Blue Cat's Connector User Manual

"The Virtual Cable For Your Virtual Studio And Beyond"

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Note: An online version of this user manual is available here.

Introduction

Blue Cat's Connector is an audio & MIDI streaming plug- in that can be used to transmit audio and MIDI signals in real time between several computers or applications, or create your own routings within a single application, with minimal latency.

Have you ever dreamt to overcome the limitations of your favorite DAW and **draw virtual audio and MIDI cables** between any places that accept plug- ins?

Have you ever been frustrated not to be able to **create feedback loops** with plug- ins?

What about **connecting multiple applications** together, on **different computers**?

The wait is over! Blue Cat's Connector lets you do all of this, and more! It can **stream audio and MIDI** data in real time, between any locations that accepts plug- ins: one or several applications, or one or several machines connected to a network (even thru the Internet!).

With precise buffering control, you can achieve the **lowest possible latencies**: down to 0 samples, when used in a single application.

Its built- in resampling and drift compensation algorithms let you create seamless connections between locations with different sample rates and unsynchronized master clocks: it just works!

Typical applications: Audio/ MIDI streaming, DAW routing, remote plug- ins processing, feedback loops creation, remote monitoring, remote MIDI control, remote recording, online jamming.

System Requirements

MacOS

- An Intel or Apple Silicon processor.
- Mac OS 10.9 or newer.
- Any VST / Audio Unit / AAX compatible application (64- bit) .

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).

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

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 may have to right click on the installer and select "Open" instead of double clicking on the file to launch the installation if your computer is not connected to the Internet.

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.

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.

When first opening the plug- in, it will be displayed with very few controls:

You can choose to send or receive data (or both) with this instance by clicking on the SEND and RCV switches.

You can also rename this instance by clicking on the "Anonymous" string at the bottom. Giving a name to the instance lets you then identify connection endpoints easily.

The Thru and Rcv level knobs adjust the levels of the input signal (audio that gets into the signal) and received signal (audio that is received by the plug- in, when in RCV mode).

Receive Mode

The receive mode lets you receive audio and MIDI data from another instance of the plug- in, on the same machine or on another computer:

The receiver instance is a server that listens to incoming connections and accepts the first one (you cannot send multiple audio/MIDI streams in a single instance).

To accept connections in receive mode, you need to first select if you want to connect within the same application ("APP"), on the same machine ("LOCAL HOST"), or on a different machine that is available on the network ("NETWORK").

You should then select the port the plug- in should be listening to (which corresponds to a physical network port in local host and network modes).

Below are displayed the number of packet drop outs, and the drift ratio if any. It lets you know if you are having synchronization or bufering issues between this instance and the sending instance. You can click on the dropouts count to reset it.

Advanced Receive Settings

By default **buffering** is set "none", which means the plug- in will not perform extra buffering, to minimize latency. It may however not work when connecting several applications together, especially over a busy network. So you will have to manually setup the buffer (in samples).

The larger the buffer, the safer the connection, but the latency will get longer. You can visualize the status of the buffer with the meter next to the buffering setting. When dropouts occur, increase the buffer length until dropouts count does not increase anymore.

If the sender and receiver are using different sample rates, the plug- in will automatically resample incoming audio and MIDI. You can adjust the quality of the **resampling**. Keep in mind that higher settings will consume more CPU, and the "Best" setting may also add a bit of latency.

If the sender and receiver are working on different machines or different audio interfaces that are not in sync, drifting may occur (sample rates are not exactly identical), resulting in dropouts in the long run. **Drift** is displayed in ppm (parts per million).

Optimization Tips

The reception buffer length should always be at least the same or larger than the sender packet size. using multiples of the audio buffer of the application is usually a good way to optimize the latency.

If source and destination are running on different machines or audio interfaces, it is strongly recommended to use drift compensation, even if the drift ratio seems to be minimal: clocks my vary over time, especially with temperature.

Receiving From the Internet

When receiving data from the Internet (WAN), the Internet router has to send the packets received on the specified port to your local machine ("Port Forwarding"). It can be configured manually ([as explained in this tutorial](#)), but if your Internet router supports the **UPnP IGD (universal Plug'n Play Internet Gateway Device)** protocol, Connector can do it automatically for you:

- Make sure that the router supports UPnP and that it is enabled (some routers may have it disabled by default).
- Enable uPnP in the Connector instance(s) expecting to receive data from the Internet.
- Wait for a few seconds until the public IP address of the Internet router is displayed (or an error message in case of failure).

