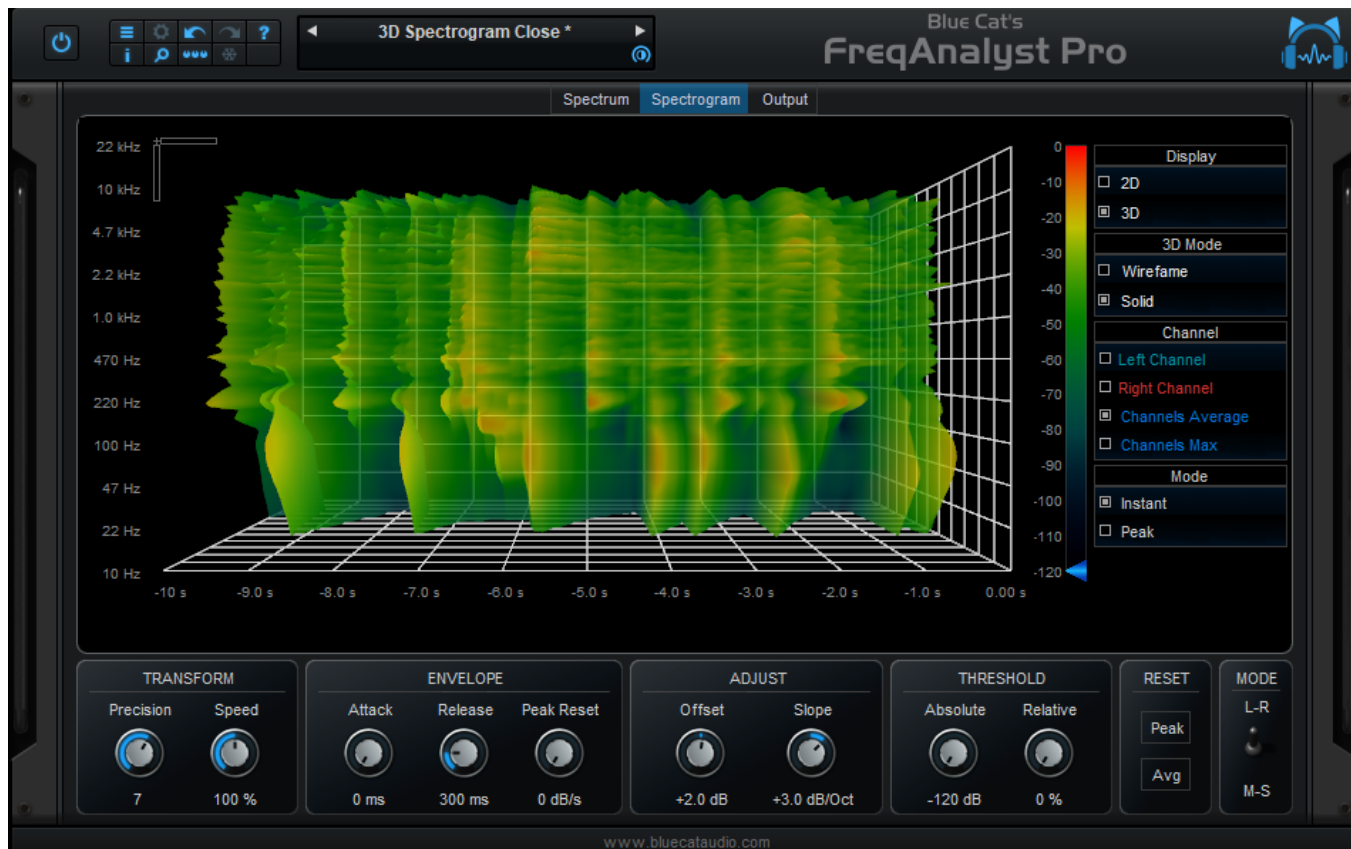


Blue Cat's FreqAnalyst Pro User Manual



"A powerful spectral analysis tool and automation generator with 3D viewer."



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Note: An online version of this user manual is available [here](#).

Introduction

Description

Blue Cat's FreqAnalyst Pro is a real time spectrum analyzer with advanced functionalities. It uses the same smooth algorithms as its little brother (Blue Cat's [FreqAnalyst free plug-in](#)): it has been designed to provide extreme smoothness and high resolution for both time and frequency.

The frequency analysis can be fine tuned in details: manage its precision and rate, apply an offset or slope to the measured spectrum. Two thresholding systems are available, and the time response can be changed thanks to the attack and release parameters. Three modes are offered for each channel: instant, peak or average response can be displayed on the same graph. Zooming capabilities and coordinates display let you exactly measure the characteristics of the spectrum.

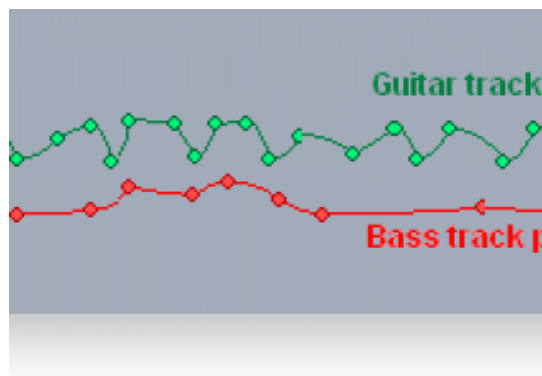
The four memory slots let you store any curve in memory: it helps you make comparisons between several tracks or effects setup very easily.

A spectrogram view has been added so that you can monitor the evolution of the spectrum over time either in 2D or 3D (3D waterfall mode). All channels are of course available in this view, with exact coordinates display and zooming capabilities.

Like many of our other [professional analysis tools](#), this plug-in also provides output parameters that you can use to control other effects in real time: the generated automation envelopes or MIDI CC messages include the minimum and maximum frequencies and the energy center of the spectrum, expressed in Hertz or as MIDI note value. With the transformation parameters (offset, amount and reverse), you can customize the generation of these parameters and monitor the modifications on the value graphs. Check the [DP Meter Pro Tutorials](#) to see how to use this capability within your favorite host.

Thanks to this unique functionality, you can now control any effect with the pitch of the audio signal: imagine a filter on an instrument controlled by the pitch of another instrument, compression depending on the pitch of the signal... Anything is possible.

For integrated multiple tracks spectrum analysis, check our Blue Cat's [FreqAnalyst Multi plug-in](#).



System Requirements

An OpenGL- compatible graphics card for the 3D View.

Windows

- An SSE2- enabled processor (Pentium 4 or newer).
- Microsoft Windows Vista, Windows 7, 8 or 10.
- Any VST / AAX compatible host software (32 or 64 bit).

Mac OS X

- An Intel processor.
- Mac OS 10.7 or newer.
- Any VST / Audio Unit (32/64- bit) / AAX compatible application.

For more information about supported platforms, see our [FAQ](#).

Demo Limitations

- Limited number of instances of the plug- in per session.
- The plug- in is regularly bypassed for a few milliseconds.

Installation

The plug-ins versions cannot be run standalone: they require a host application (see the [System Requirements](#) chapter for more information). Depending on which host application you use, you might need to install the plug-ins in different locations.

Before installing one of the plug-in versions, you should close all your host applications.

Windows

Install

All versions of the plug-in provide an installation program. Follow the steps of the wizard to install the software on your machine. During the installation you will be asked where you want the software to be installed. For the VST version, you should install the plug-in inside the VST plug-ins folder used by your host application(s). The default path set in the installer should work for most applications, but you should check your host software documentation to know where it looks for VST plug-ins. For other plug-in types, you should just use the standard path.

Some applications will not automatically rescan the new plug-ins, so you might have to force a refresh of the plug-ins list.

Upgrade

When a new version of the software is released, just launch the new installer: it will update the current installation.

Uninstall

To uninstall the software, simply launch the "Uninstall" program that is available in the start menu or in the configuration panel. It will take care of removing all files from your computer.

Mac

Install

On Mac the plug-ins are available as drive images with an installer. After download, double click on the dmg file to open it. You can then double click on the installer (.pkg file) to install the package.

Note for Mac OS 10.15 Catalina or newer: you will have to right click on the installer and select "Open" instead of double clicking on the file to launch the installation.

Upgrade

When a new version of the software is released, just launch the new installer: it will update the current installation.

Uninstall

To uninstall the software, simply remove the component(s) from their install location (move them to the trash):

- AAX plug-ins are installed in the / Library/ Application Support/ Avid/ Audio/ Plug- Ins/ folder
- Audio Units (AU) are installed in the / Library/ Audio/ Plug- Ins/ Components/ folder
- RTAS Plug-ins are installed in the / Library/ Application Support/ Digidesign/ Plug- Ins/ folder
- VST plug-ins are installed in the / Library/ Audio/ Plug- Ins/ VST folder
- VST3 plug-ins are installed in the / Library/ Audio/ Plug- Ins/ VST3 folder

If you want to completely remove all settings and configuration files, you can also remove these additional directories that may have been created on your computer:

- ~/ Library/ Preferences/ Blue Cat Audio/ [Plug-in name and TYPE], where TYPE is VST, AU, RTAS or AAX: global preferences.
- ~/ Library/ Preferences/ Blue Cat Audio/ [Plug-in name]: license information
- ~/ Documents/ Blue Cat Audio/ [Plug-in name]: user data, such as presets, additional skins and user-created plug-in data.

Please be aware that these directories may contain user data that you have created. Remove these directories only if you do not want to reuse this data later.

First Launch

Blue Cat Audio plug-ins cannot be run standalone, they require a host application (see the [System Requirements](#) chapter for more information). Some host applications will require you to scan the plug-ins before they are available in the application.

If the plug-in is not available in the application, please check that it has been installed in the appropriate directory (with no host application running), and that the host application has scanned it.

Using Blue Cat's FreqAnalyst Pro

The User Interface

Note: The main toolbar, menus and basic features available with all our plug-ins are detailed in the [Blue Cat Audio Plug-ins Basics section](#).

Overview

The plug-in's user interface is composed of three panels:

- The spectrum view where you can see the spectrum of the various channels of the plug-in.
- The spectrogram view showing the evolution of the spectrum over time (2D or 3D).
- The output view where you can monitor and control the output parameters generation.

