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# Loomer Resound User Manual

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# End User Licence Agreement

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## Development Credits

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Developed by       Loomer  
Interface by       Kevin Barry - <http://www.inquer.co.uk>

Tested by           Clifton Cameron  
                      kuniklo  
                      Scott Simons (rexlapin)  
                      taoyoyo

VST PlugIn Technology by Steinberg Media Technologies GmbH. This software is based in part on libpng, zlib, and JUCE.

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# Requirements

## Mac OS X requirements

- Requires Mac OS X v. 10.4 or later. 64-bit Audio Unit plug-ins require Mac OS X v. 10.5 or later. 64-bit VST plug-ins require Mac OS X v. 10.6 or later.
- x86 based processor 1.0Ghz, or above, with SSE
- or
- PPC based processor 1.0Ghz, or above
- 512 MB RAM

## Windows requirements

- Windows XP or above
- x86 based processor 1.0Ghz, or above, with SSE
- 512 MB RAM

## Linux requirements

- x86 32-bit or or 64-bit based processor 1.0Ghz, or above, with SSE
- 512 MB RAM

The following shared object libraries are required:

- libfreetype
- libasound
- libXinerama

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# Resound Overview

## What is Resound?

Resound is a software audio delay effect processor that emulates the sound and operation of vintage magnetic-tape echo units. Whilst not a direct copy of any one particular model, it takes features from several of the classic delay devices, and unites them into a convincing and pleasingly retro sounding effect.

Resound not only subtly models the characteristic mechanical noise present in hardware magnetic-tape units, but also allows the noise to be controlled; from gentle warmth and distortion, to noisy, gritty, and unstable. The sound can be shaped further using the moveable highpass filter. And with feedback set beyond a certain intensity, Resound is even capable of self-oscillation.

Resound's echoes can either be synced to the host tempo (expressing delay times as musical subdivisions of a beat, each echo will be exactly in time with the host) or in free-time mode (allowing any delay time, up to 2 seconds.) The reverse mode adds further flexibility: by playing each delay backwards, Resound can produce unique effects beyond what hardware magnetic-tape units are capable of.

True independent stereo processing means that left and right channel separation is preserved. Resound is also capable of running in mono, or even mono to stereo.

With optimized audio algorithms that won't overload your processor, rock-solid stability, and easy integration with any MIDI hardware controller, Resound is ideal for live work. With a simple and intuitive interface, flexible Bank and Program management, and total parameter automation, Resound fits right into your studio environment.

## Plug-in vs Standalone

Depending upon your individual studio setup, Resound can either be used as a plug-in component of a host application, or as a standalone application requiring no other dependencies. Generally, by using the host application's routing flexibility, running as a plug-in allows easier integration with existing plug-in effects and instruments. If this integration is not required, the standalone version, without the extra layer of complexity added by the host consuming resources, performs slightly better.

Presets and MIDI Mapping assignments are identical in both standalone and plug-in versions. This means any sounds created in one format can be opened in the other.



## **Resound formats**

For the Mac, the following formats are provided:

- Standalone Application
- Audio Unit (AU) Plug-In (32-bit and 64-bit)
- VST Plug-in (32-bit and 64-bit)
- RTAS Plug-In

These formats are available for Windows PC:

- Standalone Application
- VST Plug-in (32-bit and 64-bit)
- RTAS Plug-in

These formats are available natively for Linux:

- Standalone Application (32-bit and 64-bit)
- VST Plug-in (32-bit and 64-bit)

## **Supported channel configurations**

For maximum flexibility, Resound can be used in several possible input and output channel configurations. Resound is a true stereo effect: left and right channel separation is preserved. The following configurations are possible:

- mono to mono (1 input, 1 output)
- mono to stereo (1 input, 2 outputs)
- stereo to stereo (2 inputs, 2 outputs)

Note that some host applications may not support one or more of these configurations; consult your host's documentation for further details.

