

# SONUUS®

## Wahoo

Desktop Editor Software Manual

**Version 1.5.0**

## Introduction

The **sonuus Wahoo** is an analogue dual-filter/wah stomp box for guitar, bass, and other musical instruments. The warm-sounding analogue filters are digitally controlled which enables them to be manipulated in new and exciting ways and also allows your carefully-crafted sounds to be stored as presets.

The design of the **Wahoo** is very flexible and powerful. To enable you to make full use of this, we have provided a Desktop Editor Software application that runs on both Microsoft Windows and Apple OSX. You can run this beside your other audio applications to give you quick and simple access to any configuration parameters you want to adjust on the **Wahoo**.

The full operation of the **Wahoo** is not described in this manual. Please refer to the Owner's Manual that came with your **Wahoo** for instructions on the detailed operation and features of this product.

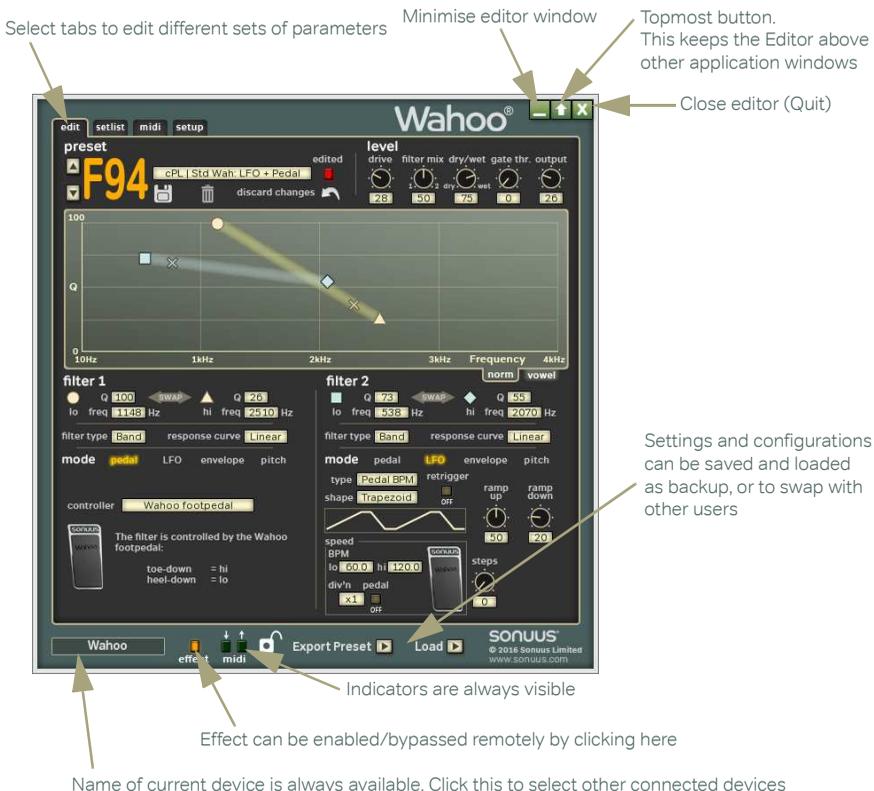


Figure 1: Overview of the **Wahoo** Desktop Editor window.

## Application Overview

When you run the Desktop Editor Software, you will see the window in Figure 1.

The window has standard buttons similar to other applications to minimise the window, and to close the application. There is also a “topmost” button, which keeps the window floating above other applications even when the other application has focus. This feature makes it easy to run the Desktop Editor Software alongside other applications, such as sequencers, so it appears much like any other “floating palette” of your main application.

There are two pages of information and parameters which you can configure. These are selected by clicking on the tabs at the top of the window.

Buttons and switches can be activated by left-clicking the mouse button while other controls such as knobs can be adjusted by left-clicking and dragging the mouse while the button is pressed. Some controls can also be adjusted by moving the mouse wheel when the mouse pointer is above the control.