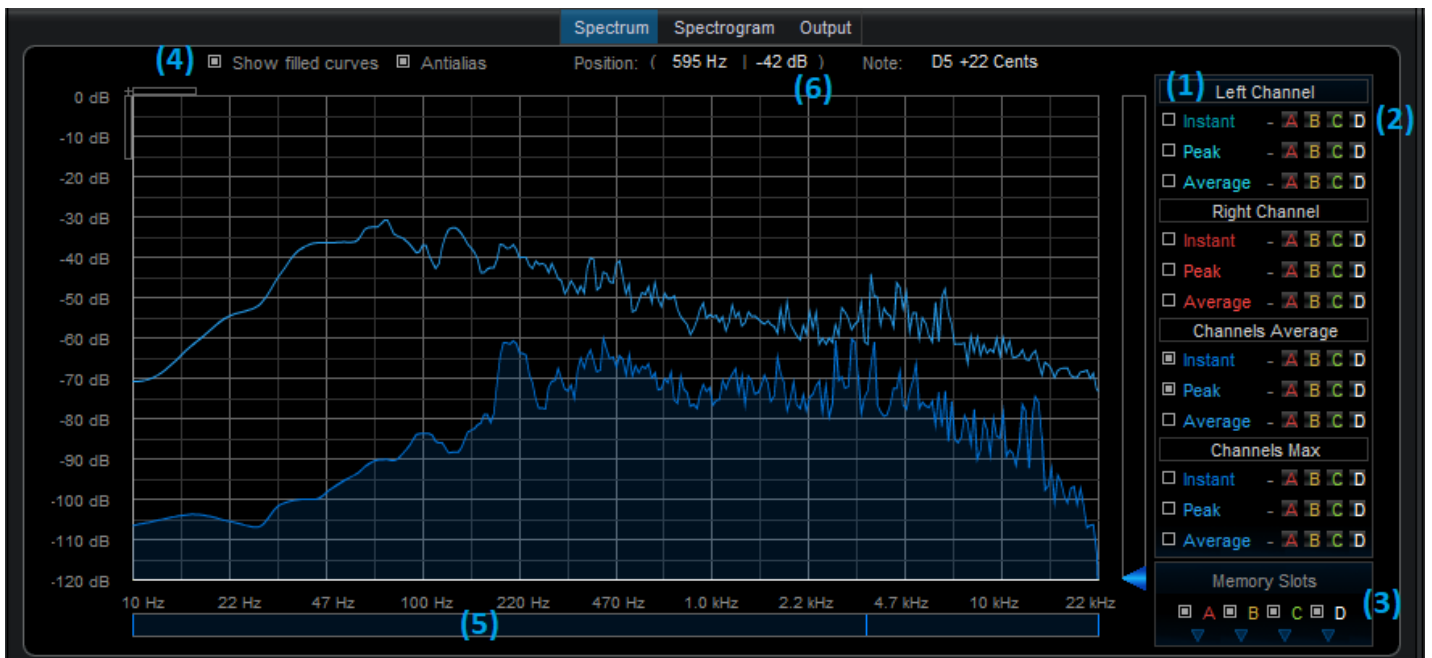
This chapter describes the functionalities offered by these views in the stereo version (the mono plug-in has the same user interface but with a single channel).



1. The main toolbar area: load presets, freeze GUI, adjust settings (more details in next chapter).
2. Choose the view to display.
3. The current view (more details for each type of view below).
4. The controls displayed at the bottom of the user interface let you modify the parameters for the audio analysis. This controls pane can be collapsed to gain real estate on the screen ("Show Controls" button in the toolbar).

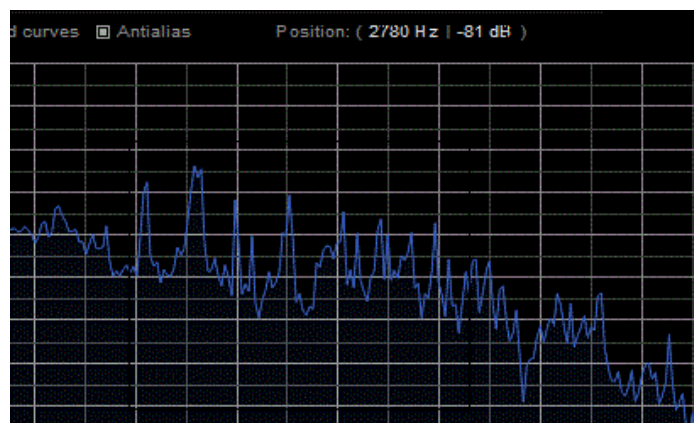
Spectrum View

This is the main display and the view opened by default. It shows the spectrum as well as the main spectral characteristics of the audio signal. You can switch to other views (described later) by clicking on the tabs on the top right of the screen.



1. Select the channel(s) to display on the screen: for the chosen channels you can display either the “instant” curve or the “peak” curve (maximum over time) or “average” curve (averaged over time).
2. The four “A B C D” buttons let you store the curve to one of the proposed memory slots. The curves stored into these slots can be shown/ hidden with the buttons available in (3).
3. Show/ Hide curves stored in memory. Click on the arrow below to save or load them as files or copy/ paste them thru the system clipboard (the curves format is compatible with the [FreqAnalyst Multi plug-in](#)).
4. These two sliders let you control the vertical and horizontal zoom for the graph.
5. This meter shows the value of the center, minimum and maximum frequency output parameters. It lets you visualize the instant bandwidth and spectrum energy center at a glance.
6. Both the frequency/ gain pair representing the coordinates of the mouse cursor and the note information are displayed in "selection" mode. The note information shows the name (A, B, C...), the octave (A0,A1,...) as well as the number of cents above or below the note (+/- 50 cts).

The coordinates of the graph below the mouse pointer are displayed at the top of the screen. The display can be zoomed with the mouse selecting an area of the screen (or using the mouse wheel):



At any time, right click on the graph to unzoom.

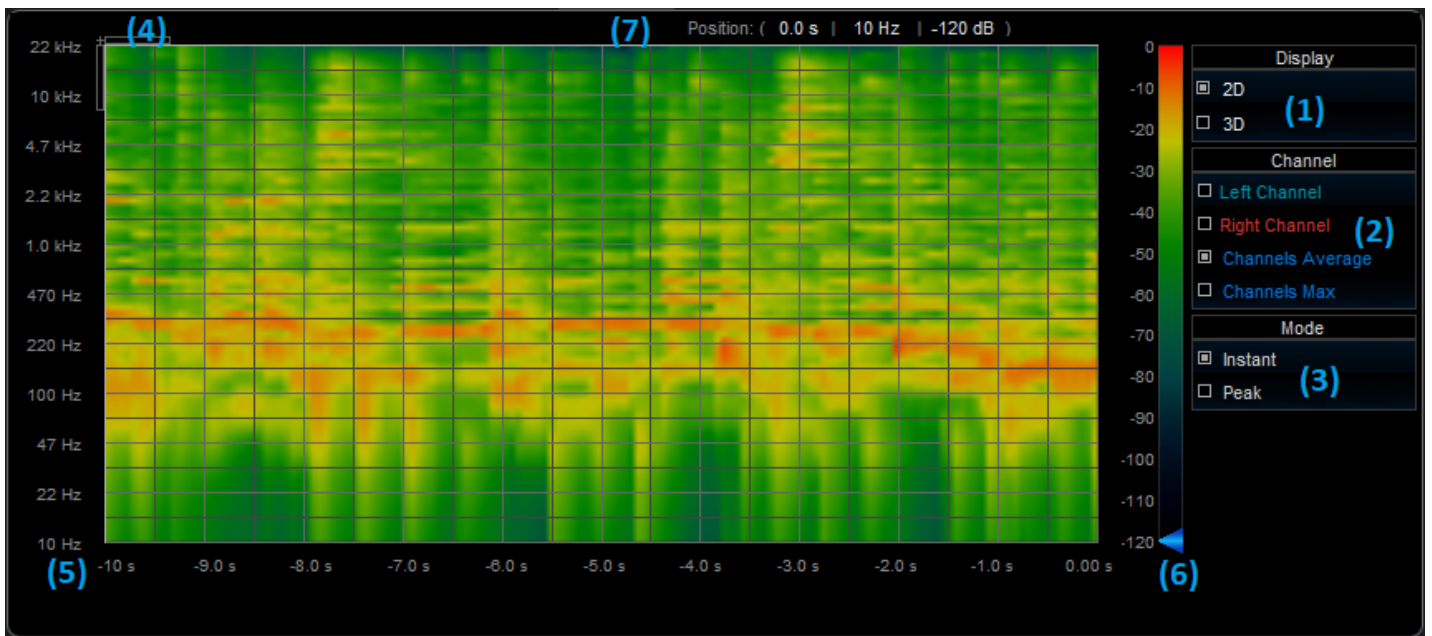
Once zoomed you can drag the display with the mouse on the ruler areas.

Spectrogram View

The spectrogram view shows the evolution of the spectrum over time. You can choose between the 2D and 3D modes depending on your preferences.

2D Mode

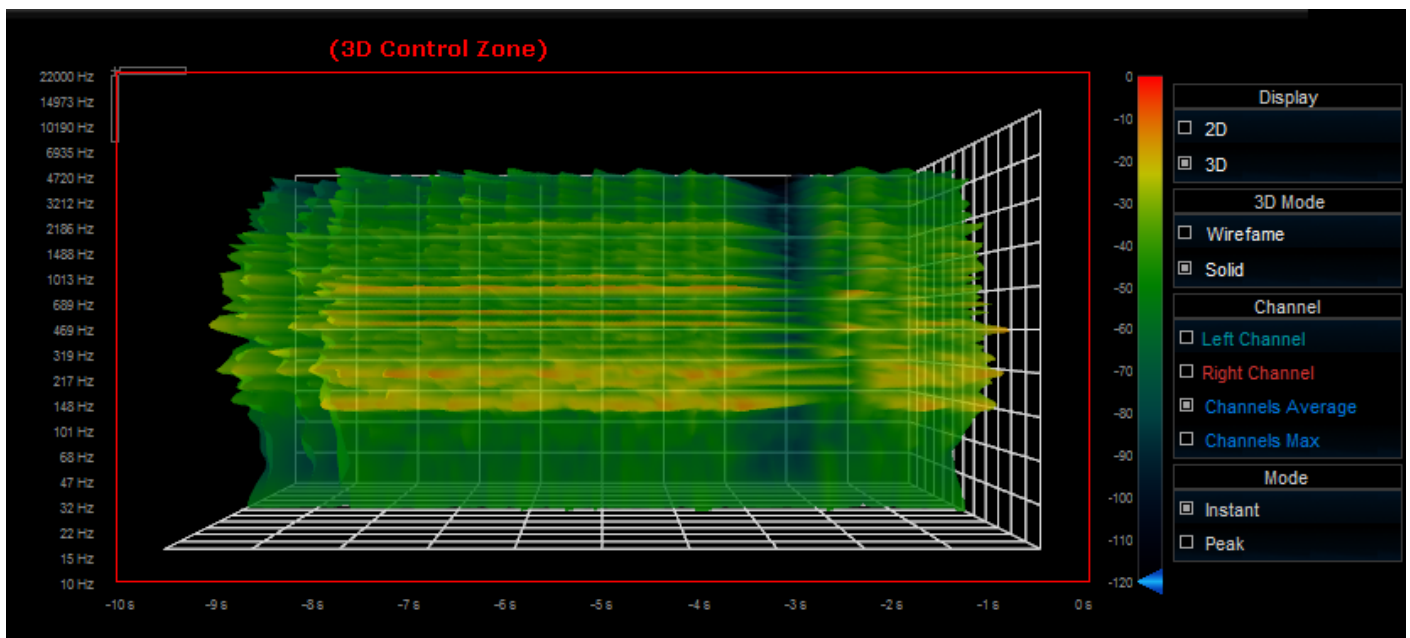
In 2D mode, the spectrum is represented as a 2D color plot, the color representing the value of the spectrogram for a given frequency at a given time. In the default color scheme, the closer to red the louder, and the closer to dark blue, the quieter.