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# Installation and Registration

## Mac OS X installation

1. Start the installation process by double-clicking the Resound installer application.
2. Read the introduction screen dialog text. Press **Continue** when you are ready to proceed.
3. Read the Licence Agreement. Click **Continue**, then **Agree** to confirm you have read and agree to the licence terms.
4. Select a destination volume into which to install Resound, and then click **Continue**.
5. From the list of installable components, uncheck any formats that you do not wish to install. Click **Continue** to proceed.
6. To complete the installation, press **Install**.

The components are, by default, installed into the following directories:

- VST plug-in into */Library/Audio/Plug-Ins/VST*
- Audio Unit plug-in into */Library/Audio/Plug-Ins/Components*
- RTAS plug-in into */Library/Application Support/Digidesign/Plug-Ins*
- Standalone application into */Applications*
- Documentation into */Library/Documentation/Loomer*

## Windows installation

1. Start the installation process by double-clicking the Resound installer application, Setup.exe.
2. Read the welcome screen dialog text. Press **Next** when you are ready to continue.
3. Read the Licence Agreement. Click **I Agree** to confirm that you have read and agree to it.
4. From the list of installable components, uncheck any formats that you do not wish to install. Click **Next** to continue.
5. If you have chosen to include the VST plug-in format, select the directory into which it will install. Click **Next** to continue.
6. Select a directory into which the common files will install. The user documentation and the Standalone application (if selected in the the list of components), will be placed in this location. To complete the installation, press **Install**.

Unless any other directories are selected during the installation, the components are installed into the following directories:

- VST plug-in into the VST plug-ins folder, which is, unless configured otherwise, *C:\Program Files\Steinberg\VSTPlugins\*
- RTAS plug-in into *C:\Program Files\Common Files\Digidesign\DAE\Plug-Ins\*
- Standalone application, documentation and default Bank into *C:\Program Files\Loomer\Resound*. On a 64-bit Windows platform, the Standalone application will install into the *Program Files (x86)* folder.

## Linux installation

Resound for Linux is distributed as a standard Linux tarball. To install, extract the package using any unarchiving utility; the following command-line invocation will suffice:

```
tar xzvf Resound.tar.gz
```

If you have a Linux VST host and have configured your VST Path, the VST plug-in can be moved into the required directory with the following commands:

```
cd Resound
mv ResoundVST.so $VST_PATH
```

Without the VST Path configured, you will need to ensure that your host uses the Resound directory when searching for VSTs; consult your host's documentation for information on how to do this.

Resound requires the following shared object libraries to be installed:

- libfreetype
- libasound
- libXinerama

Without these libraries installed, the application will not launch. Install the libraries using your distribution's particular package management system, such as apt-get; consult your Linux distribution documentation for more information.

## Product registration

Having installed Resound, it will run in evaluation mode with the following limitations:

- User created Presets can be saved, but not loaded.
- Audio output will stop after 30 minutes of continuous use. The only way to continue using Resound is to restart the application.
- Output will be periodically interrupted, approximately every 30 seconds, by a short moment of silence.

These limitations can be removed by purchasing a licence and registering your licence information into the product. Note that registering Resound on a particular machine will remove the evaluation limitations for all Resound plug-in formats installed on this machine; you don't need to individually register all plug-in formats. Licence information will be in the form of a user name and licence key.

To purchase a Resound licence:

1. Launch Resound. This can be either the standalone application, or as a plug-in.
2. From the **Options** menu, choose **Purchase Resound Licence**. This will launch the shop website, from where a Resound Licence can be purchased by clicking **Add To Cart**, followed by **Checkout**. Follow the on-screen prompts to enter your payment details and confirm your purchase.
3. Once you have purchased Resound, you will receive your licence key information via email. It is important to keep this information safe because you will require the licence key if you ever need to reinstall and re-register Resound.

