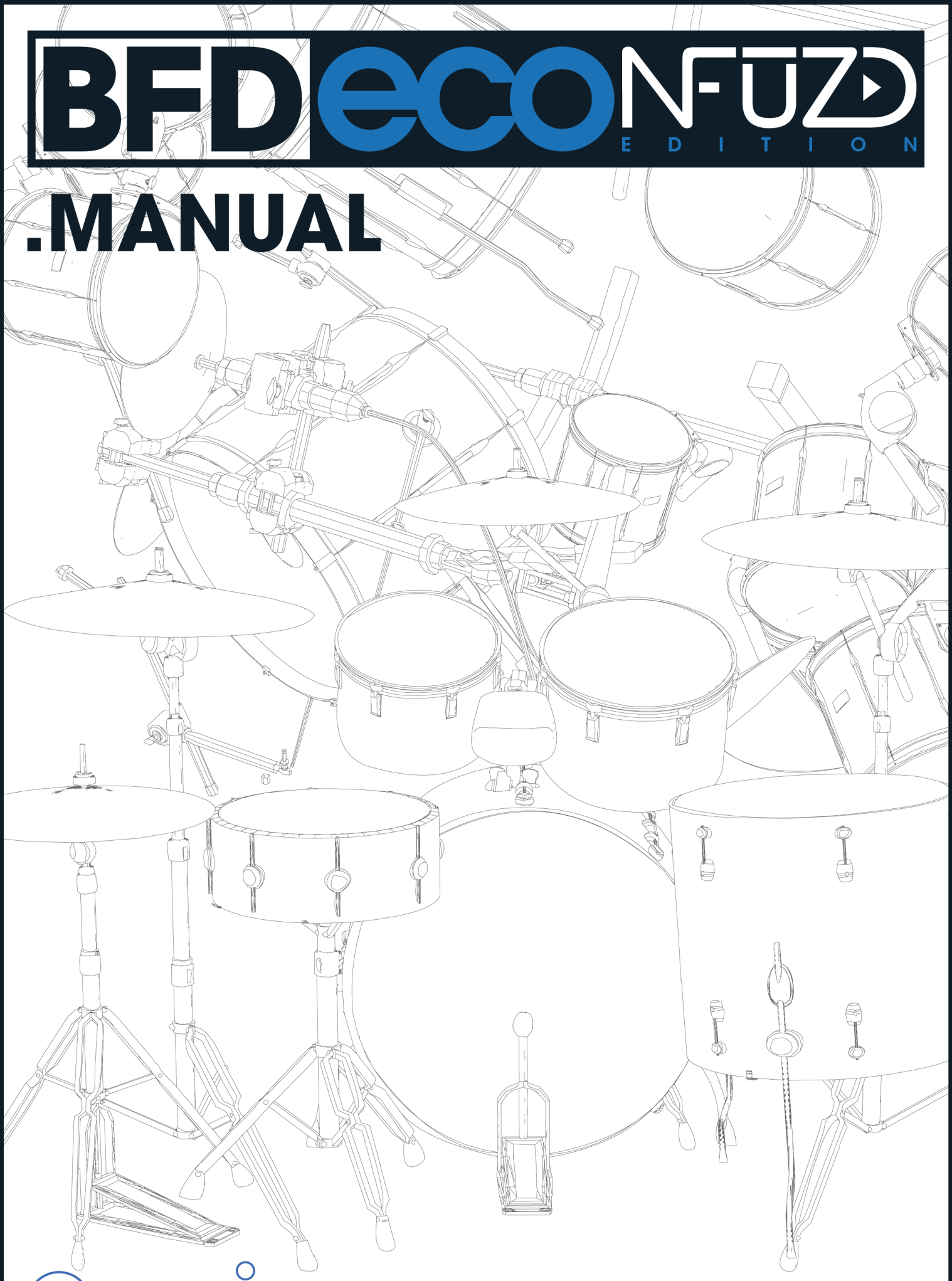
BFD eco N-FUZD EDITION

.MANUAL



fxpansion

Contents

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Special thanks to the beta testing team!