1. Choose between 2D and 3D modes.
2. Choose the channel(s) to display on the screen.
3. for the chosen channels you can choose to display either the “instant” curve or the “peak” curve (maximum over time).
4. These two sliders let you control the vertical and horizontal zoom for the graph. When the zoomed, you can drag the graph with the mouse in the rulers areas anytime.
5. Rulers can be dragged with the mouse when the graph has been zoomed. They display the scales for the x and y axis.
6. The vertical color scale lets you choose the absolute threshold (see the parameters description).
7. When the mouse is in selection mode, you can see here the values for the coordinates under the mouse pointer.

3D Waterfall Mode

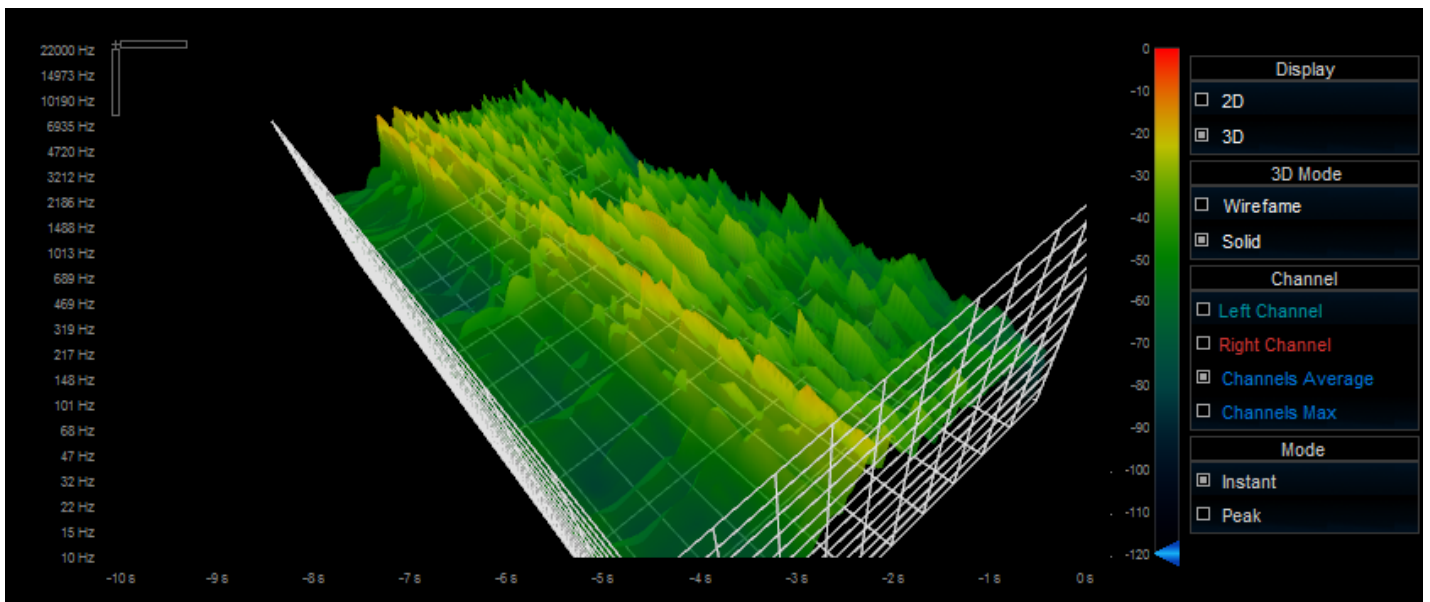
In 3D mode, the spectrum is represented as a 3D surface with the same color scale as the 2D plot.



This 3D spectrogram view lets you move the 3D graph within the screen so that you can choose your favorite viewpoint. Please note that the measurement tool is not enabled in this mode.

You can use the following controls for 3D movement:

- Mouse drag: rotate the object.
- Hold Ctrl key and mouse drag: translate the object.
- Rotate mouse wheel: zoom / unzoom (you can hold the shift key for higher precision).
- Mouse right click: reset position to default (as shown above).

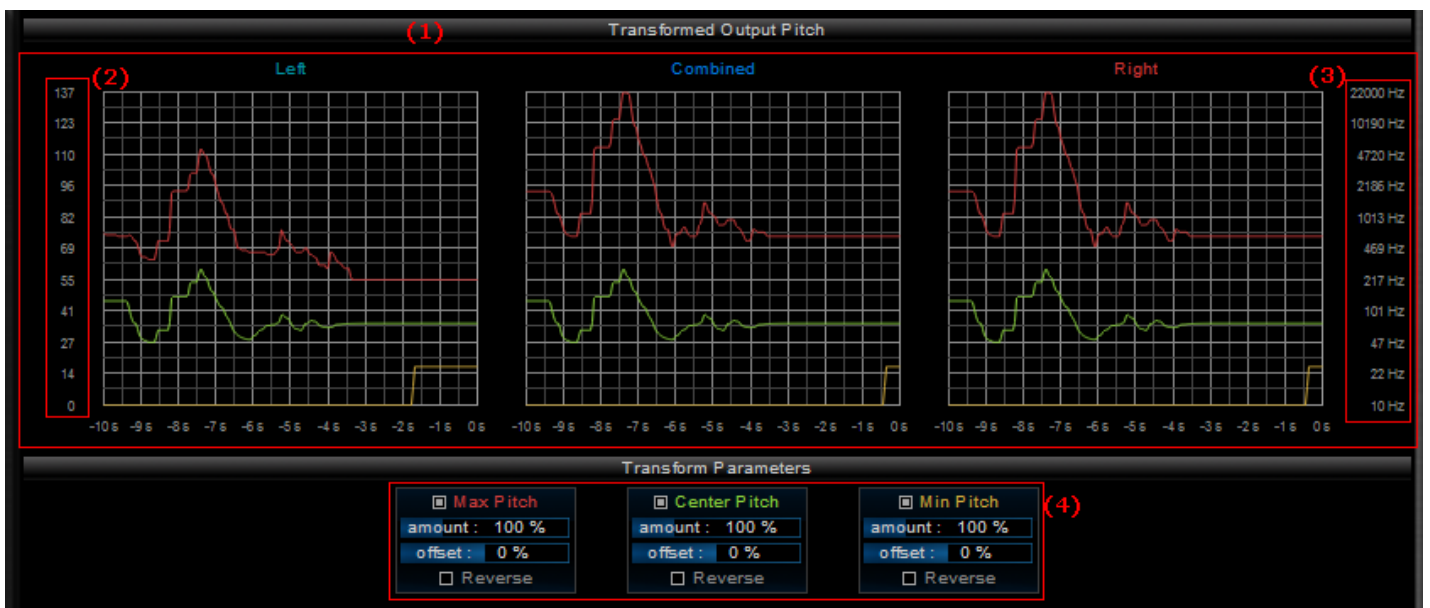


Custom 3D viewpoint

It is still possible to use the zooming capability offered by the two sliders on the top left corner of the view. It will have the same effect as in the 2D view: zooming either the time axis or the frequency axis. Note that when the surface has been rotated, these two axis may not be in the same direction as the sliders anymore.

Output View

The output view presents graphs representing the evolution over time of the parameters that are computed by the plugin. They also offer the ability to transform the output parameters values so that they fit your needs.



1. These graphs show the evolution of the transformed output pitch values over time for each channel.
2. MIDI pitch value scale.
3. Equivalent Frequency scale.
4. Controls to modify the output envelopes: reverse, amount and offset. They let you customize the values generated for the transformed output parameters that can be later used as MIDI or automation controllers.

Controls

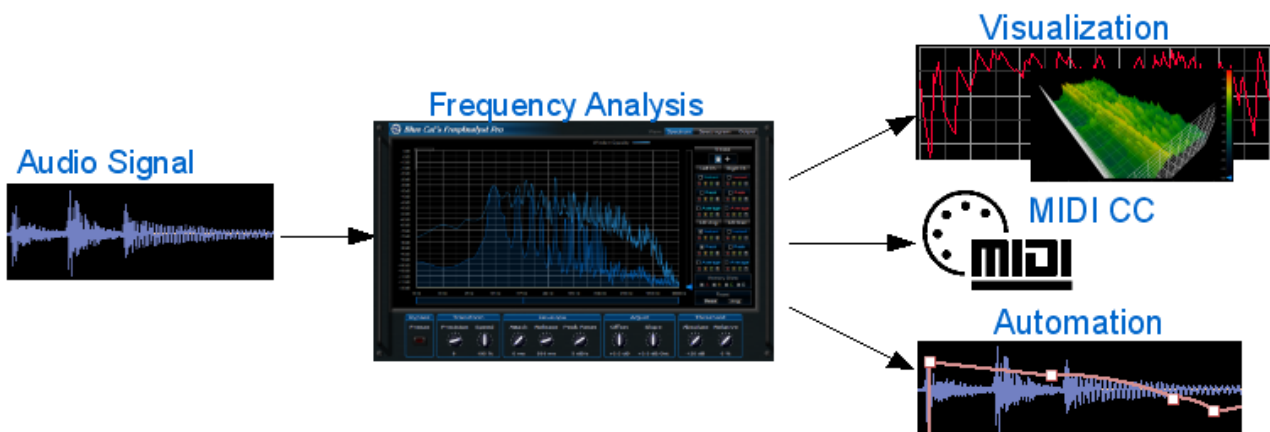
The settings described in the [parameters section](#) are available below the graph view. The absolute threshold can also be controlled by the vertical slider on the right of the display.



The various elements of the user interface (knobs, sliders, buttons...) are simple and intuitive to operate, but more information about how to interact with them is available in the ["Plug-ins Basics" chapter](#) of this manual.

Operation

This plug-in allows you to visualize the spectral content of the audio signal and also to generate MIDI CC messages or automation curves based on the frequency content of the signal. The illustration below shows the principle of this system.



Spectrum and Spectrogram Visualization

There are many situations where you need to be able to visualize the content of the signal, when your ears are not enough (bad monitoring, ear fatigue, subtle spectral issue that requires visual confirmation). This is the main purpose of the FreqAnalyst Pro: it provides visual assistance for what your ears cannot detect. It is also a convenient way of comparing your audio tracks with reference material, as shown in [this tutorial](#).

The analysis can be fine tuned in details to exactly fit your needs. This chapter describe in details how you can tweak the analysis:

Tweak the precision

It is possible to tweak the precision of the analyzer both in time and frequency. The higher the "precision" parameter, the better precision for the spectrum computation. The plugin also offers the unique capability of tweaking the frame rate of the spectrum analysis thanks to the "speed" parameter. With high precision, the frame rate of FFT analysis tends to be very low. The speed parameter and our unique frame interpolation algorithm compensate this issue.