Any changes you make on the **Wahoo** control panel will also be updated on the Desktop Editor, and vice-versa, so it is possible to use both at the same time.

## Selecting which Wahoo to configure

You can connect several **Wahoo** devices to your computer at once, but the Desktop Editor Software can only configure one of these at a time. You can select which device is currently being edited by clicking on the device name box at the bottom-left of the application and choosing the required device from the menu.

So you can identify which device is which, you can give unique names to each of your devices: see “Device Name” on page 16.

## Indicators

Next to the device name box are some indicators to show the status of the **Wahoo**.

The **effect** indicator replicates the behaviour of the main light on the **Wahoo** and will illuminate when the effect is enabled. This can also be clicked to toggle the active state of the effect, which can be useful if you are using the **Wahoo** remotely.

The MIDI indicators show when the **Wahoo** is receiving, or sending MIDI messages. This can be used to verify MIDI routing between the **Wahoo** and your software. Note that the receiving indicator only responds to MIDI that the **Wahoo** is able to respond to, such as controller messages used for filter control.

The lock indicator shows when the **lock** switch on the **Wahoo** is enabled. When locked, you can still select presets, but you won't be able to edit them using the Desktop Editor, or the control panel on the **Wahoo**.

## Loading and Saving

The **Wahoo** allows you to save 100 user presets to its internal memory. Presets can also be saved to a file with a “.wahoo” file extension using the “Export Preset” button when the **edit** tab is active. This lets you create vast libraries of presets beyond the 100 slots

available on the **Wahoo** and also lets you exchange your presets with other **Wahoo** users.

To allow you to easily backup all of your presets and settings, or to transfer them to another device, all user presets and settings of the **Wahoo** can be saved to a file with a “wahoo\_a11” file extension. This can be done by clicking the “Save All” button when the **setup** tab is active.

The “Load” button lets you load these files.

Top Tip: To ensure you don't lose your presets you have created, we recommend that you regularly back up all your presets using Save All.

## Edit—Editing and selecting presets

Figure 2 shows how the edit page is divided into functional regions. The next section describes in more detail how to use these features.

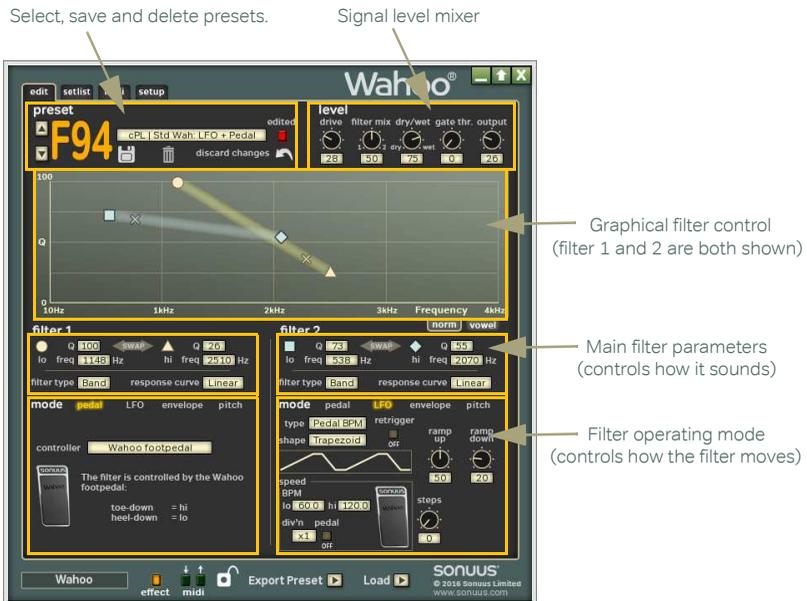


Figure 2: Overview of the edit page.

## Edit—preset selection

Figure 3 shows the detail of the **preset** region. The current preset can be selected using the up and down buttons (in the same way as can be done on the **Wahoo** itself) and also by clicking on the menu which gives an overview of all the presets to make selection faster.