The public IP address is the address to type in the sender instance used to send the audio/ MIDI data on the other side of the Internet.
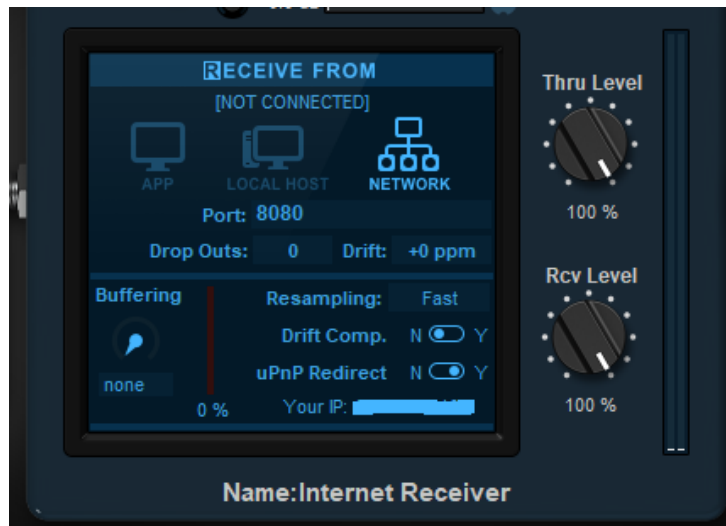
When closing the Connector receiver instance, the port will automatically be closed.

In case of failure, you may want to try other port numbers (some routers limit the range of ports that can be forwarded), and check that UPnP is properly enabled on the router. There is usually a section on the router to check the list of ports that have been forwarded using the IPnP IGD protocol.

Note: UPnP is only available for the "Network" connection type.

Send Mode

The send mode lets you send audio and MIDI data to another instance of the plug- in, on the same machine or on another computer:

The sender plug- in is a client of a receiver plug- in that listens to incoming connections. A sender can only send to a single receiver instance.

To create a connection, you need to first select if you want to connect within the same application ("APP"), on the same machine ("LOCAL HOST"), or on a different machine that is available on the network ("NETWORK").

You should then select the **port** the plug- in should be sending to (which corresponds to a physical network port in local host and network modes).

If the receiver runs on a different machine, enter the **hostname** (Windows only), or **IP address** of the destination machine on the network (it also works over the Internet). The IP address can be found in the network settings of the destination computer.

Advanced Send Settings

You can choose to **send only audio or MIDI** to the destination - simply click on the buttons to enable or disable the appropriate setting. Note that not sending only MIDI will save quite a bit of CPU and bandwidth, so do not enable audio if you are only sending MIDI commands.

By default **packet size** is set to "auto": audio and MIDI data are sent as they are received by the plug- in. You may however want to set a fixed packet size (in samples) to optimize the connection: larger packets will use less CPU and bandwidth, and will result in more stable connection. It will however increase the latency.

Just make sure that the packet size is smaller than the buffer length used in the destination. It is also a good idea in general to make it at least the same size as the host application's buffer size.

When the connection is not very stable or you need to reduce the network traffic, you can use **audio compression** (it is not active be default and raw audio data is sent). Lossless compression will not affect the audio quality (audio data will remain the same, bit for bit), while lossy audio compression may be audible when set to lower quality settings.

Note: audio compression will be more efficient with larger packet sizes.

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

Overview

The signal flow in the plug- in is the following, with IN and OUT to and from the host application:

A receiving or sending endpoint of an instance of a plug- in is identified by its port. If you are using the same port number on the same machine or in the same application for multiple senders (or multiple receivers), there can be conflicts between endpoints, and the connection will fail.

Firewalls

When using the plug- in to transmit or receive data on a network, you may have to enable the selected ports in your firewall. Local transmission between applications or inside a single application usually do not require to open any port on the firewall.

DAW Routing

When working inside a single DAW, use the "APP" setting in both senders and receivers. It uses a lightweight connection betweeen instances that will usually not require extra buffering (unless you are sending audio data "backwards" in the signal chain).

If you have to setup buffering and packet send to avoid dropouts, it is usually optimal to select a multiple of the buffer length setup in the host application.

Note: Connector is suitable for real time audio/ MIDI streaming only, so if you are creating connections between multiple tracks within your DAW and want to freeze or bounce a track, in some situations you may have to do it in **real time** (many DAWs propose the option) instead of offline. disabling multithreading may also help in such cases.