Please note that the higher the precision and speed, the higher CPU consumption. However the analysis being performed in the background, on multicore CPU systems it should not cause audio drop-outs, even when the precision is set to 11.

Customize the time response

The attack and release times control how fast the analyzer respectively responds to audio amplitude increase or decrease. For example, when pushing both parameters to their maximum the instant curve will show a local average of the audio spectrum.

The "Max Reset" speed control how fast the maximum spectrum curve is reset to the instant curve. This lets you tweak the max curve so that it follows the instant curve or shows the absolute maximum value of the spectrum.

Adjusting the response

Thanks to the offset and slope controls, the curve can be tweaked to show the exact response you are looking for. Offset will typically be necessary when the incoming audio signal is too loud or too quiet and the curve does not fit in the screen. The slope parameter can compensate the attenuation of higher frequencies and can thus make comparisons easier. A typical usage is to set the slope to +3dB per octave so that a flat spectrum corresponds to pink noise instead of white noise (for 0dB/ Oct).

Threshold controls

In order to isolate the loudest parts of the signal and to control how the min and max frequencies are computed, it is possible to set an absolute as well as a relative threshold on the curve. If the signal is below the threshold (absolute value for the absolute threshold - for example -60 dB, or value relative to the maximum value - for example 30% of the maximum value in the current curve) it is reset to the minimum value.

Envelopes Generation

Thanks to this unique capability, you can create unique side chain effects controlled by the frequency content of the audio signal. The idea is to measure the minimum, maximum and center frequencies of the spectrum and reuse them as controller values for other effects. The exact response for these values can be customized in the "output" pane of the user interface. Special controls for MIDI and automation generation are available in the settings window of the plugin.

For more information about how to use this capability in your favorite host application, see our [Digital Peak Meter Pro tutorials page](#): this plugin has a similar MIDI CC and automation output capability. The Blue Cat's [FreqAnalyst Pro Tutorials](#) will give you some more ideas about what to use the generated envelopes for.

Blue Cat Audio Plug- Ins Basics

This chapter describes the basic features that are common to all our plug- ins. If you are already familiar with our products, you can skip this part.

User Interface Basics

About Skins

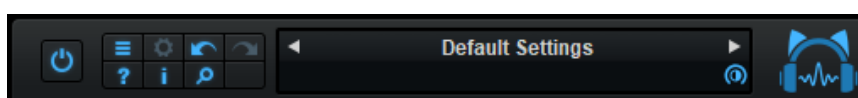
Like all Blue Cat Audio plug- ins, Blue Cat's FreqAnalyst Pro uses a skinnable user interface. It means that the appearance and behavior of the user interface can be entirely customized.

Especially with third party skins, the experience may be quite different from the one offered by the default skins that we provide. However, our plug- ins and our skinning engine have several standard features that will be available whatever your favorite skin.

More information about custom skins can be found in the [skins section](#).

The Main Toolbar

In most skins, an optional toolbar at the top of the user interface gives you access to the main options and settings of the plug- in:



Smooth Bypass

On the left, the power button can be used to smoothly bypass the plug- in.

Presets Area

At the center of the toolbar, you can see the current preset area (the "Default Settings" box). It displays the name of the current preset, with a "*" at the end if it has been modified since loaded.

The arrows on the left and right let you navigate thru the (factory and user) presets available for the plug- in.

Clicking on the preset name opens the [presets menu](#) which lets you manage the presets of the plug- in.

Using the knob on the bottom right of this area, you can reduce the **opacity** of the window, and make it transparent (the actual result may depend on the host application). Additional messages may appear in the area next to this knob, depending on the plug- in.

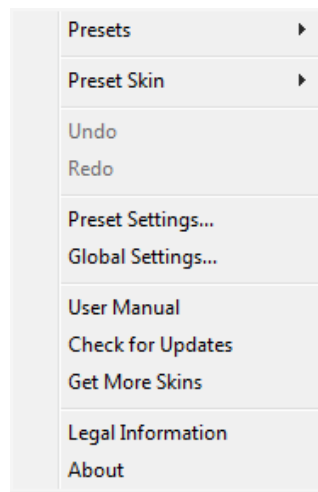
Commands

The icons in the toolbar give you access the to the following commands that are detailed in the next paragraph:

Icon	Name	Function
	Menu	Open the main menu
	Control Settings	Display individual control settings (to manage automation and MIDI control, as described here).
	Undo	Undo
	Redo	Redo
	Manual	User Manual
	About	About
	Zoom	Scale the user interface (from 70% to 200%).

The Main Menu

The main menu is available from the main toolbar, or if you right click anywhere on the background of the plug- in:

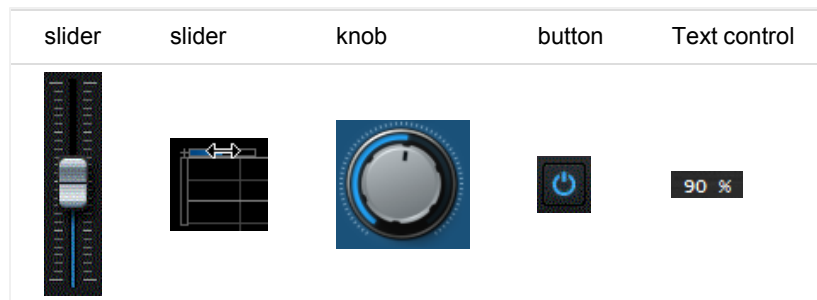


- **Presets:** opens the [presets menu](#) to manage presets.
- **Preset Skin:** opens the [skins menu](#) to choose the skin for the current preset and manage alternative skins for the software.
- **Undo/ Redo:** undo or redo the latest modifications. This includes all changes made to the current preset settings such as MIDI or automation preferences.
- **Presets Settings:** open the presets settings window. It lets you change the skin, MIDI and automation settings for the current preset.
- **Global Settings:** open the global settings window. It lets you change the skin, MIDI and automation settings that are used by default in all instances of the plug- in (if not overridden by the current preset).
- **User Manual:** open this user manual.
- **Check for Updates:** opens up our website to let you check if any update for this software is available.
- **Get More Skins:** get more skins for this software.
- **Legal Information:** browse licensing and misc legal documents.
- **About:** displays the “about” dialog box.

Controls

Examples

Here are a few examples of typical controls you will encounter in the user interface of our plug- ins:



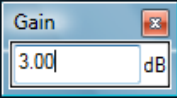
Interacting with Controls

You can interact with the controls of the plug- in interface either with the [mouse](#) or the [keyboard](#).

Setting the keyboard focus on a control (so that it responds to key strokes) may be automatic (when you pass the mouse over it it gets focus) or manual (you have to click on the control to set the focus on it). Note that all host applications behave differently regarding keyboard handling. In some applications you may not be able to use all keys described later in this manual to interact with our plug- ins. It is usually made obvious to you to know the active surfaces of the skin (the places where you can click with the mouse): the mouse cursor usually changes when you can do something on a control. In the default skins delivered with the plug- in, the cursor changes to a small hand or an arrow to tell you when your mouse is over an active control.

Mouse

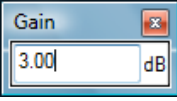
Various mouse movements will let you interact with the controls:

Mouse Interaction	Action
Left Click	Acquire focus and start dragging or push (button)
Left Click + Alt Key	Set the value to default
Left Double Click	Acquire focus and launch the "fine tuning" edit box (except button): 
Right Click	Set the value to default
Mouse Wheel	Increment or decrement the position (focus required)
Mouse Drag	Change the control position depending on mouse movement (except button)

Keyboard

All control widgets support the following keys (note that some of them are caught by the host and thus never forwarded to the control. For example in Steinberg Cubase SX you cannot use the arrow keys to control the plug-in):

Keys Common to All Controls

Key	Action
Up Arrow	Small increment of the position (up or right)
Down Arrow	Small increment of the position (down or left)
Left Arrow	Same as Down Arrow
Right Arrow	Same as Up Arrow
Page Up	Large increment of the position (up or right)
Page Down	Large decrement of the position (down or left)
+	Small increment of the value of the control
-	Small decrement of the value of the control
d	Set to default value (same as mouse right click)
e	Opens the 'fine tuning' window to precisely set the parameter: 
SHIFT	When the key is down, the fine tuning mode is on, and you can modify the value with better precision when moving the mouse, the mouse wheel or using the keyboard. Just release the key to get back to the normal mode.

Keys Specific to Buttons

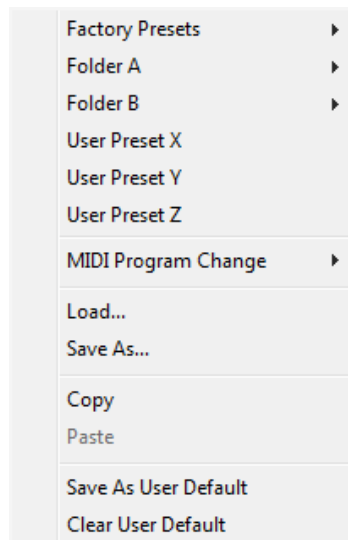
Key	Action
Enter	Pushes the button

Presets

To get started with the plug-in and discover its capabilities, a couple of factory presets are provided. You can also save your own presets and recall them later for other projects. Our plug-ins propose a full-featured preset manager to let you save, browse, organize and recall its presets.

The Presets Menu

The presets menu can be opened from the [main menu](#) or the [main toolbar](#). It displays the list of presets available for the plug-in as well as commands to load, save or organize presets:

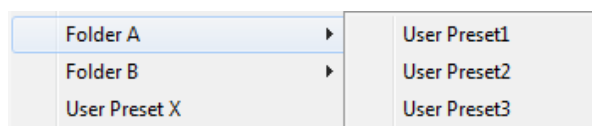


- **Factory Presets:** shows the list of factory presets delivered with the plug-in.
- **"Folder A" to "User Preset Z":** user presets and categories.
- **MIDI Program Change:** activate MIDI Program Change support (see below).
- **Load:** load preset from file.
- **Save:** save current state to last loaded user preset.
- **Save As:** save current preset to a file.
- **Copy** copy preset to the system clipboard.
- **Paste** paste preset from the system clipboard, if available.
- **Save As User Default:** save the current state as the default preset. This preset is used every time a new instance of the plug-in is created.
- **Clear User Default:** reset the default preset to its factory state: this makes the plug-in forgets the custom settings you might have saved as a default preset.

More about Presets

There are two types of presets: factory presets (read only) that are provided with the plug-in, and user presets that can be created and stored by the user.