When a preset has been modified, the **edited** indicator illuminates. This duplicates the behaviour of the **save** light on the **Wahoo** itself. To abandon any changes you have made, and restore the preset to its original state click **discard changes**.

User presets (**P00 – P99**) can also be deleted by clicking on the delete icon. Once deleted, the preset is reverted to a default Wah pedal preset. Delete cannot be undone, so you are given a warning before deletion is done in case you click this by mistake.

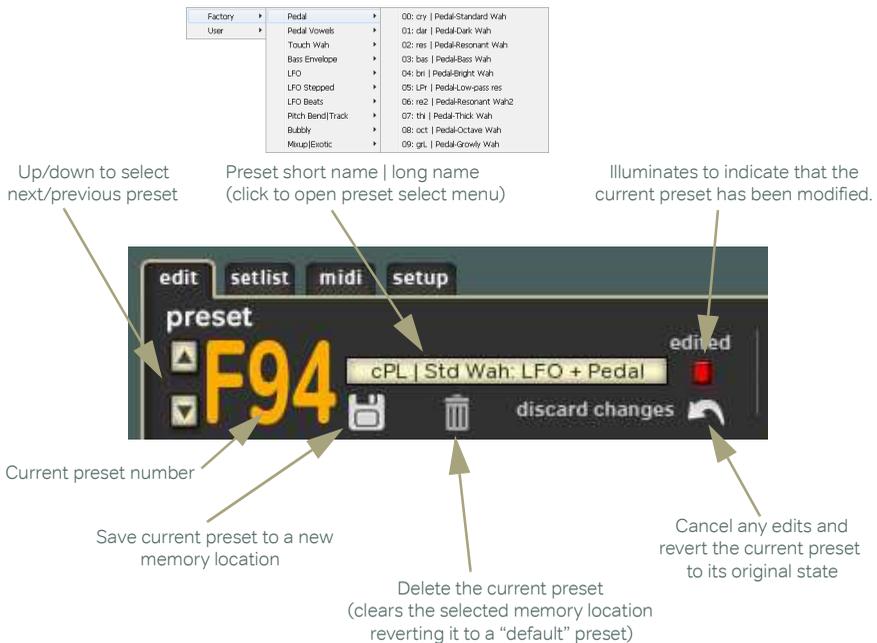


Figure 3: Preset selection and management.

To store edited presets, or to simply copy existing presets to new locations, use the save icon. This opens the save popup, as shown in Figure 4. Presets can be given a short name which is also shown on the **Wahoo** to help identify presets, and also a long name which

makes presets easier to identify when using the Desktop Editor. The selected destination preset will be overwritten by the preset being saved.

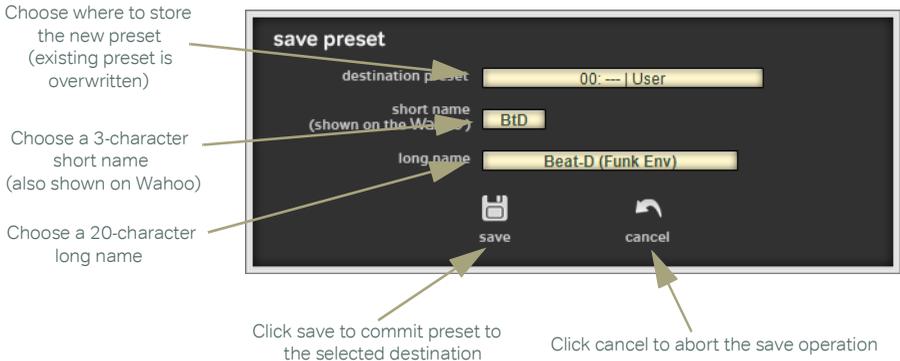


Figure 4: Saving a preset to internal memory.