Example: Latency- free Dry/ Wet Processing

Some plug- ins may not provide a way to mix the dry and wet signals easily. It is very easy to overcome such limitations with Blue Cat's Connector:
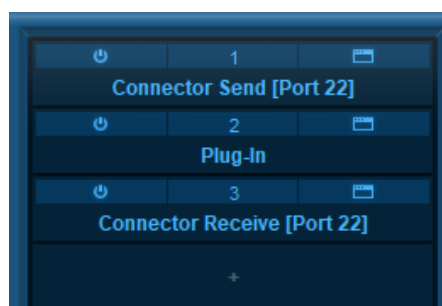
Insert an instance before the plug- in with no dry/ wet control. Set it up as a sender. Insert another one after the plug- in, and set it up as a receiver (we are using port 22 in this example).

The dry signal is sent to the receiver after the plug- in. so you can now use the Thru and Rcv levels as wet and dry controls:

Connecting Apps Together

There are many cases when you may want to connect audio apps together without having to use several audio interfaces and external cables. For example you may want to record the output of your DAW right into your video recording / streaming software, or send signals from a DAW to another one. It is pretty easy to do with Blue Cat's Connector.

Just select the **local host** mode for both the senders and receivers, and select unique port numbers to connect one with another. You will probably have to adjust the buffer size as both applications may not be using the same.

To do so, simply increase the receiver's buffer size until no more drop outs happen anymore. If both applications are using different audio interfaces that are not in sync, you may want to enable drift compensation as well.

Note: some applications may use pre- buffering or special plug- in buffering options to optimize computations. You may have to disable these options to avoid drift compensation to fail or dropouts to occur. The plug- in is optimized for true **real time** streaming and requires that the host application behaves accordingly.

Network Streaming

With Connector, you can also stream audio and MIDI between applications that are not on the same computer. The setup is similar to the previous scenario, except that you should select the "network" mode

Also, in this configuration, if the network is busy, you may have to adjust the packet size on the sender too, to use less bandwidth on the network. If you are connecting machines remotely (thru the Internet), use UPnP forwarding on the receiver to automatically configure external access on the Internet router.

Note: Wifi networks are usually too slow to achieve low- latency, so use hi bandwidth wired networks when possible instead (gigabit ethernet is preferred). You will have to increase the buffer size (and latency) and use audio compression otherwise.

Feedback Loops

It is also possible to create feedback loops in the signal path, in a single application, or between applications. Here is an example of a feedback loop created around a plug- in:
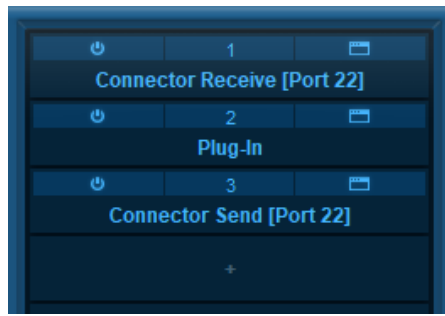
Insert an instance before the plug-in. Set it up as a receiver, and **make sure that the receive level is set to zero** (to avoid damaging your speakers and ears). Insert another one after the plug-in, and set it up as a sender (we are using port 22 in this example).

The plug-in's output signal is sent back to the receiver before the plug-in. So you can now use the Rcv level as a feedback control:

Be aware that with too much feedback, you may end up with very loud audio signals that may cause damages to your equipement or your ears. So be **very careful** (and use a limiter in the chain)!

Remote Metering / Monitoring

Another example of application is to use connector to send audio signals to another machine that is dedicated to metering and/ or monitoring: a first machine runs the DAW and effects, and another one runs a lighweight host application (such as Blue Cat's PatchWork to receive signals and display meters and analyzers on its own screen, or do special processing for monitoring (like with an headphones plug-in such as Re-Head).

This frees resources on the DAW for audio processing and mixing, and lets you use a dedicated machine (elsewhere in the room, or maybe even outside), with extra monitors to display levels and spectrograms. When using special plug-ins that affect the audio signal for monitoring, it also lets you change settings without affecting the output of the DAW.

With an Internet connection (fiber optics recommended), you can also easily monitor a mix remotely, straight from someone else's DAW and without any loss of quality!

Remote Plug-ins Processing

Using a similar approach, it is also possible to process audio/ MIDI on another machine, with a full roundtrip back into the DAW. Connector is used as an insert, both as a sender and receiver, and the lightweight host on the other machine does the processing, with a receiver first in the chain, and a sender back to the DAW at the end:

Note: if latency becomes an issue (because of a poor network connection or CPU overload), plug-ins that do not suffer much from latency (such as reverbs or delays) can be used outside, while others are running on the main DAW.

Note: since Connector can run on both Windows and Mac, in any DAW, you can imagine to use plug-ins that rea not available to your main DAW using such a remote connection.