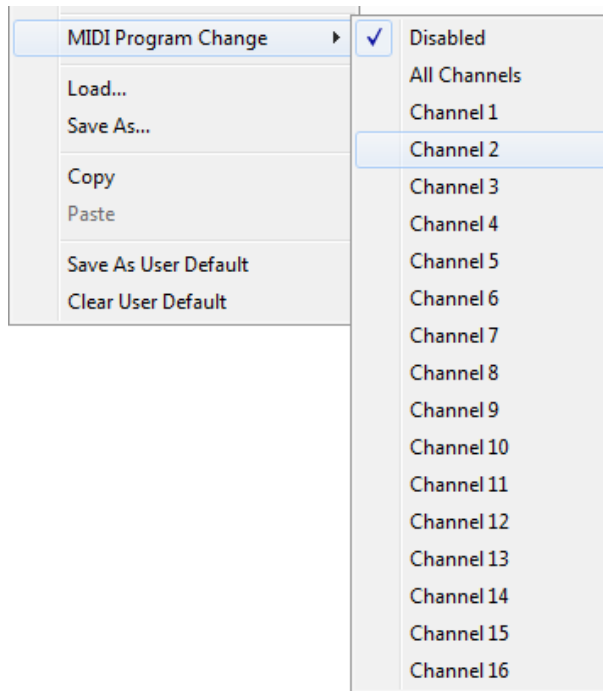
The user presets are stored in a subdirectory of the documents folders of your profile ("Documents" on Mac, and "My Documents" on Windows): Blue Cat Audio/ [Plug-in Name]/ Presets. Each preset is stored as an individual file. You can create folders and subfolders in the Presets directory to classify your presets, as shown in the example below:



If you save a preset named "Default" in the root Presets directory, it will override the factory default preset (that's what "Save As Default" does). To restore the factory default preset, you can just remove this file or use the "Reset Default" command.

MIDI Program Change

It is possible to load presets remotely using MIDI "Bank Select" and "Program Change" messages. To enable this feature, select a MIDI channel to receive the events from in the MIDI Program Change menu item from the [presets menu](#):



This setting is saved for each plug-in instance with your session but not in presets (except for the default preset, using the "Save as User Default command"). Once activated, the plug-in menu will display the bank number followed by the preset number for each preset:



Every root folder is considered as a new bank, starting with the factory presets (bank 0). Program and bank numbers may change while you add folders and presets, so you should be careful when naming them if bank and program numbers matter to you. It is recommended to use folders to make this task simpler. As a side note, sub folders do not define additional banks (all presets contained in sub folders are associated with the current bank).

As specified by MIDI, bank select messages are not used until a program is actually selected.

MIDI Implementation note: the software supports all types of Bank Select methods. You can use either MIDI CC 0 or MIDI CC 32 to select banks. If both are used simultaneously, they are combined together so that you can use more banks (in this case CC0 is LSB and CC32 is MSB, and actual bank number is $128 * CC0 + CC32$).

MIDI and Automation Control

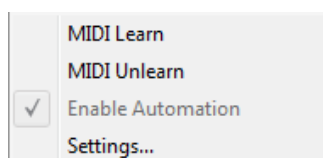
Blue Cat's FreqAnalyst Pro can also be remotely controlled via MIDI using MIDI CC ("Control Change") messages or automation curves, if your host application supports it. It is possible to customize the channel, control numbers, range and response curve used for each parameter in the settings panel available from the [main menu](#) (see the [Plug-in Settings](#) chapter for more details).

MIDI and Automation Settings Menu

Most skins also provide the ability to change MIDI and automation settings for each parameter directly in the main user interface. When this feature is activated using the corresponding [toolbar](#) button, dropdown menu buttons appears next to main controls:



Clicking on this button shows the MIDI/ Automation settings menu:



- **MIDI Learn:** launches MIDI learn mode for the control: touch your MIDI controller and the control will learn from it the MIDI channel and CC number. To end the learn mode, reopen this menu and deselect the option.
- **MIDI Unlearn:** deactivates MIDI control for this parameter.
- **Settings:** launches the advanced settings panel described below. This controls the settings for the current preset.

Advanced MIDI and Automation Settings

You can completely customize the way the plug-in is controlled by automation and MIDI. For a global view of all parameters at a time, you can use the [Plug-in Settings](#) window for the current preset which is available from the main menu.



MIDI Settings:

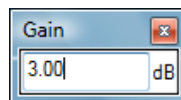
- **Enable MIDI:** enable/ disable the MIDI control of the parameter.
- **Channel:** MIDI Channel for the parameter control. If set to 0, the plug-ins will accept Control Change Messages from all MIDI Channels (MIDI Omni mode).
- **CC:** Control Change Number.
- **Learn:** click on this button to activate the MIDI learn functionality. When it is activated, you can move your MIDI controller, and the plug-in will automatically set the MIDI Channel and CC Number.

MIDI and automation settings:

- **Response:** response curve of the MIDI or automation control: from very fast to slow control.
- **Min:** minimal value of the parameter when MIDI controlled or automated.
- **Max:** Maximum value of the parameter when MIDI controlled or automated.

Note: if the Min value is higher than the Max value, the response curve will be reversed: increasing the control value will decrease the parameter value.

Note: if you double click on the parameter text control boxes for the max and min values, a “fine tuning” edit box will appear and let you change the min and max values with more precision:

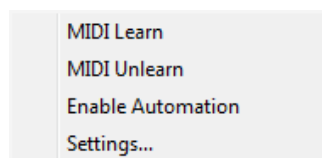


MIDI and Automation Output

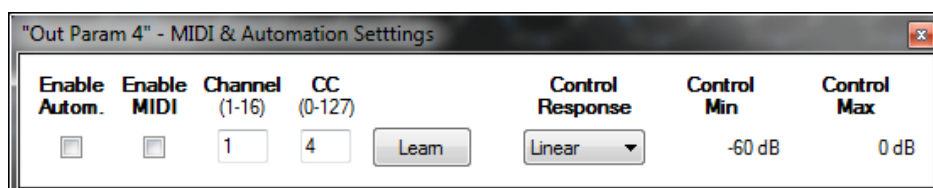
Blue Cat's FreqAnalyst Pro can also generate MIDI CC Events or automation curves thanks to its [output parameters](#).

You have access to the same settings for the output parameters as you have for input parameters using the dropdown menu, except that you can also enable or disable automation.

The output parameters MIDI and Automation Menu:



The advanced output parameters MIDI and Automation settings window:



More

Check our [online tutorial](#) for more screenshots and more examples of our plug-ins user interfaces.

Blue Cat's FreqAnalyst Pro Parameters

All parameters described below can be automated and controlled via MIDI if your host application supports it. You can precisely define this behavior in the [settings panels](#) described later in this manual.

Input

The input parameters of this plug-in are described below. They can be used to modify the way the plugin analyzes the audio signal.

Param id	Name	Unit	Description
General			
dsp.input0	Bypass		Bypass the effect.
dsp.input1	Precision		Precision of the audio to frequencies transform. The higher the setting, the higher the frequency precision, and the higher the CPU consumption
dsp.input2	Speed	%	Rate of the audio to frequencies transform. The higher this value, the better time resolution (and perceived smoothness). Beware that above 100% CPU consumption might increase, especially when the precision is high.
dsp.input3	Attack	ms	Attack time for the frequencies envelope follower.
dsp.input4	Release	ms	Release time for the frequencies envelope follower.
dsp.input5	Peak Reset	dB/ s	Rate of the peak curve reset. If set to 0, the peaks will never decrease and will represent the maximum value.
dsp.input6	Abs Threshold	dB	Absolute threshold for spectrum display. All frequency bins which value is below this threshold are set to -120 dB)
dsp.input7	Rel threshold	%	Relative threshold for spectrum display (percentage of the maximum value). All frequency bins which value is below this threshold are set to -120 dB)
dsp.input8	Slope	dB/ Oct	Slope added to the frequency response curve. Can be used to correct the response curve (for example tune the plug-in so that pink noise frequency response is flat)
dsp.input9	Offset	dB	Offset added to the frequency response curve. Can be used to correct the response curve.
dsp.input10	Reset Peak		Command to reset peak curves (value changes are considered as reset commands)
dsp.input11	Reset Average		Command to reset average curves (value changes are considered as reset commands)
Output Transformation			

dsp.input12	Center Pitch Reverse		Reverse the transformed center pitch envelope.
dsp.input13	Center Pitch Amount	%	Amount for the transformed center pitch envelope.
dsp.input13	Center Pitch Offset	%	Offset for the transformed center pitch envelope.
dsp.input14	Min Pitch Reverse		Reverse the transformed min pitch envelope.
dsp.input15	Min Pitch Amount	%	Amount for the transformed min pitch envelope.
dsp.input16	Min Pitch Offset	%	Offset for the transformed min pitch envelope.
dsp.input17	Max Pitch Reverse		Reverse the transformed max pitch envelope.
dsp.input18	Max Pitch Amount	%	Amount for the transformed max pitch envelope.
dsp.input19	Max Pitch Offset	%	Offset for the transformed max pitch envelope.
dsp.input20	Stereo Mode (stereo version only)		Stereo operation mode: you can choose to analyze either left-right or mid- side channels.

Output

The plugin also provides output parameters for automation or MIDI CC generation as described in the operation chapter.

Mono Plugin

Please find below the output parameters of the mono version:

Param id	Name	Unit	Description
General			
dsp.output0	Center Freq	Hz	Center Frequency of the spectrum (computed as the spectrum energy center)
dsp.output1	Min Freq	Hz	Minimum frequency of the spectrum above thresholds.
dsp.output2	Max freq	Hz	Maximum frequency of the spectrum above thresholds.
dsp.output3	Center Pitch	MIDI units	Center Frequency of the spectrum expressed as a MIDI pitch value.
dsp.output4	Min Pitch	MIDI units	Minimum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
dsp.output5	Max Pitch	MIDI units	Maximum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
Transformed			
dsp.output6	Transformed Center Pitch	MIDI units	Center Frequency of the spectrum expressed as a MIDI pitch value.

dsp.output7	Min Pitch	MIDI units	Minimum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
dsp.output8	Max Pitch	MIDI units	Maximum frequency of the spectrum above thresholds expressed as a MIDI pitch value.