## Edit—signal mixer

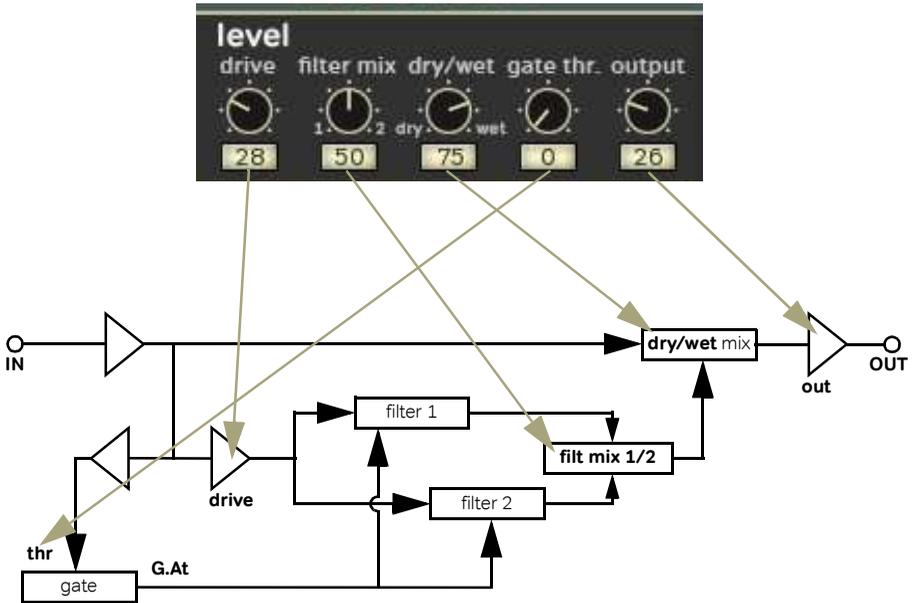


Figure 5: Level — the signal mixer.

The signal mixer controls how the signal from your instrument at the **IN** jack is sent to the filters and then recombined with the output of the filters and then sent to the **OUT** jack. In other words the signal mixer lets you control the subtleties of the sound, for a particular filter configuration.

These level controls correspond to the **level** section on the **Wahoo** control panel. Figure 5 shows how the mixer controls relate to the mixer architecture in the **Wahoo**. Refer to the **Wahoo** Owner's Manual for details on each of the individual parameters.

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## Edit—filter parameters (normal)

Click and drag control points to adjust the hi and lo Q and frequency of each filter

Shading shows the response curve

The realtime position of the filter is shown by a cross



Select band-pass or low-pass filter

Select response curve

Swap hi/lo values (invert movement)

Figure 6: Using the “norm” filter graphical control to adjust each filter’s Q and frequency at the hi and lo points.

The filter parameters let you adjust the filter **Q** and cutoff frequency (**freq**) at the **lo** and **hi** points, the **filter type** (low-pass or band-pass) and the **response curve** which defines how the filter moves between the **lo** and **hi** positions.

To make editing of **Q** and **freq** intuitive, the graphical filter control presents an alternate way to view and adjust these parameters. Each filter is shown in a different colour to view and adjust these parameters. Each filter is shown in a different colour, with different marker symbols so you can clearly identify them and to see how they relate to each other. If a filter is not active because the **filter mix** is set to 0 or 100, it will not be displayed; you can only see the filters that you can hear.

By clicking and dragging the marker points, the **Q** and **freq** for that point are both updated. However, you can also set the values by typing in the numeric fields if you want to enter specific values.

