an offline bounce first), and then insert VisLM as an AudioSuite plug-in. The AudioSuite “Analyze” function can then be used to pass the audio through VisLM much faster than real-time.

If this is your final mix, then you can just use those loudness readings as they are.

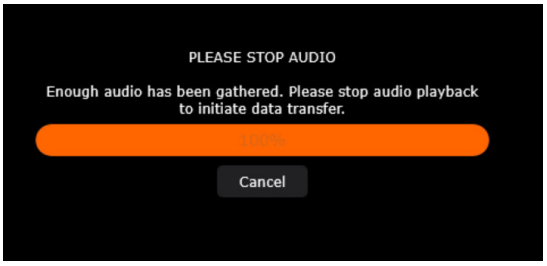
In situations where you are still planning on making adjustments to the mix, you may wish to start with this offline loudness analysis, and then continue working on the mix in real-time. To achieve this workflow, open a real-time AAX instance of VisLM on the master fader track of your mix. This VisLM should be showing an “Import Offline” button, which you can click to start the offline transfer process.



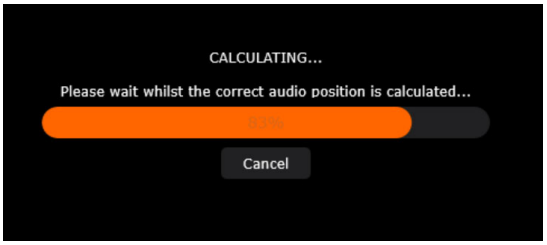
When you click “Offline Transfer” you will see a sequence of dialogs which will walk you through the process of transferring the offline data into this real-time AAX VisLM instance.



First you need to play audio through the real-time instance (starting at the beginning of the audio that was measured offline).



Once enough audio has played through the real-time instance, you need to stop the audio playing again to give the real-time instance a chance to match the real-time audio to the offline-measured audio.



The real-time plug-in will then calculate the alignment of the two pieces of audio. Once the audio is aligned, you can continue to use the real-time instance of VisLM, as if it had already had the whole mix played through it. You can make spot edits and VisLM will automatically update the loudness history at the correct place, and update the new overall loudness readings for the entire mix.

Reporting a Problem

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

You can email the NUGEN Audio support team at support@nugenaudio.com.

To make it easier for us to resolve the issue you are seeing:

- Please give a clear explanation of the problem, including any steps required to reproduce it if appropriate.

- Please state how frequently you've experienced the problem.
- Please supply details of the system you are using, in particular:
    - The operating system (Windows/Mac OS) and version.
    - Host application and version.
- CPU speed and RAM available.

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 endeavor to correct them as quickly as possible.

Plug-in Version History

3.0.3 Initial release


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