Stereo Plugin

For the stereo version of the plugin, the outputs are:

Param id	Name	Unit	Description
General (Channel 1: left or mid)			
dsp.output0	Center Freq(1)	Hz	Center Frequency of the spectrum (computed as the spectrum energy center)
dsp.output1	Min Freq(1)	Hz	Minimum frequency of the spectrum above thresholds.
dsp.output2	Max freq(1)	Hz	Maximum frequency of the spectrum above thresholds.
dsp.output3	Center Pitch(1)	MIDI units	Center Frequency of the spectrum expressed as a MIDI pitch value.
dsp.output4	Min Pitch(1)	MIDI units	Minimum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
dsp.output5	Max Pitch(1)	MIDI units	Maximum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
Transformed (Channel 1: left or mid)			
dsp.output6	Transformed Center Pitch(1)	MIDI units	Center Frequency of the spectrum expressed as a MIDI pitch value.
dsp.output7	Min Pitch(1)	MIDI units	Minimum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
dsp.output8	Max Pitch(1)	MIDI units	Maximum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
General (Channel 2: right or side)			
dsp.output9	Center Freq(2)	Hz	Center Frequency of the spectrum (computed as the spectrum energy center)
dsp.output10	Min Freq(2)	Hz	Minimum frequency of the spectrum above thresholds.
dsp.output11	Max freq(2)	Hz	Maximum frequency of the spectrum above thresholds.
dsp.output12	Center Pitch(2)	MIDI units	Center Frequency of the spectrum expressed as a MIDI pitch value.

dsp.output13	Min Pitch(2)	MIDI units	Minimum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
dsp.output14	Max Pitch(2)	MIDI units	Maximum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
<i>Transformed (Channel 2: right or side)</i>			
dsp.output15	Transformed Center Pitch(2)	MIDI units	Center Frequency of the spectrum expressed as a MIDI pitch value.
dsp.output16	Min Pitch(2)	MIDI units	Minimum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
dsp.output17	Max Pitch(2)	MIDI units	Maximum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
<i>General (Both Channels)</i>			
dsp.output18	Center Freq	Hz	Center Frequency of the spectrum (computed as the spectrum energy center)
dsp.output19	Min Freq	Hz	Minimum frequency of the spectrum above thresholds.
dsp.output20	Max freq	Hz	Maximum frequency of the spectrum above thresholds.
dsp.output21	Center Pitch	MIDI units	Center Frequency of the spectrum expressed as a MIDI pitch value.
dsp.output22	Min Pitch	MIDI units	Minimum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
dsp.output23	Max Pitch	MIDI units	Maximum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
<i>Transformed (Both Channels)</i>			
dsp.output24	Transformed Center Pitch	MIDI units	Center Frequency of the spectrum expressed as a MIDI pitch value.
dsp.output25	Min Pitch	MIDI units	Minimum frequency of the spectrum above thresholds expressed as a MIDI pitch value.
dsp.output26	Max Pitch	MIDI units	Maximum frequency of the spectrum above thresholds expressed as a MIDI pitch value.

Blue Cat's FreqAnalyst Pro Curves

The FreqAnalyst Pro plug-in provides visual feedback about the frequency content of the audio signal thanks to output curves.

Mono Plugin

Curve id	Name	Description
dsp.output_curve0	Instant Spectrum	Instant frequency content of the audio signal.
dsp.output_curve1	Peak Spectrum	Maximum value of the frequency content over time.
dsp.output_curve2	Average Spectrum	Average value of the frequency content over time.

Stereo Plugin

The stereo version offers more choice (combinations of the left and right or mid and side channels):

Curve id	Name	Description
dsp.output_curve0	Instant Spectrum(1)	Instant frequency content for the first channel.
dsp.output_curve1	Peak Spectrum(1)	Maximum value of the frequency content for the first channel over time.
dsp.output_curve2	Average Spectrum(1)	Average value of the frequency content for the first channel over time.
dsp.output_curve3	Instant Spectrum(2)	Instant frequency content for the second channel.
dsp.output_curve4	Peak Spectrum(2)	Maximum value of the frequency content for the second channel over time.
dsp.output_curve5	Average Spectrum(2)	Average value of the frequency content for the second channel over time.
dsp.output_curve6	Instant Average Spectrum	Instant frequency content (first and second channels average).
dsp.output_curve7	Peak Average Spectrum	Maximum value of the frequency content (first and second channels average) over time.
dsp.output_curve8	Average Average Spectrum	Average value of the frequency content (first and second channels average) over time.
dsp.output_curve9	Instant Maximum Spectrum	Instant maximum values of the frequency content for the first and second channels.
dsp.output_curve10	Peak Maximum Spectrum	Absolute maximum values of the frequency content for the first and second channels over time.

dsp.output_curve11

Average Maximum Spectrum

Average maximum values of the frequency content for the first and second channels over time.

Plug- in Settings

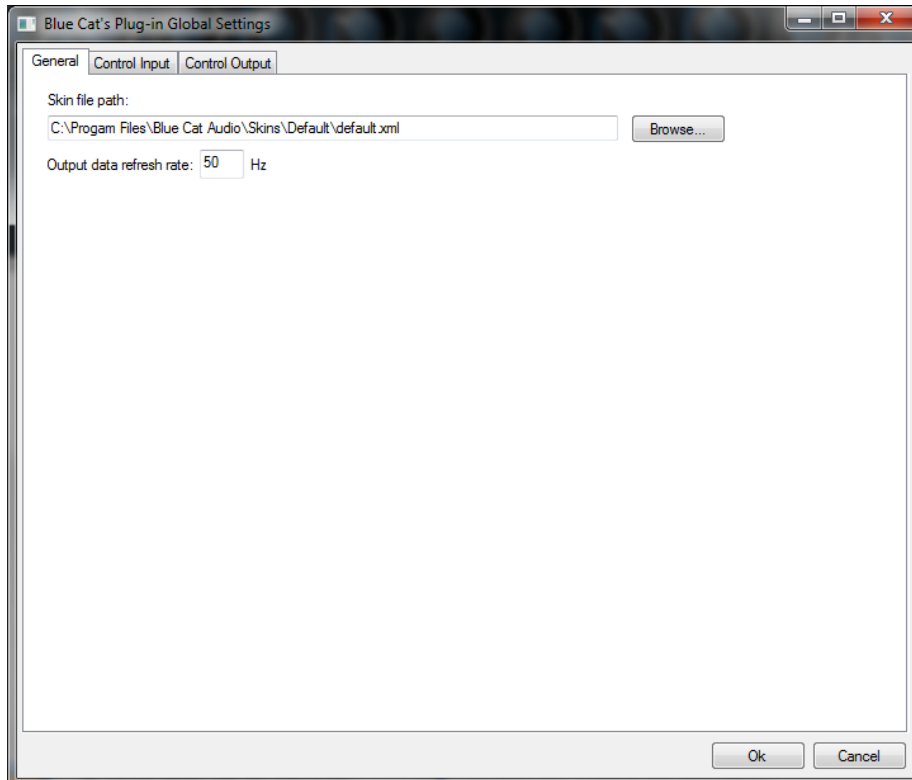
In addition to the controls offered in the main user interface, Blue Cat's FreqAnalyst Pro has various settings that let you fine tune the behavior of the plug- in. You can choose to change these settings either for the current preset or globally for all instances of the plug- in.

The Global Settings Window

The settings available in this window **apply to all instances of the plug- in, for all presets**, if not overridden in the [presets settings](#). Consider these settings as “default” settings.

General

You can change the default skin for all instances of the plug- in: write the skin file path in the text edit box or click on the button to open a file chooser dialog. If you have several instances of the plug- in opened in your session, you will have to re- open the user interfaces of these plug- ins to see the skin change.



The output data refresh rate can also be customized for all instances of the plug- in. It controls the refresh rate of non- audio data produced by the plug- in (parameters, curves...). It also controls the refresh rate of output MIDI CC messages or output automation data. The higher the refresh rate, the better precision, but also the higher cpu usage (some host applications may also have trouble recording MIDI data at high refresh rates). The default value is 50 Hz.

Global Control Input Settings (MIDI and Automation)

The plug- in offers a couple of settings that affect the way it is controlled by MIDI messages or automation. While the first settings only apply to MIDI control, the "Control Response", "Min" and "Max" settings apply to **both automation and MIDI control**.

For each parameter you can define a default MIDI channel and CC number. You can then control the plug- in with an external MIDI controller or one of our plug- ins that generate MIDI messages.

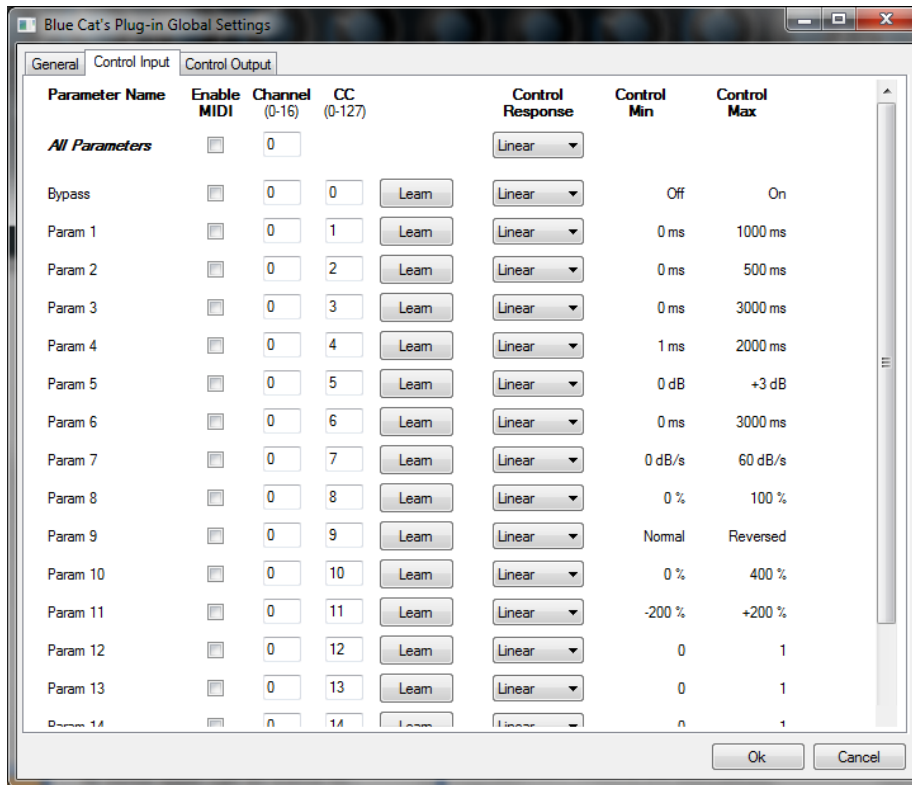
The settings below are available for each plug- in parameter.

MIDI Settings:

- **Enable MIDI:** enable/ disable the MIDI control of the parameter.
- **Channel:** MIDI Channel for the parameter control. If set to 0, the plug- ins will accept Control Change Messages from all MIDI Channels (MIDI Omni mode).
- **CC:** Control Change Number.
- **Learn:** click on this button to activate the MIDI learn functionality. When it is activated, you can move your MIDI controller, and the plug- in will automatically set the MIDI Channel and CC Number.

MIDI and automation settings:

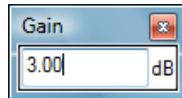
- **Response:** response curve of the MIDI or automation control: from very fast to slow control.
- **Min:** minimal value of the parameter when MIDI controlled or automated.
- **Max:** Maximum value of the parameter when MIDI controlled or automated.



(generic screen shot, does not correspond to the actual plug-in parameters)

Note: if the Min value is higher than the Max value, the response curve will be reversed: increasing the control value will decrease the parameter value.