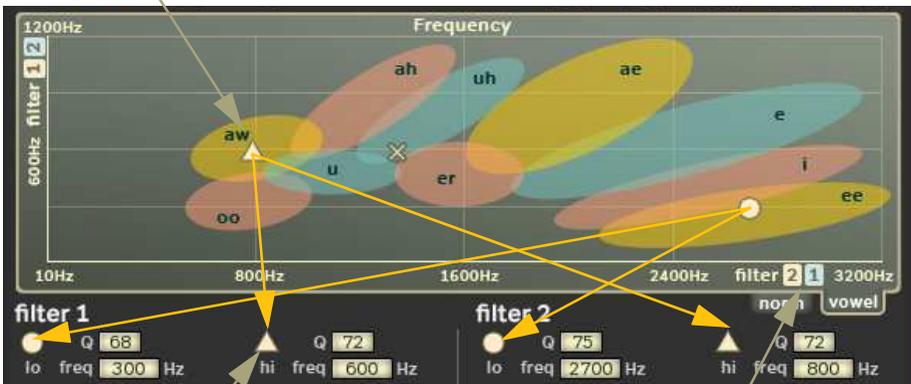
The response curve of the filter is shown by shading going between the **lo** and **hi** markers. The density of the shading corresponds to how much time the filter will spend at that position.

The current filter position is shown in realtime with a cross marker, this helps you understand how the filter is moving in relation to what you are hearing.

The best way to use the graphical filter control is to listen to what the effect is doing and move the control points. In particular, when two filters are being used, changing the relationship between the filters can give quite different sounds: for example, try making their paths cross each other or run parallel to each other. Explore the factory presets to see how the filter positions affect the sound in these presets, and adjust these to experiment with the sound.

## Edit—filter parameters (vowel)

Click and drag control points to adjust the vowel sound at the hi and lo positions (both filters are updated together)



Clicking on a hi/lo icon toggles the axes used for each filter (the values for filter 1 and filter 2 are swapped)

Labels show which filter is on each axis, based on the colour of the marker.

Figure 7: Using the “vowel” filter graphical control to adjust each filter’s hi and lo frequency.

To create convincing vowel sounds, you can use both **Wahoo** filters working together to produce the characteristic frequency components of the desired vowels. This can be done by configuring the **hi & lo freq** values of both filters based on a table of vowel frequencies (such as the one in the **Wahoo** Owner’s Manual), but this is not intuitive and can be confusing. The **vowel** mode of the graphical filter control makes it simple to obtain, and fine-tune, vowel sounds. See Figure 7.

In **vowel** mode, there are only two control points. One of these (the yellow circle or blue square) controls the **lo freq** values of both filters simultaneously. The other (the yellow triangle or blue diamond) controls the **hi freq** values of both filters simultaneously.

For yellow control points, filter 2 is on the x (horizontal) axis, and filter 1 is on the y (vertical) axis. This is flipped for blue control points: filter 1 is on the x (horizontal) axis, and filter 2 is on the y (vertical) axis.

A particular vowel sound is made by setting the cutoff frequency of two filters to values typical for the vowel sound you want. For example an “ah” sound can be made with one filter set to 800Hz and the other set to 1200Hz. It doesn’t matter which filter is set to which cutoff frequency: if both filters are identical (both set to low-pass, or band-pass and both with the same **Q**) it will sound identical either way.

Clicking on the control point icon under the **filter 1** or **filter 2** lets you change which axes are used: effectively swapping the **freq** setting of filter 1 and filter 2. As described above, this may not change the vowel sound at the **hi** or **lo** positions, but what it does is change how the filters move from one vowel sound (at **hi** or **lo**) to the other vowel sound (at **lo** or **hi**). So by changing the axes in this way, you can get very different transitions.

Top Tip: Explore the transitions between two vowel sounds by changing the axes the filters are drawn on (click the control point icon to toggle the control points between yellow and blue). Go further and also change the **response curve**: you’ll find there is a lot of sonic variation possible.