Warning: since the connection is using real time streaming, it will not work for offline rendering (but you can manually use real-time playback or printing to achieve a similar result).

Remote MIDI Control

Latency is usually not much of an issue with MIDI, and MIDI data is very light compared to audio, so it will travel quickly on a network. So it is very convenient to use Connector to send MIDI from a machine dedicated to MIDI controllers and MIDI processing to the main DAW, that may actually be located far away.

More...

These are only a few examples of what you can achieve with Blue Cat's Connector. As a virtual connection device available in multiple plug-in formats and running on multiple platforms, it can pretty much transport audio and MIDI between any places in your virtual studio, or even over the Internet between remote locations, if you have a good connection.

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 Connector 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:
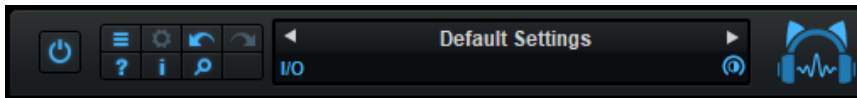
Smooth Bypass

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.

Some plug- ins may also propose you to **manually select the audio I/ O** inside the plug- in (bottom left of the presets area), regardless of the host configuration. It can be useful for example to save CPU by selecting mono to stereo configurations (instead of full stereo sometimes chosen by default by the host), or add extra channels to manage side chain internally, when the host does not provides any side chain input. Please note that this does not change the number of I/ O seen by the host application.
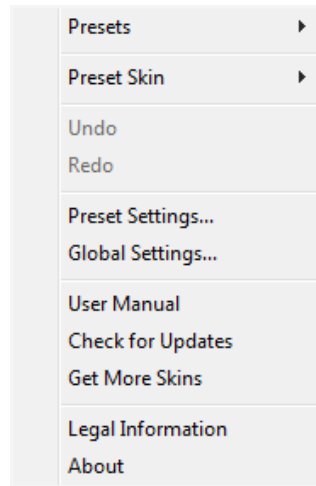
Commands

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 the controls settings menu (to manage automation and MIDI control, as described here).
↶	Undo	Undo
↷	Redo	Redo
?	Manual	User Manual
i	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	▶
Preset Skin	▶
Undo	
Redo	
Preset Settings...	
Global Settings...	
User Manual	
Check for Updates	
Get More Skins	
Legal Information	
About	

- **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

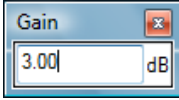Here are a few examples of typical controls you will encounter in the user interface of our plug- ins:

slider	slider	knob	button	Text control
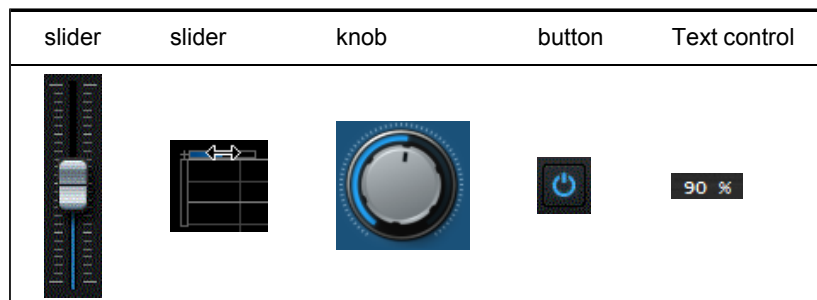
Interacting with Controls

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.
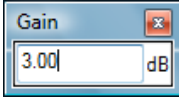
Mouse

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): Gain 3.00 dB
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: Gain 3.00 dB
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:
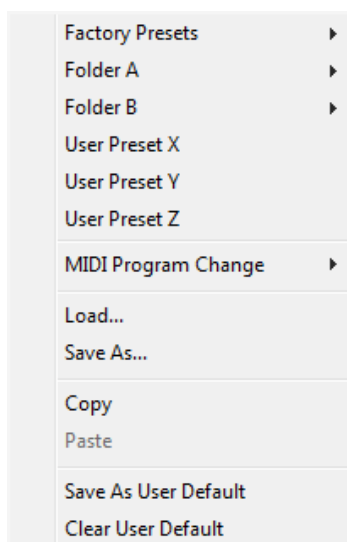

- **Factory Presets:** shows the list of factory presets delivered with the plug- in.
- **"Folder A" to "User Preset Z":** user presets and categories.
- **MIDI Program Change:** activate MIDI Program Change support (see below).
- **Load:** load preset from file.
- **Save:** save current state to last 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:
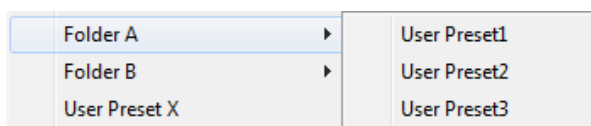
If you save a preset named "Default" in the root Presets directory, it will override the factory default preset (that's what "Save As Default" does). To restore the factory default preset, you can just remove this file or use the "Reset Default" command.