Manual revision 3

Ch.1 Introduction to BFD Eco

1:1 BFD Eco basics

BFD Eco is an acoustic drum software instrument which provides multisampled drums, played in a variety of ways (called articulations), and recorded with multiple microphones including stereo ambience channels. This stereo ambience provides the actual sound of the drums within a room, as opposed to simulating this effect with artificial reverb effects. BFD Eco also contains a Groove engine that plays back realistic drum performances through BFD Eco's sounds. More detail about the architecture of BFD Eco's sounds can be found in the next chapter.

Launching BFD Eco NFUZD

1. As a standalone application

On Windows, you'll find the BFD Eco standalone application here:

Program Files/FXpansion/BFD Eco NFUZD or **Start menu/Programs/FXpansion/BFD Eco NFUZD**

On Mac, launch **BFD Eco NFUZD** from your **Applications** folder.

Once you start the application, it may be necessary to set up its audio and MIDI settings.

2. As an instrument plugin within a host/DAW

BFD Eco NFUZD can be launched in a compatible plugin host/DAW in the same way as any other plugin instrument.

For a more detailed guide to standalone application and plugin usage, see chapter 11.

BFD Eco's interface

BFD Eco's interface mainly consists of 3 pages, along with a mixer that is always visible. Switch between the pages using the 3 page buttons at the top-left of the BFD Eco interface.

Mixer & kit-piece slots

The mixer blends between all 12 kit-piece channels, OverHead and Room ambience channels and 2 Aux channels. A number of routing and parallel processing functions are also possible.

The kit-piece channels are also *slots* in which to load kit-pieces – double-click on the channel image or right-click on the channel and use the **Load kit-piece** function to browse and load kit-pieces.

Kit page

The Kit page shows a graphical representation of the loaded kit-pieces, and indicates when they are played – the kit-pieces flash whenever their articulations are triggered. You can also click on kit-pieces here in order to preview them.

Channel page

The Channel page features an EQ and FX chain a well as an Inspector are featuring controls specific to the currently selected channel in the mixer.

- Kit-piece channels: Controls for changing the sound and response of a kit-piece – tuning, damping and more.
- Ambience channels: Controls for changing the stereo width and distance of the ambience mics.
- All channels: EQ and 2 assignable FX slots.

Channel page

Grooves page

Click the Grooves page button to display the controls of the Groove engine, which plays back a library of professionally-produced drum patterns for triggering BFD Eco's sounds internally.

Other interface items and panels

As well as the 3 main pages, BFD Eco also contains the following additional controls and panels:

- **Main preset pickers**

These preset pickers are for loading and saving BFD Eco Presets, kits and mixer setups.

- **Global controls**

A number of global controls are always visible on the interface. This area includes the Transport controls and access to the following functions:

- Jukebox player for practicing to backing tracks on the computer without additional software or mixing setups
- BFD Record panel for saving the Master channel output to disk

- **Options and Help menus**

The Options menu features a number of preference settings and access to additional functionality. It contains the Data path setting, which specifies the location of the BFD Eco audio data, and the User Sample Import function for creating single-articulation mono/stereo BFD Eco kit-pieces from WAV files . The Help menu provides links to support resources.

- **Key Map panel**

The Key Map panel is accessed from the Options menu and allows customization of MIDI note assignments for BFD Eco's kit-piece articulations.

Note for BFD Eco NFUZD users

BFD Eco NFUZD is a special edition of the BFD Eco software created especially for the NFUZD Audio NSPIRE electronic drumkit module. Functionally it is virtually identical to the regular version of BFD Eco although there are a few small differences and additional features such as:

- Export NFUZD Kit for creating kits for the NSPIRE module
- Export NFUZD Loops for creating backing loops for the NSPIRE module
- Default key map for NFUZD Audio NSPIRE drum module
- Exclusive audio content featuring additional articulations (Snare Half-edge and Rim-clicks, Tom Rim-shots, Hihat Splashes and Cymbals with Edge/Bell sounds)

This manual usually refers to the software as *BFD Eco*.