## Edit—filter

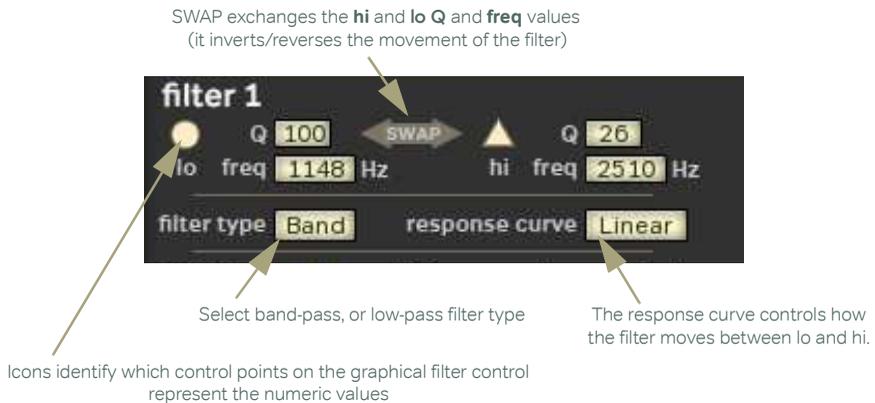


Figure 8: Configuring the filter. Filter 1 is shown, but filter 2 is similar.

The main filter parameters control how the filter sounds. Figure 8 shows the parameters for filter 1 — filter 2 is configured in a similar way.

The cutoff frequency, **freq**, and the resonance, **Q**, are set at two points: **lo** and **hi**. In **pedal** mode, these correspond to the heel-down and toe-down positions of the footpedal. In

other modes, they correspond to the “hi” and “lo” extent of the control signal such as an LFO. These control points have icons shown next to them and these icons are also shown on the graphical filter control as “control points”. Parameters can be edited by clicking on the numeric fields and entering specific values, or by clicking directly on the control points in the graphical filter control and dragging them.

The way the filter moves between the **lo** and **hi** values is controlled by the **response curve**. This controls the feel of the footpedal, or the response of the envelope tracker.

**filter type** can be set to **Band** (band-pass) or **Low** (low-pass).

## Edit—filter mode

Shows current filter operating mode. Click to select a new mode.



Bottom section shows the parameters specific to the current mode.

Figure 9: Configuring the operating mode of the filter. Each filter can be set to operate in a different mode.

The **mode** of the filter defines how the filter is controlled, in other words what makes it move between its **lo** and **hi** settings. The desired mode (**pedal**, **LFO**, **envelope**, **pitch**) is selected by clicking it at the top of the **mode** section. Once selected, the mode will be highlighted and the controls for that mode will become available.

When a parameter is controlled by the footpedal, the footpedal icon is displayed. Alternatively, when a parameter is controlled by USB-MIDI, the USB-MIDI icon is displayed. This gives you a visual reminder, and confirmation, of when the footpedal or USB-MIDI are being used.

The details of the mode parameters are fully described in the Wahoo Owner’s Manual.

## Setlist



Figure 10: The setlist tab lets you create setlists: a list of only those presets that you want to be available when you lock the **Wahoo** — perfect for playing live.

The **setlist** tab (shown in Figure 11) lets you select and configure setlists. A setlist is simply a list of presets that you want to use for your “set” during a performance. By limiting your choice of presets to only those you need, preset selection during a performance becomes much easier.

## setlist

### active setlist

This lets you select which setlist you want to be active (note that it only becomes active when the **Wahoo** is locked). You can only edit and view the active setlist. The “demo” setlist is factory-defined and cannot be edited.

### description

Each setlist can have a short description. Use this to help you remember the purpose of each of your setlists.

### display slot “Lnn”

When presets are displayed on the **Wahoo**, the preset number is shown (*e.g.*, **F05**, or **P16**). Sometimes it is easier if the presets are numbered to match the position in the setlist, and this is what this option allows. When enabled, presets will be shown as **L01**, **L02**, ... corresponding to their position in the setlist.

## MIDI program change | preset

### prog

Presets can be selected by MIDI program change messages, where the program change number matches the preset number. In setlist mode, you have more control over this and can select whatever program change numbers you want to use for each of your presets. This also controls the program change messages sent when you select presets on the **Wahoo**.