To register your copy of Resound:

1. Choose **Enter Resound Licence** from the **Options** menu.
2. Enter your name in the **Name** field. This must match exactly the name that was used to purchase your Resound licence, including capitalization of letters.
3. Enter your licence key in the **Licence Key** field. This must match exactly the licence that you received when you purchased Resound, including any hyphens. We recommend using Copy and Paste to ensure that the Licence Key is entered exactly as specified in your registration email.
4. Press **OK** to confirm that your name and corresponding licence key have been entered. You will be informed that the application must be restarted in order for registration changes to take effect. If you are currently running the standalone application, close and relaunch it. If Resound is currently running as a plug-in, remove it from the host and add a new instance of it.
5. Resound should now be registered. If the label on the bottom of the interface still reads Unregistered Evaluation, you must have entered the licence information incorrectly. Go back to step 1, paying careful attention that the name and licence key entered match exactly the licence information in the registration email.

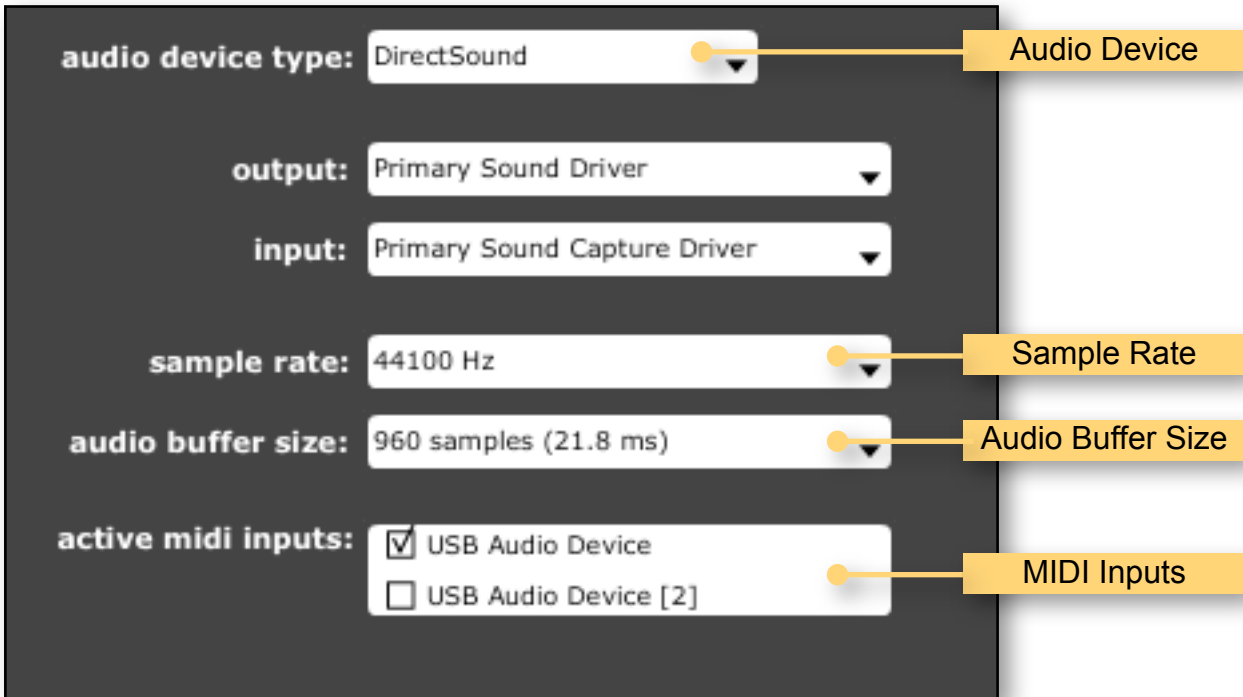
If you are having problems registering your installation of Resound, please consult the detailed step-by-step instructions at <http://www.loomer.co.uk/support.htm> .