When describing features exclusive to the NFUZD edition it may be referenced as *BFD Eco NFUZD*.

1:2 Loading sounds

Once BFD Eco has been launched, sounds must be loaded into it. See chapter 3 for more detailed information about the various preset types described below.

• Loading a BFD Eco Preset

Click on the Preset picker drop-down – either click on any Preset shown in the menu, or use the **Load...** function to use the Preset browser.

A Preset contains information about the entire state of BFD Eco:

- the kit itself
- kit-piece adjustments like tuning and damping
- mixer and EQ/FX settings
- the contents of the Grooves page.

• Loading a kit

Click on the kit picker drop-down – either click on any kit shown in the menu, or click the **Load...** function to use the kit browser.

Loading a kit loads a new configuration of kit-pieces with adjustments like tuning and damping and so on. The state of the mixer and the Grooves page remains unchanged.

• Loading a kit-piece

To load an individual kit-piece such as a snare, double-click on the Snare channel image to open the kit-piece browser. Alternatively, right-click anywhere on the Snare channel and click the **Load Kit-piece** function.

Double-click on any snare in the browser's kit-piece list in order to load it.

The new snare replaces the previous snare. Additional adjustments like tuning and damping are unchanged.

Double-click channel image to load kit-piece

OR

Right-click on the channel and click 'Load Kit-piece'

1:3 Playing sounds

Once some sounds have been loaded, they can be played using any of the following methods:

• via MIDI

MIDI Notes that are assigned to articulations can be played via a MIDI keyboard or from a sequence in the host/DAW when running BFD Eco as a plugin.

• from the Grooves page

The built-in Groove engine plays BFD Eco's sounds with its built-in library of expressive drum patterns. Click on a Groove in the Groove page's browser to hear it through the currently loaded sounds.

• previewing sounds

Kit-pieces can be previewed by clicking the relevant part of the Kit page display (kit-piece slots 1-11 only), or by ALT-clicking a kit-piece channel image in the mixer.

Ch.2 BFD Eco audio architecture

2:1 Kits, kit-pieces, articulations and velocity layers

Kits

In BFD Eco, a *kit* is a combination of kit-pieces, along with Channel inspector adjustments to each kit-piece.

Kit-piece

Kit-pieces are individual drums, cymbals, hihats or other instruments within a kit. They are each made up of one or more *articulations*, which represent an individual way of playing the kit-piece.