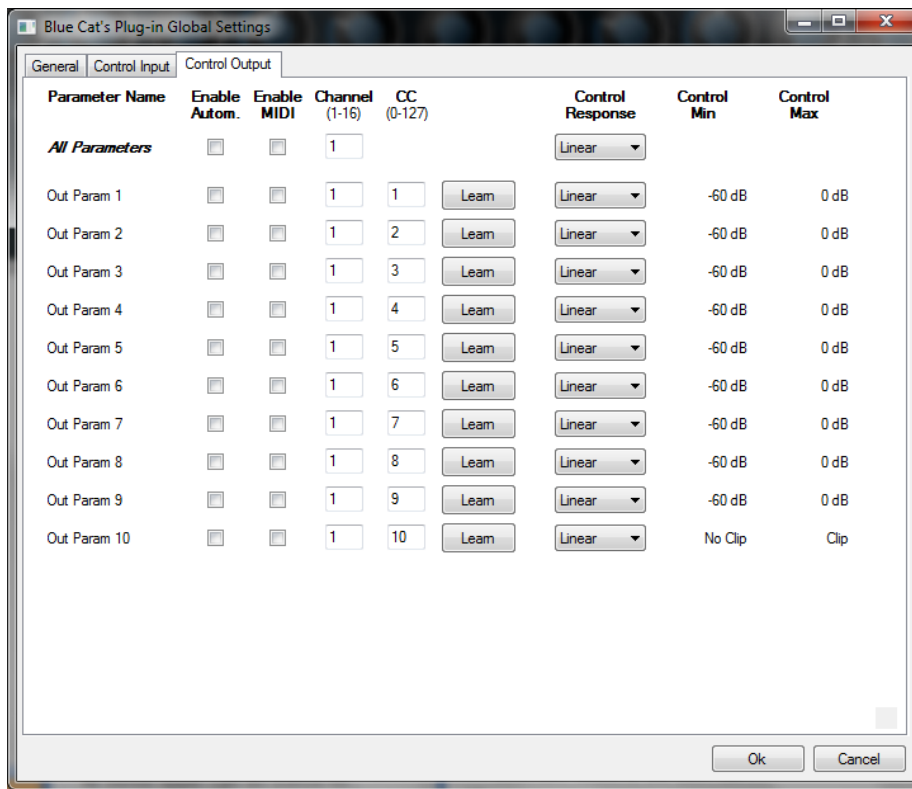
Note: if you double click on the parameter text control boxes for the max and min values, a “fine tuning” edit box will appear and let you change the min and max values with more precision:



Global Control Output Settings (MIDI and Automation)

You can set the same properties for the output parameters as for the input parameters: in this case, they may trigger MIDI CC messages or generate automation curves when modified. Since it's output, you cannot set the channel to MIDI Omni, so you must choose a channel.

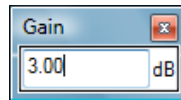
Output parameters can also generate automation curves in most host applications. You can enable automation for any output parameters you are interested in (see the "Enable Autom." checkbox).



(generic screen shot, does not correspond to the actual plug-in parameters)

Note: if the Min value is higher than the Max value, the response curve will be reversed: increasing the control value will decrease the parameter value.

Note: if you double click on the parameter text control boxes for the max and min values, a "fine tuning" edit box will appear and let you change the min and max values with more precision:

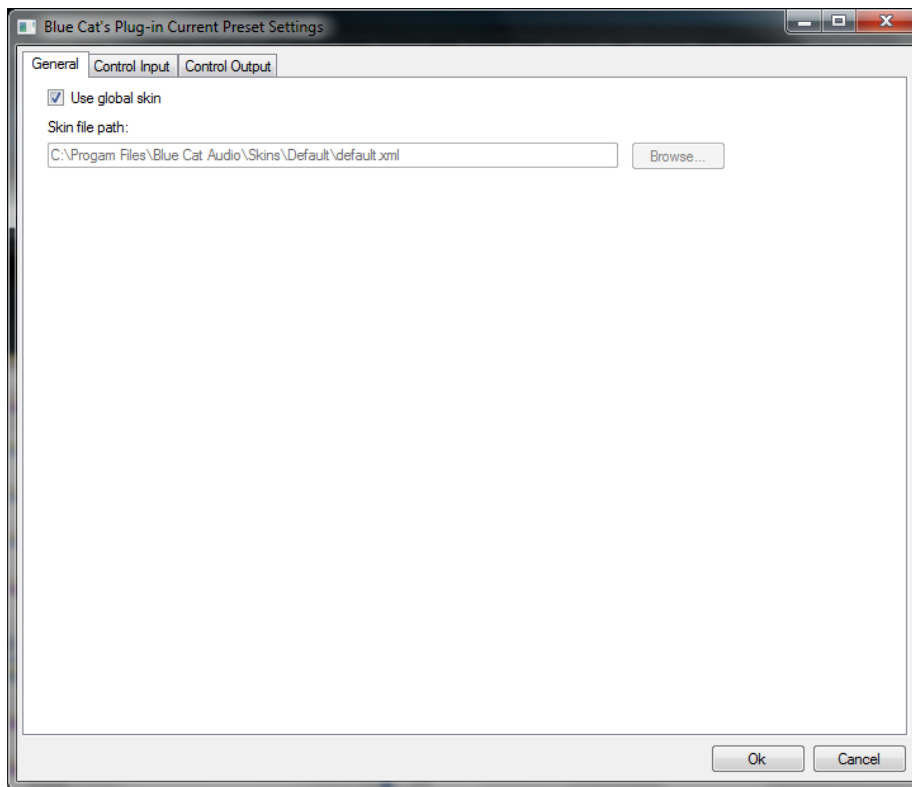


The Current Preset Settings Window

In this window you can change the settings **for the current preset of the current instance of the plug-in only**.

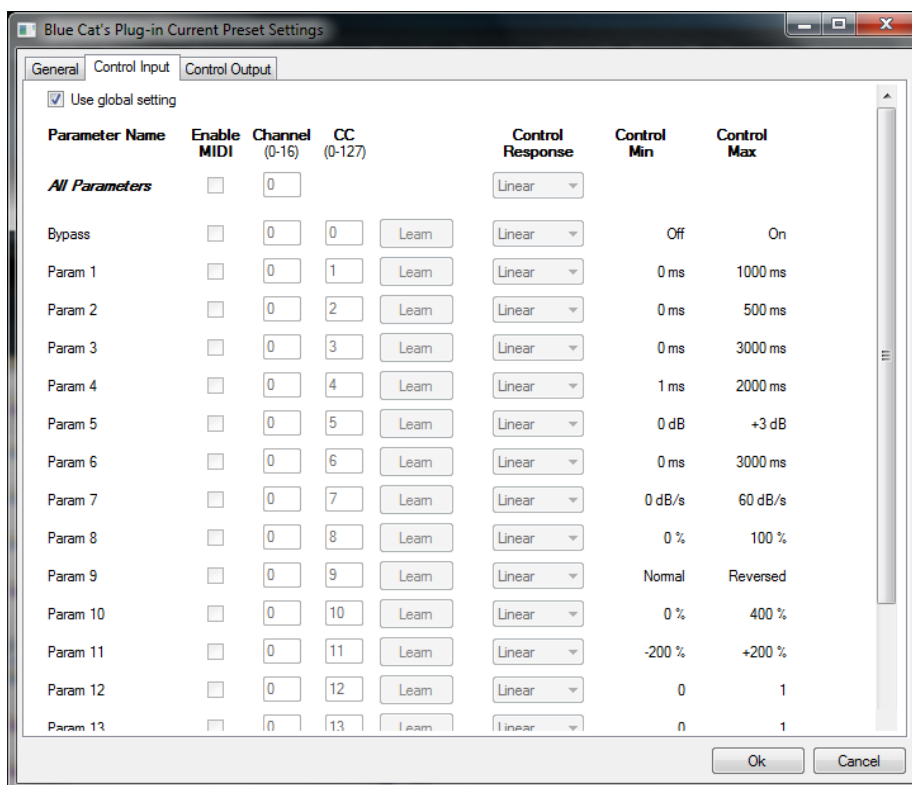
Preset Skin

You can choose to use the global skin setting or to change the skin for the current preset. This way you can have different skins for different instances of the plug-in in the same session in order to differentiate them.



Preset Control Input Settings (MIDI and Automation)

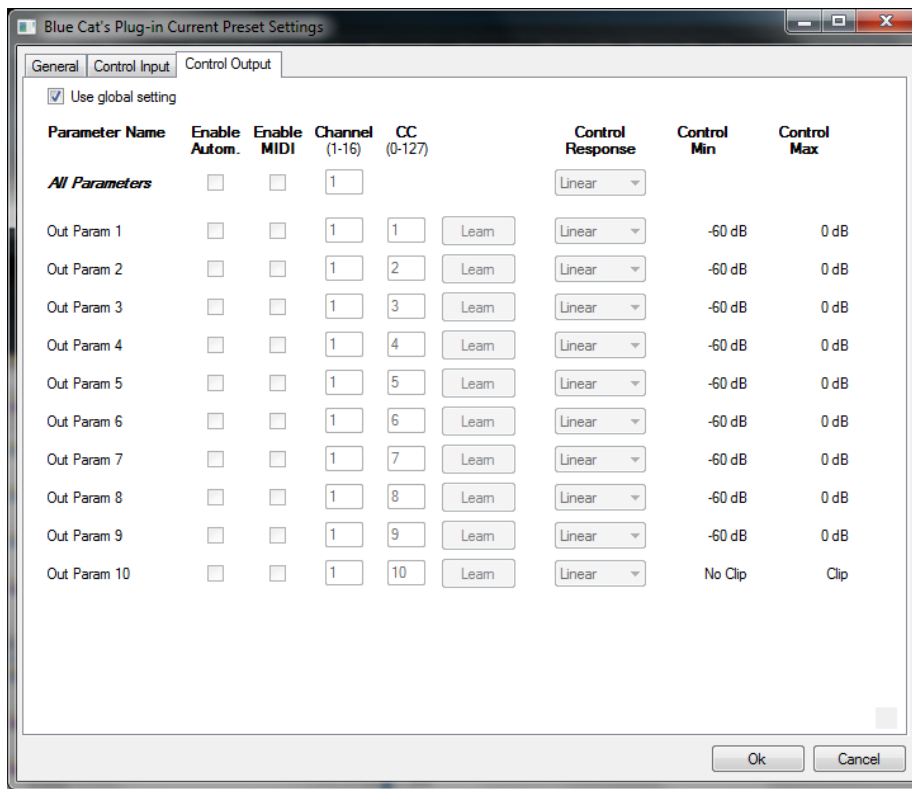
Use the global settings or override them for the current preset. The parameters are the same as for the [global input settings](#).



(generic screen shot, does not correspond to the actual plug-in parameters)

Preset Control Output Settings (MIDI and Automation)

Use the global settings or override them for the current preset. The parameters are the same as for the [global output settings](#).