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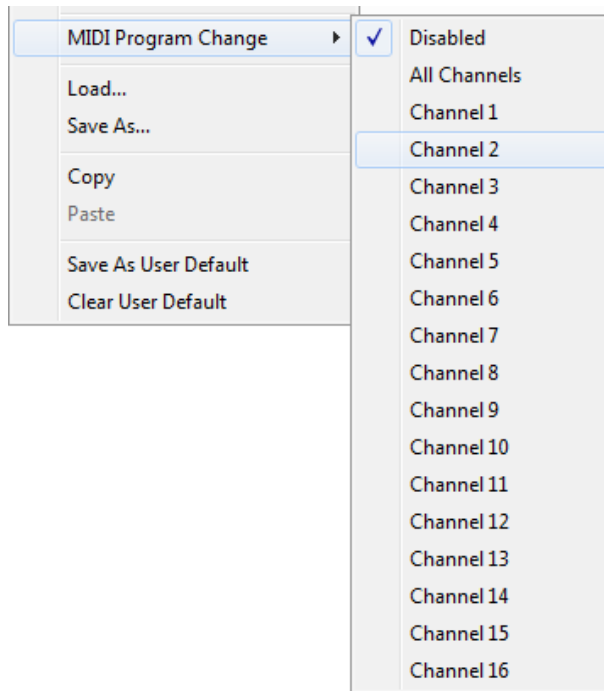
This setting is saved for each plug- in istance with your session but not in presets (except for the default preset, using the "Save as User Default command"). Once activated, the plug- in menu will display the bank number followed by the preset number for each preset:

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).
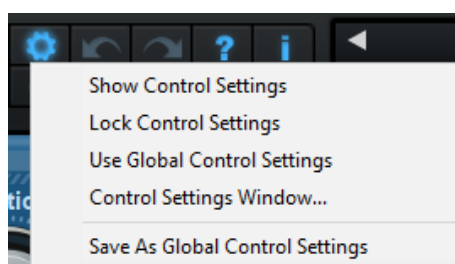
MIDI and Automation Control

Blue Cat's Connector 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

The main menu

Most skins also provide the ability to change MIDI and automation settings directly in the main user interface. Clicking on the control settings icon in the main toolbar opens the following menu:

- **Show Control Settings:** show direct access to individual control settings for each parameter in the user interface (see next paragraph).
- **Lock Control Settings:** lock the current controls settings for MIDI and automation so that they remain unchanged when loading presets.
- **Use Global Control Settings:** ignore the current MIDI/ automation settings and use the global settings instead.
- **Control Settings Window:** display the control settings window, to change control settings for all parameters.
- **Save As Global Control Settings:** save the current settings as global settings (used by default, when no specific MIDI/ Automation setting has been set for the cuirrent preset).

Individual Control Settings

When this feature is activated using the "Show Control Settings" item in the MIDI and Automation Settings menu, dropdown menu buttons appears next to the main controls displayed by the plug- in:
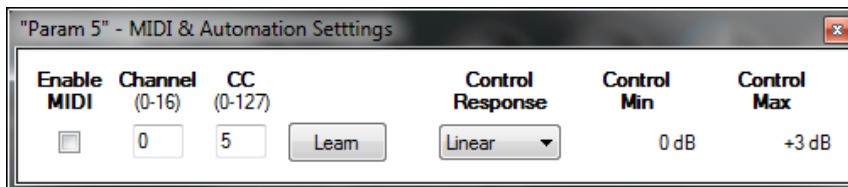
Clicking on this button shows the MIDI/ Automation settings menu:
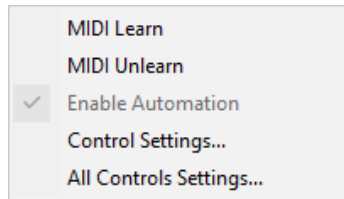
- **MIDI Learn:** launches MIDI learn mode for the control: touch your MIDI controller and the control will learn from it the MIDI channel and CC number. To end the learn mode, reopen this menu and deselect the option.
- **MIDI Unlearn:** deactivates MIDI control for this parameter.
- **Control Settings:** launches the advanced settings panel described below. This controls the settings for the current preset.
- **All Control Settings:** display the control settings window, with access to all parameters.