Articulations and velocity layers

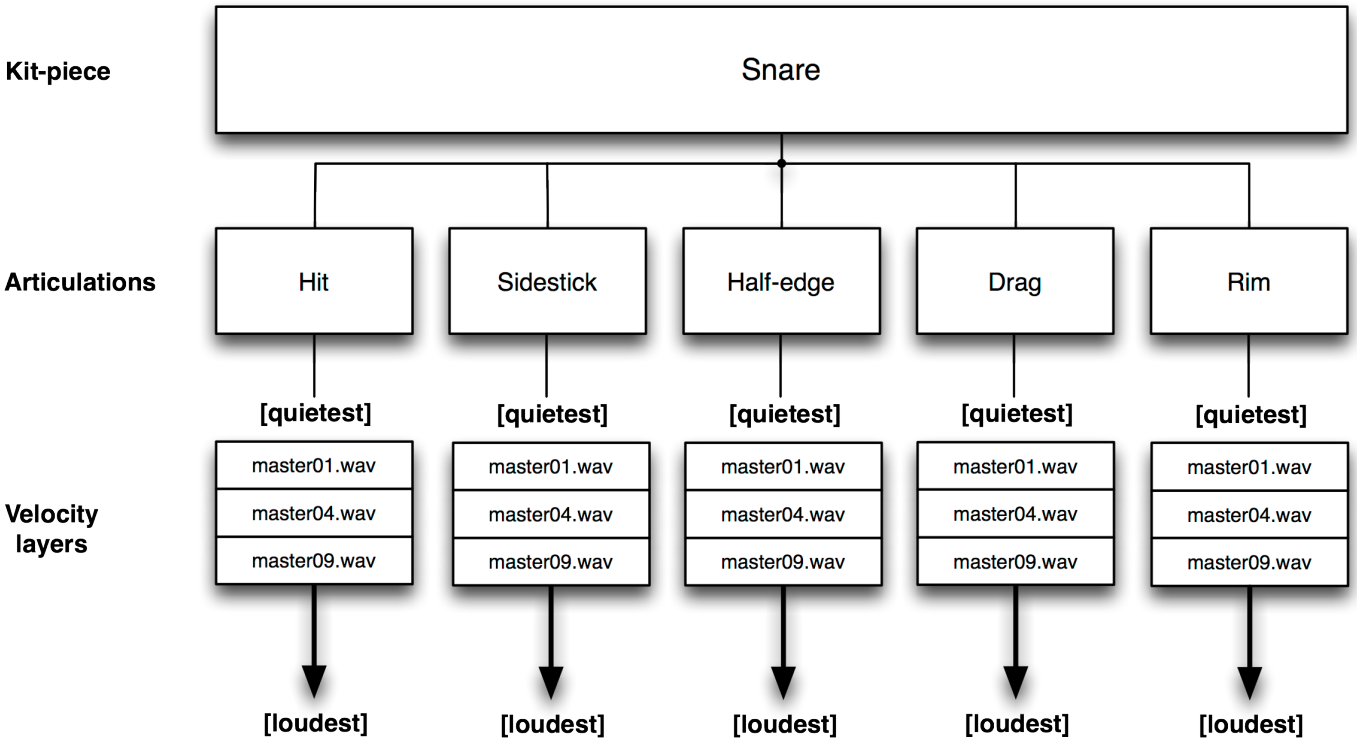
The available *articulations* vary for each type of kit-piece:

Kit-piece type	Articulations within BFD Eco NFUZD library
Kick	Hit, No-snare Hit
Snare	Hit, Sidestick, Half-edge, Rim (Rim-shot), Drag, Rim-click, Flam
Hihat	Closed, 1/4-open, 1/2-open, 3/4-open, open (tip) Closed, 1/4-open, 1/2-open, 3/4-open, open (shank) Pedal, Splash
Toms	Hit, Rim (Rim-shot)
Cymbals	Hit, Bell and Edge
Percussion	Hit, Alt

Please note that some kit-pieces may not contain all possible articulations – in this event, intelligent substitution occurs if a missing articulation is triggered.

Each articulation is a folder of numbered samples or audio files, called *velocity layers*. These are recordings of the instrument being struck at varying levels of intensity, from very light to very heavy, arranged across the MIDI velocity range from 0 to 127. When articulations are triggered in BFD Eco, their velocity layer samples are played depending on the velocity of MIDI events received.

The default assignments for kit-piece articulations in the NFUZD Audio NSPIRE key map are listed later in this chapter.



Choke articulations

A choke is a special kind of articulation which does not produce any sound – instead, triggering a kit-piece's choke stops any other articulations from the same kit-piece that are currently playing. This feature is useful for choking a cymbal tail early – a drummer would 'stop' the cymbal by 'grabbing' it.

Note that playing a kit-piece articulation while another from the same kit-piece is still playing results in the new articulation choking the previous articulation. In most situations, this occurs gently. However, when playing a closed or pedal hihat articulation while an open articulation is still playing, the open sound is choked immediately (reflecting the behaviour of a real hihat).

2:2 Mic channels

Each velocity layer is an audio file containing multiple audio channels. These channels are recordings from several sets of microphones. Real drum recording situations commonly use multiple mic setups in order to capture a variety of different aspects of how the kit sounds within a room.