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# Audio and MIDI Configuration

## Setup Audio and MIDI

When running Resound as a Standalone application, you will need to setup your audio and MIDI interfaces. Note that when running as a plug-in, audio and MIDI routing is provided by the hosting application; consult the host's documentation for details. To open the Audio & MIDI Configuration dialog, select **Audio & MIDI Configuration** under the **Options** menu. The following dialog will be displayed:



From this dialog, the following details of your Audio and MIDI setup can be configured:

- **Audio Device.** Select the Audio Device you want to use from the list of available devices. Certain devices tend to perform better than others, so if multiple devices are available, you should favour: on Mac, using Core Audio; on Windows, using ASIO; on Linux, using JACK.
- **Sample Rate.** The Sample Rate dictates the overall quality of the audio output. Using a lower Sample Rate will reduce the presence of high-frequency components. Higher Sample Rates should therefore be preferred. However, be aware that the CPU Usage is directly proportional to the Sample Rate. A good compromise between quality and CPU Usage is 44100Hz, which is the Sample Rate of CD audio. Select the Sample Rate you require from the available list.

- **Audio Buffer Size.** The Audio Buffer Size governs latency; a smaller buffer means that Resound will respond more quickly to MIDI messages and Parameter changes. However, a smaller Audio Buffer Size will require more CPU Usage. Select the required Audio Buffer Size from the available list. Using too small of an Audio Buffer can overload your computer to the extent that audible clicks are heard. In this case, increase the Audio Buffer Size until clicks are no longer present.
- **MIDI Inputs.** Check any MIDI Input devices that you want to use with Resound.

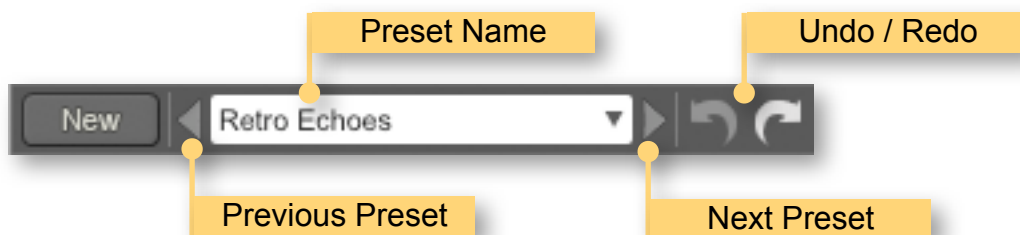
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# Preset Management

## Parameters and Presets

You can modify the audio output that Resound produces by setting the value of *Parameters*. Each Parameter, such as Delay Time, Feedback, or Highpass, will affect a specific element of the sound. The state of all Parameters are collectively called a *Preset*. Presets are given a suitable name, displayed in the Menu Bar, to describe the sound they produce.