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:
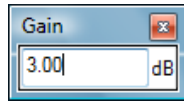
More

Check our online tutorial for more screenshots and more examples of our plug- ins user interfaces.

Plug- in Settings

In addition to the controls offered in the main user interface, Blue Cat's Connector 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.
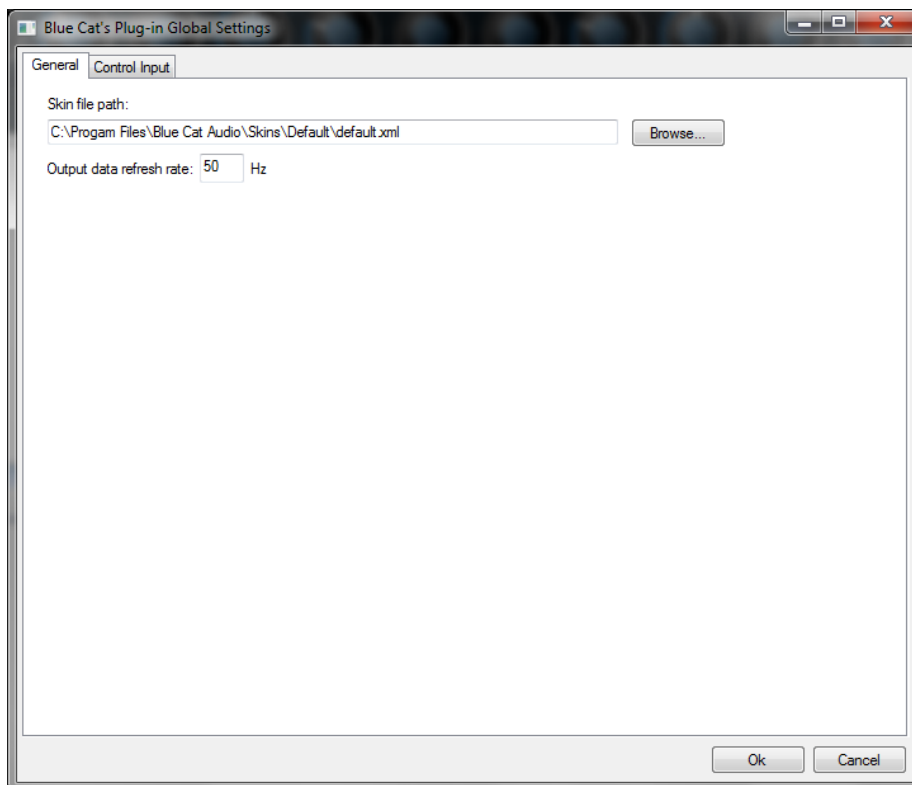
The output data refresh rate can also be customized for all instances of the plug- in. It controls the refresh rate of non- audio data produced by the plug- in (parameters, curves...). It also controls the refresh rate of output MIDI CC messages or output automation data. The higher the refresh rate, 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.

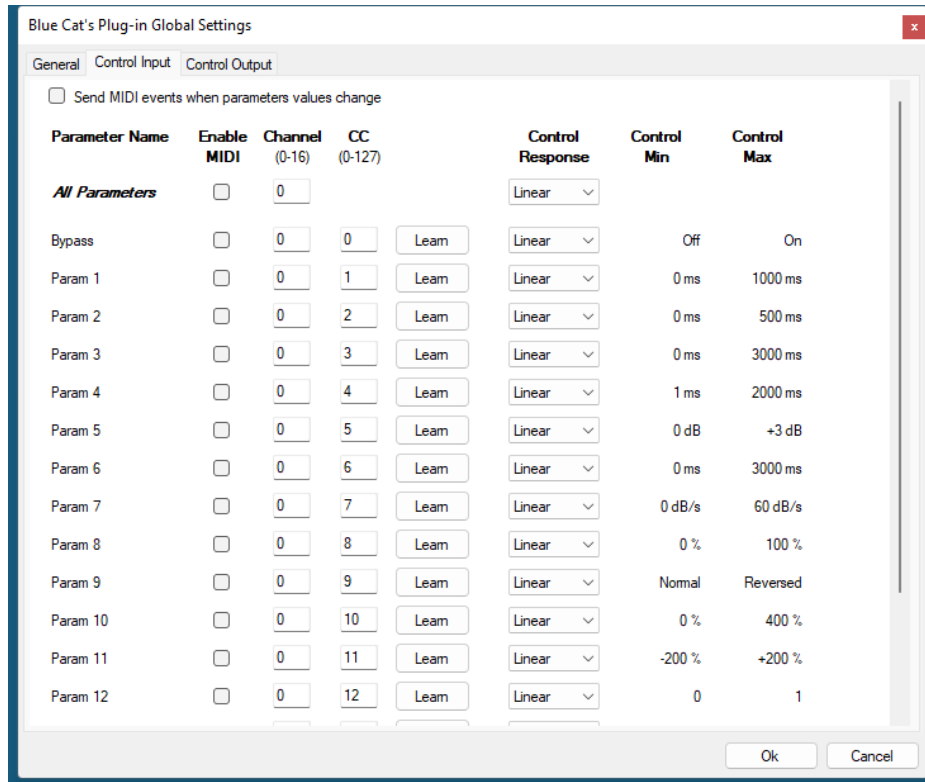The settings below are available for each plug- in parameter.