### preset

This selects which preset you want in each slot of the setlist. You can leave empty slots: these will be skipped when setlist is activated.

## MIDI



Figure 11: The midi tab lets you configure how MIDI is sent and received over the USB connection of the **Wahoo**.

The **midi** tab (shown in Figure 11) lets you change the MIDI configuration of the **Wahoo** and thus how it sends and receives MIDI over its USB connection. These options cannot be changed on the **Wahoo's** control panel; they can only be modified using the Desktop Editor Software.

### midi in

This configures how the **Wahoo** receives MIDI messages.

## midi channel in

The **Wahoo** can respond to MIDI messages received on any MIDI channel (Omni) or a single channel (1–16). This affects program/bank changes and the **footswitch controller** but does not affect the filter channels which have a separate option. Similarly, it doesn't affect MIDI messages which are not channelised, such as MIDI clock.

## filter 1 channel

When a filter is configured in **pedal** mode, the controller can be set to be MIDI messages rather than the **Wahoo** footpedal. This option sets the MIDI channel that filter 1 processes. (The default setting is channel 1.)

## filter 2 channel

Similar to the option above, this option sets the MIDI channel that filter 2 processes. (The default setting is channel 2.)

## footswitch controller

To allow fully remote operation of the **Wahoo**, a MIDI controller can be used to remotely enable/disable the effect. This sets the controller used for this. It operates in the same way as the physical footswitch on the **Wahoo**.

## midi out

This configures how the **Wahoo** sends MIDI messages.

## midi channel out

By default, the **Wahoo** sends MIDI messages on MIDI channel 1, but this can be changed with this option. If it is preferred that no MIDI messages are sent this can be set to off and the **Wahoo** will not send any MIDI messages.

## expression controller

The footpedal is configured to send MIDI expression messages. You can change the MIDI controller used with this option. If a 14-bit (Coarse) controller is selected, the **Wahoo** will send 14-bit data for the controller, using both the Coarse controller selected, and its Fine partner. If other controllers are selected, only 7-bit data will be sent.

## send program changes

The **Wahoo** responds to MIDI program change messages. You can also configure the **Wahoo** to send MIDI program change and bank select messages when a preset is selected. This can be useful when you have other MIDI equipment that needs to be reconfigured at the same time as the **Wahoo**, for example, when changing songs.

## Setup—manage



Figure 12: The setup tab lets you change global settings, manage your device and gives information on the version of hardware and firmware in your **Wahoo**.

The **setup** tab (shown in Figure 12) contains various global options and information about the currently connected **Wahoo**. The options available in the **manage** section are described below.

### Device Name

To allow you to personalise your **Wahoo** and to make identification of it simpler, you can give it a Device Name. This can be useful when you have several **Wahos** connected to

the same computer. The Device Name can be anything you choose provided it is 16 characters or less in size.

The Device Name is shown in the **manage** section of the **setup** tab . Clicking the name field will let you edit it.

## Reset to Factory Settings

The **Wahoo** has several global settings which you can customise. However, you may want to restore these to the default factory settings. This can be done easily by selecting the **reset to factory settings** option. Any presets which you have created are not affected by resetting the factory settings

NOTE: these settings are stored in a “wahoo\_all” file on your computer when you perform a Save All operation, and will be restored when you load this file.

## Update Firmware

The firmware (internal software) of the **Wahoo** can be upgraded with new versions which fix problems or add new features. You can do this using the **sonuus** Firmware Loader application, and the **update firmware** option gives you an easy way to access this utility.

Simply select this option and choose the firmware update file that you have downloaded from the **sonuus** web site. The Firmware Loader will then launch automatically and perform the firmware upgrade. When complete, the Desktop Editor Software will reactivate and you can continue as before, with the new firmware running on your **Wahoo**.

For more details on the upgrade process, there is a separate manual available for the Firmware Loader application.