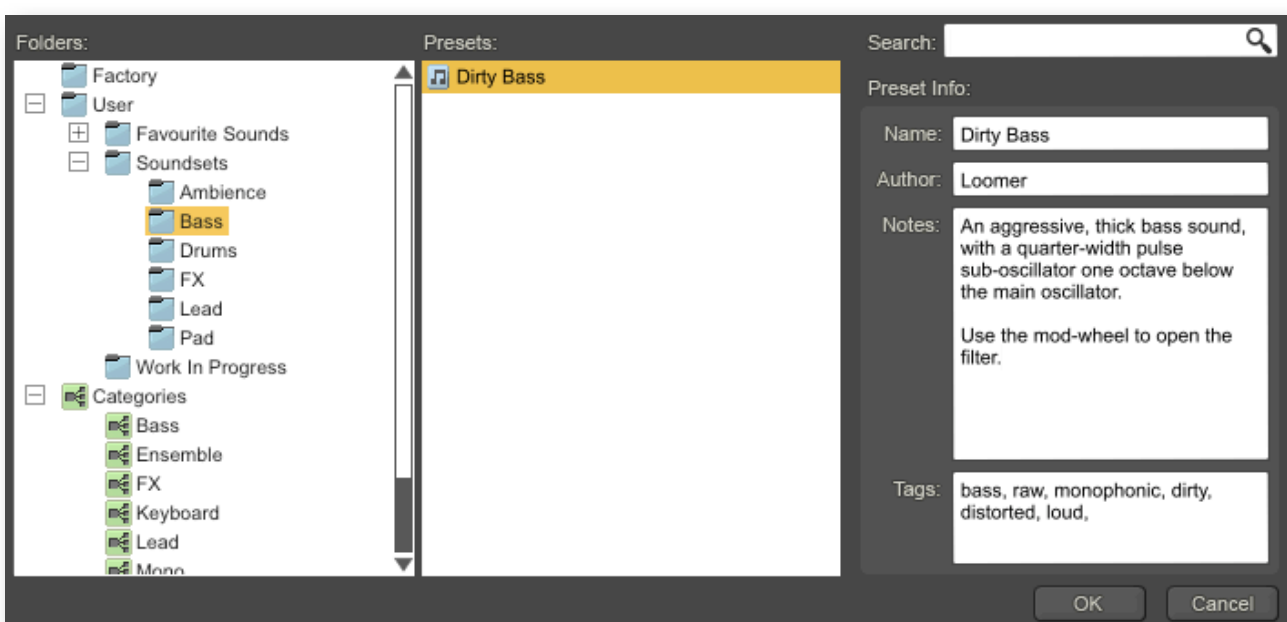
## Navigation Controls



If you wish to browse quickly through the Presets, you can do so using the the Previous and Next controls. These controls are context sensitive, only displaying Presets that are relevant to you. For example, if you search for “analogue, bass”, only Presets that match this will be shown in the preset browser. The mouse-wheel can also be used to quickly browse through presets.

## Opening Presets

To select a preset from within your preset library, click on the Preset Name in the menu bar to open the Preset Browser.



Presets can be divided into two groups; **Factory**, and **User**. Factory Presets are a collection of example Presets built into Resound. Factory presets can't be overwritten, although you can, of course, edit and save your own presets derived from Factory Presets.

User Presets are stored as individual files on your computer's hard drive. User Presets are found in the following location:

**Mac OS X:** *~/Library/Application Support/Loomer/Resound/Presets/*

**Linux:** *~/Loomer/Resound/Presets/*

**Windows:** *My Documents/Loomer/Resound/Presets/ or Documents/Loomer/Resound/Presets/*

Only registered users can open User Presets. Unregistered versions of Resound are limited to the Factory Presets. Unregistered versions of Resound can, however, still save Presets. Any Presets created in the unregistered evaluation of Resound can be opened by purchasing a licence for Resound.

## Preset Hot-Swap

Selecting a Preset in the browser will automatically load the preset: this functionality is called Preset Hot-Swap. Preset Hot-Swap allows you to preview Presets in the context of the current project. If you decide to use the selected Preset, close the browser by pressing *return* or by clicking **OK**. To return to your original Preset, close the browser by pressing *escape* or by clicking **Cancel**.

## Preset Meta Data

Presets can have meta data attached to them. Meta data doesn't influence the sound of the Preset, but is used in categorizing, searching, or annotating them. The following meta data is available:

**Author:** The name of the Preset creator.

**Notes:** Any additional notes about the Preset, such as influences, playing tips, description, etc.

**Tags:** Tags are short words that describe the Preset. Examples are: "bass", "distorted", "monophonic", "trance", "quiet", etc. Tags are used to help quickly search for a specific sound.

## Searching for Presets

Type keywords into the search field to locate all Presets that match this description. The search will match the keywords in the Preset Name, Author, and Tags fields, and parent folder name.



## Categories

**Categories** allow you to quickly access a subset of your Presets. Categories are listed under the Categories node in the Preset Browser. A Category is simply a shortcut to searching for the Category name; a Category called “Bass” will list all Presets that match the search criteria “Bass”. You are not limited to create Categories based on the type of sound: you can, for example, create Categories for Preset Authors, or indeed for any other search term. Provided you tag your own Presets, they will automatically be added to the correct Category (or Categories: Presets can belong to multiple Categories; a Preset could be both a “Bass” and “Lead” sound, for example.)