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:
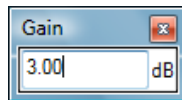

"Send MIDI events when parameters values change": activate this option when using a control surface that accepts MIDI events as input. MIDI messages will be sent to the output of the plug- in when the user change the parameters values in the user interface, to keep the software and the controller in sync. MIDI is only sent for parameters that are activated for MIDI control.

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.
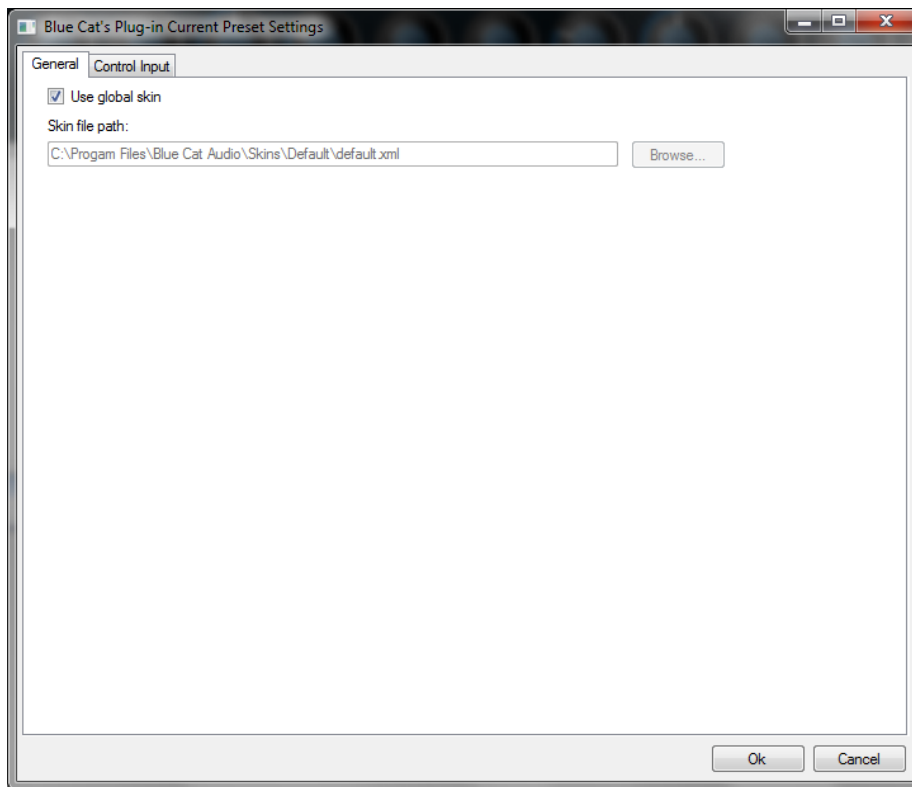
Preset Control Input Settings (MIDI and Automation)