A kit-piece may sound very different depending on mic placement. Snares sound very different when mic'd from above rather than from below – a mic above a snare captures the 'pop' of the skin being struck while the crunch and sizzle of the wire-mesh snare is captured by a mic underneath the drum. Mics inside kick drums tend to pick up the 'snap' or 'click' of the beater strike (this mic is sometimes placed on the beater side). The main 'thud' and low-end power is captured by a mic outside the drum (on the side furthest from the drummer).

Drum recording situations also make use of stereo sets of mics to capture the kit as it sounds as a whole within a space. They capture the projection of the kit and its reflections within the room. BFD Eco features the signals from two sets of these mics, called *ambience channels*. Individual directional close mics on various parts of the kit, known as *direct channels* in BFD Eco, sound very 'dry' in comparison.

Mic channel	Position	Kicks	Snares	Toms / Perc	Cyms / Hats
Kick In	Inside the kick	Direct Kick In	-	-	-
Kick Out	Outside the kick	Direct Kick Out	-	-	-
Snare Btm	Below the snare	Bleed	Direct Snare Bottom	-	-
Snare Top	Above the snare	-	Direct Snare Top	-	-
Multi	Any other mic pointed directly at a kit-piece	-	-	Direct signal	Direct signal
OH	Above the kit	All kit-pieces feature a stereo OH ambience channel. The 'amount' of each kit-piece in the OH channel can be varied with the **Ambience OH** control in the Channel page.			
Room	Further back in the room	All kit-pieces feature a stereo Room ambience channel. The 'amount' of each kit-piece in the Room channel can be varied with the **Ambience Room** control in the Channel page.			

Bleed and Direct channels

'Bleed' between mics is a phenomenon that always occurs when recording drums with discrete direct mics for each part of the kit. A dedicated mic intended to capture one part of the kit always picks up some sound from other parts of the kit.

In BFD Eco, bleed exists only for the kick signal in the Snare Bottom channel – this is in order to reduce system resource and RAM usage. It is possible to control the level of this bleed with the **Bleed** control at the lower-left of the interface.

Whether bleed is used is down to personal preference. It is recommended to use bleed to achieve a more realistic sound, as bleed always occurs in a multi-mic drum recording. However, to go beyond notions of realism and achieve 'ideal separation' for processing each kit-piece discretely, reduce the **Bleed** control to 0.

Ambience channels (stereo)

The BFD Eco mixer's ambience channels are presented in the same way as such mic sets would exist in a real drum recording. Because each BFD Eco kit-piece is recorded individually, its ambience channels actually exist discretely. Since this would require too many channels to conveniently mix, the discrete channels are mixed down to an ambience channel 'bus' for each set of mics. However, BFD Eco does provide the ability to adjust the amount of each kit-piece in the ambience channels with its **Ambience OH** and **Ambience Room** controls.

2:3 Using expansion packs with BFD Eco

When using expansion packs with BFD Eco, only the first 2 ambience channels can be used. In addition, all audio data is loaded in 16 bit quality with a maximum of 24 velocity layers.

2:4 Default MIDI key assignments

The following table shows the default MIDI key assignments for the NFUZD Audio NSPIRE drum module key map in BFD Eco NFUZD.

This list corresponds to -2 Octave numbering scheme (the lowest octave is numbered as octave -2). MIDI note numbers are also shown.