## Saving Presets

Click **Save** to save the current Preset. Choose the location in which to save the Preset in the Folders window. Press **OK** to actually save the Preset.

## XML / FXP / FXB support

Presets in the User Presets folder need to be in either native .xml format, or VST .fxp or .fxb format. Standalone, Audio Unit and RTAS versions can also open .fxp or .fxb files within the browser. Please ensure any files in the User Presets folder have the correct file extension.

## Copying & Moving Presets

Presets can be moved or copied to another folder by dragging and dropping a Preset onto the destination folder. By default, Presets will be moved. You can instead copy the Preset by holding *shift* whilst dragging. Note that Presets inside Banks (either .xml or .fxb Banks), can only be copied, not moved. Multiple Presets can be moved or copied at once by selecting more than one Preset.

## Default Preset

The Default Preset is automatically opened when a new instance of Resound is created. To specify the Default Preset, right-click on a Preset and choose **Set as Default**.

## MIDI Program Change Lists

You can change Presets by using MIDI Program Change commands. This requires a MIDI keyboard or a control surface with the ability to send MIDI Program Change commands; consult your controller’s documentation for details. If using Resound as a plug-in, this functionality is dependent upon the host correctly forwarding MIDI messages to the plug-in; check the documentation provided with your host for details.

To select which Presets are loaded in response to MIDI Program Change commands, you will need to create a MIDI Program Change List. Select **Edit MIDI Program Change List...** from under the **MIDI** menu to display the MIDI Program Change List editor.

To add Presets to the MIDI Program Change List, either double-click on a Preset, or select a Preset and click the >> button. Use the **View** button to toggle between viewing the MIDI Program Change List and information on the Selected Preset.

Any Presets in the MIDI Program Change Lists are automatically loaded and cached in memory. This means that Preset changes can be instant. There may be a slight pause after editing the MIDI Program Change List whilst the Presets within it are loaded. When a Preset is saved, any entries in the MIDI Program Change List are saved alongside it. Note that setting a Preset with a MIDI Program Change List as the Default Preset will cause all Presets within the list to be loaded when a new instance of Resound is created.

## Create a new Preset

Select **New** to create a new Preset. This Preset will be in the default initialized state.

## Compare a changed Preset to the original Preset

Often you'll want to compare a Preset that you have amended to see if it is actually an improvement on the original. Pressing the **A | B** button temporarily reverts a changed Preset back to its original state. Pressing the **A | B** button a second time returns to the changed Preset. This method allows you to easily contrast the Preset changes you have made to the original Preset.

## Restoring Deleted Factory Presets

To reinstate any deleted Factory Presets, right-click on the Factory branch and choose **Resore Factory Presets**.

## User folder management

Folder management is performed by right-clicking on a User folder, and selecting an option from the pop-up menu. From here, you can create a **New Folder**, **Rename Folder**, or **Delete Folder**. On Windows or Mac OS X, you can also quickly locate this folder in Finder or Explorer by choosing **Show In Finder / Explorer**.

## Undo / Redo

By pressing **Undo**, you can take back the most recent change made to a preset. **Redo** will re-apply the last Undo changes. Note that only changes made via the Resound interface can be undone; changes made externally (such as from a Host application, or from a MIDI controller) are not eligible for Undo.