Use the global settings or override them for the current preset. The parameters are the same as for the global input settings.
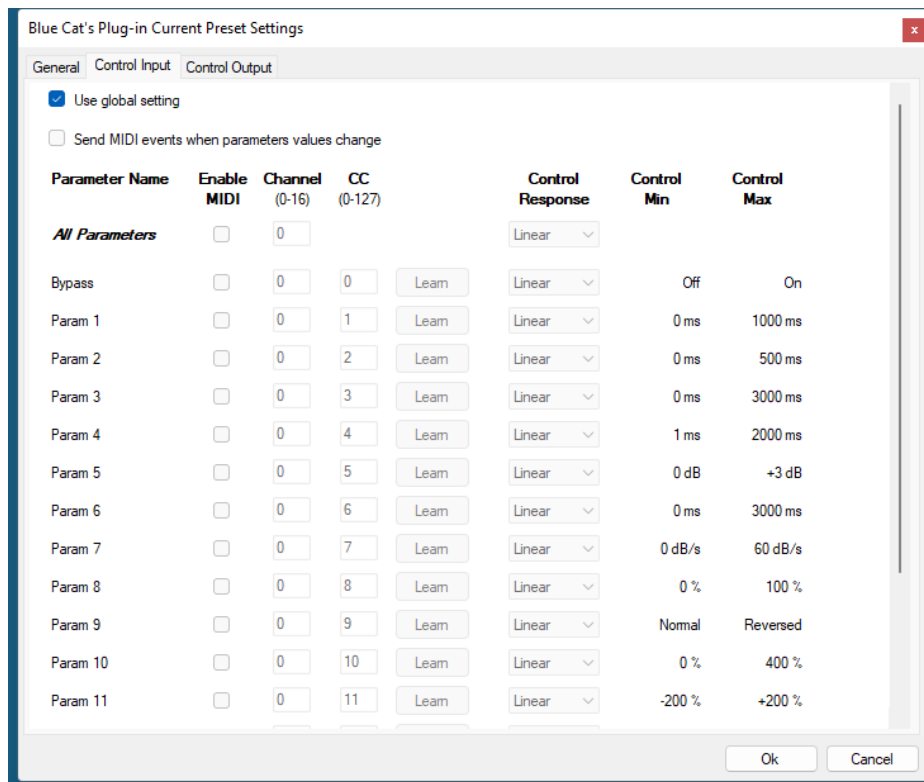
(generic screen shot, does not correspond to the actual plug- in parameters)

About Skins

Blue Cat's Connector 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_Connector

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:
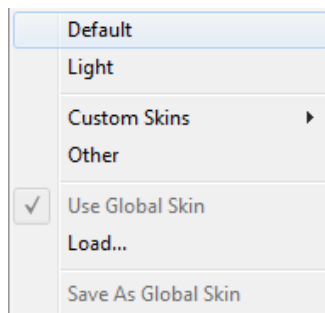
- **First Section - Factory Skins:** shows the list of factory skins delivered with the plug- in ("Default" and "Light" in this example).
- **Second Section - User Skins:** shows the list of user skins that have been installed in the Documents Skins folder for the plug- in (see below).
- **Use Global 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. You can get ready to create your own skins in a few minutes. You can then share your skins on our website.

<div align="center" style="background:#555;color:#fff;padding:8px;">

More...

</div>

This manual only covers the basics of Blue Cat's Connector. Our website offers many additional resources for your Blue Cat's Connector 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 Connector 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 Connector 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 Connector 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

V1.2 (2023/08/22)
- New uPnP (universal Plug'n Play) redirect option to automate port forwarding to accept connections from the Internet.
- The plug- in now displays the public IP address for remote Internet communication (uPnP required).
- Improved integration with MIDI controllers.
- Faster plug- in loading time, especially when in network send mode and the destination cannot be reached.

V1.12 (2023/02/07)
- Improved resampling and drift compensation when the plug- in starts streaming audio.
- The plug- in now reports when more than 100 dropouts occurred.
- Improved user interface meters refresh performance.
- The plug- in has now been tested for long distance communication and online jamming. More information and setup instructions can be found in this tutorial.
- Fixed VST3 MIDI input not detected by Ableton Live 11.

V1.11 (2022/12/12)
- Added Apple Silicon support for AAX Plug- in Format.
- Fixed VST3 version not always loading properly in Ableton Live 11.
- Improved VST parameter value display in some host applications.
- Added an option in global & preset input settings to send MIDI events when MIDI- enabled parameters are modified in the plug- in (to update control surfaces accordingly).
- Improved undo management and automation when using the mouse wheel to move knobs.
- AAX: Fixed erratic mouse behavior in Pro Tools on Mac.
- Mac: installers and plug- ins have been notarized to avoid security warnings on Mac OS Catalina and newer.
- Windows ASIO driver: fixed I/ O names not displayed in some hosts that do not initialize the driver before listing the audio I/ O (Cantabile, vMix).

V1.1 (2022/05/10)
- New MIDI activity meter for send and receive.
- Free Windows ASIO slave driver for Connector: install the driver and use it in any ASIO- compatible app. Connect with the Connector plug- in anywhere and stream audio to and from the app directly.
- Fixed burst noise that could be heard randomly upon first reception.
- Fixed unexpected 1 sample- latency upon reception.
- VST3: fixed parameters update issues in some host applications.

V1.0 (2022/01/20)

First version

Thanks again for choosing our software!

See you soon on www.bluecataudio.com!