## Pot Control Method

This is an editor option (it is not stored on the device) which lets you set the method used for controlling pots (knobs) with the mouse. This can be rotary (where the pot position follows the position of the mouse) or x-y (where left-right movement gives fine position control, and up-down movement gives coarse position control). You can set this to the method you find most intuitive.

## Setup—settings

### Instrument

The **instrument** option allows the **Wahoo**'s pitch-detection algorithms and envelope follower to be optimised for the note range, or other characteristics, of a particular instrument. This therefore affects the behaviour of presets using **pitch** mode or **envelope** mode. The presets themselves are not modified.

The available instruments are shown in the table below.

Instrument	Note Range	Description
Guitar	E1–C7	General guitar (electric and acoustic). This works well with most instruments, including 4-string bass guitar, but is optimised for the note range of 6- and 7-string electric guitars.
4-String Bass	C#1–A6	Similar to “Guitar”, but the note range is optimised for 4-string bass guitar.
5-String Bass	A0–F6	Optimised to detect the lowest bass notes of a 5-string bass guitar.

### Pedal Effect Enable

Sometimes it is not convenient to have to press the footswitch to enable the effect. For example, when using a Wah pedal preset it is often preferable to have the effect activate when the footpedal is pressed to the toe-down position so that the effect is instantly accessible when you need it. **pedal effect enable** lets you do this.

When set to “On only”, the effect is enabled when the footpedal is pressed to the toe-down position. The effect must be turned off using the footswitch.

When set to “On/off (heel)”, the effect is enabled when the footpedal is pressed to the heel-down position, and is also deactivated when the footpedal returns to this position (after a time set by **effect off time**).

When set to “On/off (toe)”, the effect is enabled when the footpedal is pressed to the toe-down position, and is also deactivated when the footpedal returns to this position (after a time set by **effect off time**).

### Effect Off Time

When pedal effect enable is set to “On/off (heel)”, or “On/off (toe)” this sets the time (in seconds) that the footpedal must be in the “off” position before the effect is turned off. This lets you adjust the time for your personal preference to ensure that the effect isn't turned off unexpectedly when you are using it.

### Footswitch Preset Select Time

Selects how long the footswitch must be held to enter and exit foot-operated preset selection mode.

### Sensitivity Adjust

Different instruments can have quite different output levels. In envelope filter mode, this means you may have to adjust the sensitivity parameter to get the desired response when using different instruments. Needless to say, with lots of presets that's a problem.

**sensitivity adjust** lets you apply an offset to envelope sensitivity that applies across all presets. The range of adjustment is  $\pm 24$  dB.

## Noise Gate Attack

Sets how quickly the noise gate responds when the output falls to below the threshold set. This only applies to presets with **gate threshold** set to a value above zero.

## LED Brightness

LED brightness can be adjusted from a minimum (1) to a maximum (100). High brightness can be useful in bright conditions, and low brightness works better in dark settings and also increases battery life.

NOTE: If the brightness has been set to 100 for a long time, then set to minimum, it may take a few minutes for the display to stabilise to the new setting.

## Power-Save Timeout

Sets the time in seconds after which the **Wahoo** will enter a low-power state to conserve battery power. Power-save mode will not be entered while the **Wahoo** is active, it only takes effect in the bypassed (off) state. When set to 0, this feature is not active.

## Setup—info

The **info** section gives you various pieces of information about your **Wahoo** and the Desktop Editor Software. This is read-only and cannot be edited.

### Firmware Version

This shows the version number of the currently installed firmware. This can be updated using the **sonuus** Firmware Loader application, using **Wahoo** firmware updates available from the **sonuus** web site.

### Hardware Version

This shows which version of **Wahoo** hardware you have.

### Desktop Version

This shows the version number of the Desktop Editor Software you are using.

### Device ID

The Device ID is stored on the hardware of the **Wahoo** and allows your computer to uniquely identify each device.

NOTE: This is not the same number as the product serial number printed on the serial number sticker on the back of your **Wahoo**.