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# MIDI Controller Mapping

## MIDI controllers

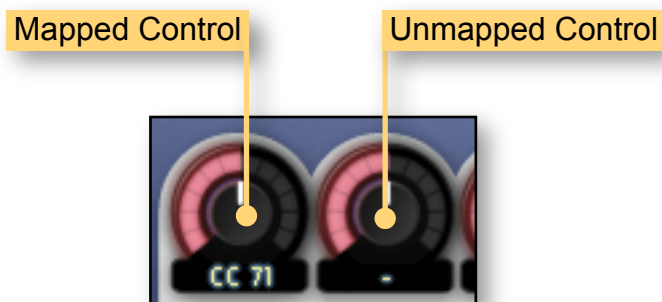
Instead of configuring a Program using a mouse, you can change any Parameter values using a MIDI keyboard or a control surface. This is done by mapping each Parameter to a *MIDI Continuous Controller (CC)*. A Parameter can only be mapped to a single MIDI controller; the same MIDI control can, however, be mapped to several different Parameters.

MIDI Controller mappings are global; once defined, the same mapping assignments will be used by all Resound Programs. This means that you only need define mappings once for your particular controller.

## Display current MIDI controller mappings

To view the current MIDI controller mappings:

1. Enter MIDI Learn Mode by choosing **Start MIDI Learn** under the **Options** menu. Each Parameter's mapped MIDI controller will now be displayed beside it in yellow text. Parameters without any mapping will be labelled -.
2. When you have finished viewing the MIDI controller mappings, choose **Stop MIDI Learn** under the **Options** menu.



## Assign MIDI controllers to controls

To map a MIDI controller to a Parameter:

1. Enter MIDI Learn Mode by choosing **Start MIDI Learn** under the **Options** menu.
2. Click on the Parameter you wish to map to a MIDI controller.
3. Turn your MIDI controller. The Parameter should now be labelled with the MIDI CC number of this controller.
4. You can now either:
  - Map another Parameter by repeating these steps from Step 2.
  - Finish mapping Parameters by choosing **Stop MIDI Learn** under the **Options** menu.

## Remove MIDI controller mappings from controls

To remove a mapped MIDI controller from a Parameter:

1. **Enter MIDI Learn Mode** by choosing Start MIDI Learn under the **Options** menu.
2. Click on the Parameter from which you wish to remove the mapping. This Parameter will become unmapped, and the CC number label on the Parameter will disappear to reflect this.
3. You can now either:
  - Remove the mapping from another Parameter by repeating these steps from Step 2.
  - Finish removing Parameter mappings by choosing **Stop MIDI Learn** under the **Options** menu.

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# Using Resound

Resound can be used as either an insert or send effect. When used as an insert effect, Resound is placed directly in a host's audio channel. As a send effect, Resound is placed in a host's auxiliary or bus channel, and a portion of the original signal is fed into the effect. Consult your host's documentation to find out how to add a plug-in as either an insert or as a send effect.



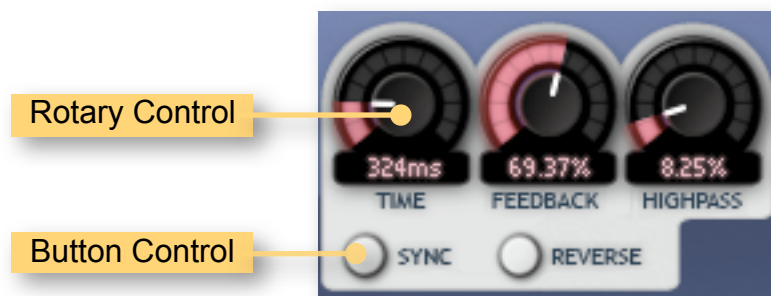
## Parameters

- The **Noise** Parameter introduces mechanical noise and hiss into the delay. These additions imitate the imperfections present in tape-based delay units and so produce a more convincing retro sound.
- The **Flutter** Parameter controls the amount of pitch variation as a result of tape dragging, or other such mechanical instabilities.
- The **Time** Parameter controls the length of time between repeats. When Sync is turned on, the delay time is based upon musical note divisions and will be in step with the host tempo. With Sync off, the time delay is expressed in milliseconds. A characteristic effect, often used in tape-based delay units, is the pitch shifted delay; this is achieved by sweeping the Time Parameter value upwards or downwards.
- The **Feedback** Parameter controls the proportion of the signal to be fed back into the delay line. As the value increases, the delayed signals volume will increase. At higher values, it is possible to create a wall of sound using delays that don't decrease in volume when they are fed back into the delay line. Beyond this, it is even possible to create delays that increase in volume. Warning: High Feedback settings can produce dangerously loud signals that can damage both your ears and audio equipment.
- Using the **Highpass** Parameter, the amount of low frequency content fed back into the delay line can be changed. More low frequency content is removed as the Highpass value increases.