(generic screen shot, does not correspond to the actual plug-in parameters)

About Skins

Blue Cat's FreqAnalyst Pro integrates Blue Cat's skinning engine that allows you to customize the user interface. You can download alternate skins for your plug- in at the following address:

[http:// www.bluecataudio.com/ Skins/ Product FreqAnalystPro](http://www.bluecataudio.com/Skins/Product_FreqAnalystPro)

If you don't find a skin that fits your need or if you want a custom one, you can choose to create your own skin.

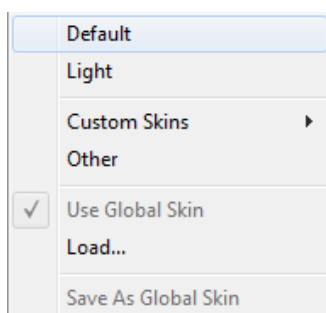
Choosing the Skin

There are two ways to select the skin of your plug- in: you can change the default (or 'global') skin, or change the skin for the current preset only (either in the [preset settings page](#) or from the main menu). The global skin applies to all plug- in instances (choose this one if you want to use the skin used by default, regardless of the session or preset), whereas the current preset skin only applies to the current preset of the current plug- in instance (use this one if you want to change only the skin for the current session/ preset).

Note: in some host applications, the plug- in window won't resize automatically when you choose a skin with a different size. In this case, just close the window and re- open it: it will be displayed with the right size.

The Skins Menu

The skins menu can be opened from the [main menu](#). It displays the list of skins available for the plug- in as well as commands to manage the skin used by default when no preset skin has been selected:



- **First Section - Factory Skins:** shows the list of factory skins delivered with the plug- in ("Default" and "Light" in this example).
- **Second Section - User Skins:** shows the list of user skins that have been installed in the Documents Skins folder for the plug- in (see below).
- **Use Global Skin:** use the global skin for the current preset/ session (unloads any custom skin previously selected for the current preset).
- **Load:** opens a file browser dialog to manually select the skin from the file system.
- **Save As Global Skin:** use the current preset skin as the global skin (loaded by default if no preset skin has been defined).

Installing User Skins

To select user skins directly from the skins menu, install them in the "Skins" directory available in the plug- in's documents folder:

[Your Documents Folder]/ Blue Cat Audio/ [Plugin Name]/ Skins/

The skin engine will scan this folder for new skins (xml files) and display them in the menu. *The skin files should be in the root skins folder or in a subdirectory inside this folder: subdirectories are not scanned recursively.*

Other Methods to Select Skins

You can also select the skins in the settings panels available from the main menu:

The global skin (used by default if no preset skin has been selected) can be changed in the [global settings](#) pane. The current preset skin can be changed in the [preset settings page](#).

Create a Custom Skin

You can create custom skins for your plug- in in order to adapt it to your exact needs. You can change its look and feel and make it completely integrated in your virtual studio!

Just read the [Blue Cat's Skinning Language manual](#) and download the samples for the tutorial on [http:// www.bluecataudio.com/ Skins](http://www.bluecataudio.com/Skins).

You can get ready to create your own skins in a few minutes. You can then [share your skins on our website](#).

This manual only covers the basics of Blue Cat's FreqAnalyst Pro. Our website offers many additional resources for your Blue Cat's FreqAnalyst Pro plug-in and is constantly updated, so keep an eye on it! You will find below a few examples of available resources.

Tutorials

Many [Tutorials](#) are available on our website. They cover a wide range of topics and host applications.

You can [find here a list of tutorials](#) related to the Blue Cat's FreqAnalyst Pro plug-in.

Extra Skins

We encourage our customers to propose their own skins for our products and we often propose alternative skins to let you choose the one that best suits your needs. You can check Blue Cat's FreqAnalyst Pro [skins page](#) to get the latest skins.

Updates

As you can see in the [history log](#) below, we care about constantly updating our products in order to give you the latest technology available. Please visit our website often to check if Blue Cat's FreqAnalyst Pro has been updated, or subscribe to our [Newsletter](#) to be informed of the latest news about our products.

Note: minor version updates are available from the same location as the original full version download (**link received by email upon purchase**). The demo version publicly available on our website will not let you register.

You can also follow us on [twitter](#), [facebook](#) and [instagram](#) for almost real time updates notification, and subscribe to our [YouTube channel](#) to watch the latest videos about our software.

Versions History

V2.0 (2020/11/12)

- DSP:
- Spectrum analysis is now performed in the background and does not affect audio performance at all.
 - FFT precision now goes up to 11.
- User Interface:
- Refreshed GUI design, with improved usability and touchscreen support.
 - The GUI can now be zoomed from 70% to 200%.
 - Now supports retina displays on Mac (text and graphs using high resolution).
 - Save each memory curve as a file that can be reloaded later as a reference.
 - Copy and paste memory curves between instances using the system clipboard.
 - Factory and user skins can now be selected directly from the plug-in menu.
 - VST: the user interface is now properly resized in Cubase on Windows.
 - New installer on Mac.
- Presets Management:
- Brand new presets management system.
 - Presets can now be selected using MIDI Program change and bank select messages (can be activated with the presets menu/ MIDI Program Change item).
 - Copy/ paste the plug-in's current state from the presets menu using the system clipboard.
- Compatibility:
- Now compatible with MacOS Catalina and Big Sur.
 - VST3 plug-in format support.
 - Audio Suite support for offline analysis in Pro Tools.
 - Dropped support for Windows XP and Mac OS X 10.6 and earlier.
 - Dropped support for legacy RTAS and DirectX plug-in formats.

V1.95 (2014/03/20)

- Fixed 64-bit VST MIDI Events not sent for the first output parameter in the list.
- Windows VST installer now detects the VST plug-ins path and remembers previous install location for updates.
- Fixed Audio Unit validation issue on OSX Mavericks/ Logic Pro X.
- Fixed VST plug-in window frame not showing in Cubase 7.5 (32-bit) on Mac.
- Fixed VST version that could not be loaded in Audio HiJack Pro (Mac).

V1.94 (2013/06/27)

- 64-bit AAX support for Pro Tools 11.

V1.94 (2011/07/11)

- Output data rate (MIDI CC or automation) can now be customized, from 20 to 500 Hz.
- Increased the default output data rate (from 20 to 50 Hz) for smoother side chaining and more precise spectrum display.
- Note value for the current mouse location is now displayed, in addition to the frequency.
- Windows: improved settings dialog loading time.
- Mac: user interface performance improvement (up to 30% lighter on cpu).

V1.93 (2011/02/10)

- Fixed keyboard focus stealing issue in Pro Tools and several other host applications.
 - Controls visibility is now persistent.
-

V1.92 (2010/11/29)

Fixed incompatibility issues with older presets in the previous version.

V1.91 (2010/11/18)

- 64-bit Mac VST support.
 - User interface enhancements:
 - Improved readability.
 - Zooming is now animated.
 - Controls can be collapsed to reduce the size of the user interface and focus on the analysis.
 - Improved consistency with our other analysis tools.
 - Improved MIDI and automation output precision: now prevents hosts from wrongly interpolating between values.
 - Default release time is now shorter.
-

V1.9 (2010/06/19)

Performance Improvements (all platforms):

- Improved user interface performance and increased graphs display refresh rate.
 - Improved signal processing performance (up to twice faster on some systems!). The plug-in now requires a processor supporting SSE2.
 - Reduced memory footprint.
 - Faster skin loading.
-

V1.82 (2010/03/19)

This update only concerns the RTAS version of the plug-in:

- RTAS plug-in bug fix: when using both the mono and stereo versions in the same session, the controls of the instances were linked together.
-

V1.81 (2010/02/25)

- Demo version now displays a nag screen only once per session, and only when opening the user interface of the plug-in.
 - Mac: fixed crash with demo version in Ableton Live 8.1.1.
 - Mac AU: output parameters routing now works for more than one instance in Logic Pro's Environment.
 - Mac AU: fixed output parameters that could exceed defined range and not record properly as automation curves.
-

V1.8 (2010/02/15)

- RTAS plugin format support for Pro Tools (Mac and Windows).
 - 64-bit applications support for Windows DX and VST under Windows x64.
 - Mac AU 64-bit format support (compatible with 64-bit Logic 9.1 on Snow Leopard)
 - Fixed MIDI learn issues.
 - Space bar does not trigger plug-in buttons anymore (avoids conflict with transport control in most applications).
 - Mac: fixed user interface crashes in some hosts under Snow Leopard.
 - Mac: fixed keyboard/ mouse focus issues in some hosts.
 - Mac: fixed user interface crashes in some hosts, when used with particular display settings.
 - Mac: fixed multiple screens issue.
 - Mac- AU: fixed user interface resizing issue when changing skin in some hosts (Logic).
 - Mac- AU: fixed settings lost issue when doing offline rendering in some applications.
-

V1.7 (2009/08/10)

- New 3D waterfall view to monitor the evolution of the spectrum over time.
 - Drag the rulers to move the curve when zoomed (can keep measurement/ selection mode and still drag the curves).
 - Output automation is now disabled by default.
 - Updated documentation.
 - Bug Fix (PC): Cubase freezes when loading a preset using a different skin while the plugin window is open.
-

V1.61 (2009/05/05)

Mac VST update: fixed incompatibility issues with Cubase 5 on Mac.

V1.6 (2009/02/27)

- Mac Audio Unit support.
 - Improved accuracy of MIDI output.
 - Automation output can now be disabled for hosts that do not propose automated parameters choice.
 - New Windows Installer (you should uninstall any previous version before installing this new one).
 - New documentation format.
-

V1.5 (2008/12/10)

- Now available for Mac in VST format.
 - Added Mid/ Side analysis capability.
 - Minor user interface changes.
-

V1.4 (2008/02/25)

- Fixed a crash on certain configurations while opening the global settings window.
 - Settings window is now faster to open.
 - Minor skin changes.
-

V1.3 (2007/12/13)

- Improved display refresh rate.
 - New "zoom by selection" feature: analysis is now even smoother!
 - Spectrum analysis normalization improvement: absolute values comparison with different precision settings is now more accurate.
-

V1.2 (2007/10/18)

- Undo/ Redo.
 - Load/ Save presets in a host- independent format: you can now share presets between the directX and VST versions.
 - New toolbar to access main functionalities.
 - Improved skin loading speed.
 - Improved user interface performance.
 - It is now possible to choose wether displayed curves are filled or not.
 - Improved the display of parameters values in the MIDI settings panel and the host application.
-

V1.1 (2007/04/16)

- Skin loading performance improvement (up to 80% faster).
 - Reduced memory consumption when using several instances.
 - Offset range has been increased to 80 dB (instead of 40dB).
 - Blue Cat's Skinning Language 1.3.1 support.
-

V1.0 (2007/03/05)

First version.

Thanks again for choosing our solutions!



See you soon on www.bluecataudio.com!