- The **Sync** Parameter switches the Time Parameter between two modes of operation: when Sync is off, the delay time is independent of the host tempo; when Sync is on, the Time Parameter is controlled by the host tempo. See Time Parameter.
- Enabling **Reverse** will cause the delayed signal to be played backwards.
- The **Mix** controls the relative volumes of the original (dry) and delayed (wet) signal. At 0%, only the dry signal is present; at 100% only the wet signal will be heard. At 50%, the dry and wet signals will be heard in equal amounts. A 100% wet signal is useful when Resound is being used as send/return effect and you don't want any of the original signal to be heard.
- The **Volume** Parameter governs the overall loudness of the effect. A meter provides a visual cue to the current level: the louder the output, the higher the meter will register. Too loud of an output will produce digital clipping, a usually undesirable form of distortion. When this occurs, the meter will display a red warning indicator. Click the meter to reset the warning display.

## Control types

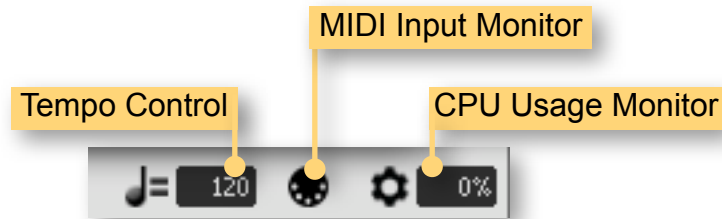
- Click on a **rotary control** and drag either upwards to increase the value, or downwards to decrease it. Hold down *shift* and drag to make smaller and more precise changes. Hold down *ctrl* and click to return the control to its default value. Rotary controls can also be changed by hovering the mouse cursor over a control and scrolling the mouse-wheel up or down.
- Click on a **button control** to toggle its value between On and Off. Hold down *ctrl* and click to return the control to its default value.



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# Status Display

Status Display information is displayed at the bottom right area of the Resound interface:



## CPU Usage monitor

The CPU Usage monitor displays the percentage of processor resources dedicated to producing the audio output. The total processor resources on a computer are limited, so when Resound increases its CPU usage, there will be less CPU resources remaining for other plug-ins and applications. CPU Usage will differ depending on which Program is currently loaded, how that particular Program is configured, and how many voices are being played.

A value of 100% indicates that your computer is running at maximum capacity and will not have enough processing power remaining for anything else. You might notice audio output become temporarily glitchy, or that the user interface becomes sluggish. There are several methods for resolving this:

- Choose a different Preset that has less CPU Usage.
- If running in Standalone mode, you can increase the latency or decrease the sample rate. See section *Setup Audio & MIDI*.
- If your host offers Freeze or Offline processing, you might be able to render the audio output in non-realtime.

## MIDI input monitor

The MIDI monitor flickers to show that a MIDI Message has been received. You can use this to confirm that your MIDI controller is configured correctly for Resound.

## Tempo control

The Tempo control only appears when running Resound in Standalone mode; when running as a plug-in, the host application will provide the tempo for Resound. The Tempo control displays the current Tempo, in beats per minute (bpm). It can be changed by either:

- Double-clicking the tempo control, typing the required bpm and pressing return.
- Clicking on the tempo control and dragging either upwards to increase the tempo, or downwards to decrease the tempo.

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# Contact Details

## Loomer Online

Website: <http://www.loomer.co.uk>

Support and FAQ: <http://www.loomer.co.uk/support.htm>

## Email

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