MIDI note	MIDI note number	Slot : Articulation	Kit-piece articulation
E3	64	8:2	Cym2 Bell
D3	62	7:2	Crash (Cym1) Bell
B2	59	9:3	Ride (Cym3) Edge
A#2	58	4:3	Floor Tom Rim
A2	57	8:1	Cym2 Hit
G2	55	7:3	Crash (Cym1) Edge
F2	53	9:2	Ride (Cym3) Bell
E2	52	8:3	Cym2 Edge
D#2	51	9:1	Ride (Cym3) Hit
D2	50	6:3	Hi Tom Rim
C#2	49	7:1	Crash (Cym1) Hit
C2	48	6:1	Hi Tom Hit
B1	47	5:3	Mid Tom Rim
A#1	46	3:1	Hihat Open Tip
A1	45	5:1	Mid Tom Hit
G#1	44	3:11	Hihat Pedal
G1	43	4:1	Floor Tom Hit
F#1	42	3:9	Hihat Closed Tip
F1	41	11:1	Tom4 Hit
E1	40	2:4	Snare Rim
D#1	39	11:3	Tom4 Rim
D1	38	2:1	Snare Hit
C#1	37	2:5	Snare SideStick
C1	36	1:1	Kick Hit
D0	26	3:2	Hihat Open Shank
A#-1	22	3:10	Hihat Closed Shank
A-1	21	3:14	Hihat Splash
D#-1	15	10:1	Perc1 Hit
D-1	14	10:2	Perc1 Alt

Additional unmapped articulations

Please note that the default BFD Eco NFUZD key map does not feature mappings for the following articulations by default:

• Perc2 Hit / Perc2 Alt

These articulations do not feature any trigger input on the NSPIRE drum module.

• Snare Drag / Flam

These techniques are intended to be played by the drummer using the regular Snare Hit articulation.

• Hihat 1/4-open / 1/2-open / 3/4-open (Tip & Shank)

These hihat articulations are intended to be accessed by playing the Hihat Open or Hihat Closed notes in conjunction with the NSPIRE module hihat pedal controller when **Variable mode** is activated as in the default NSPIRE key map.

All the above unmapped articulations are still present and can be manually assigned to MIDI notes if desired in the Key Map panel. This may be necessary if connecting an additional trigger pad or to record hihat performances without using a MIDI CC and **Variable mode** (which can lead to recordings that are easier to edit further). The additional articulations can also be useful when programming or editing/fine-tuning parts.

After creating any desired assignments, please remember to save the customized key map for future use. BFD Eco loads the *last saved or loaded* map when it is launched.

Second articulation mappings for Tom and Perc2 slots

The second key mapping for the 4 Tom slots is assigned to the 3rd tom articulation – for the BFD Eco NFUZD data this triggers the Rim articulation (Rim-shot). When loading a tom from an expansion pack without this articulation, a Tom Alt articulation is substituted and played in its place. If a Tom Alt articulation does not exist, the assignment falls through to the Tom Hit articulation.

Note that Tom4 is not located next to the other Tom slots because it effectively replaces a Percussion slot.

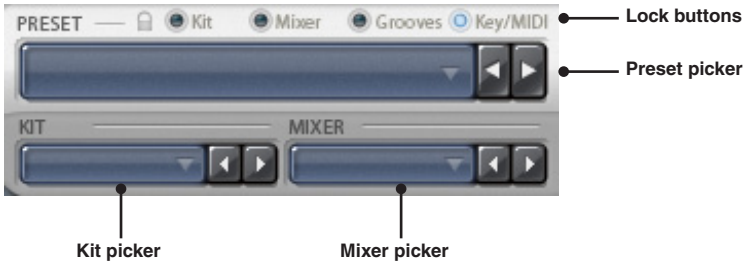
Type selector for Perc1, Perc2 and Tom4 slots

Slots 10-12 (the Perc1, Tom4 and Perc2 slots) are capable of loading any of 3 types of kit-pieces – Toms, Percussion or Cymbals – by using the **Type** selector in the kit-piece browser for these slots.

Ch.3 Loading and saving in BFD Eco

3:1 Preset types and kit-pieces

Preset pickers



BFD Eco features preset pickers for the following type of presets:

BFD Eco Presets

A BFD Eco **Preset** stores the entire state of the instrument.

Presets also store preference settings which were active when they were saved – these override BFD Eco's default preference settings when the Preset is recalled.

Kits

A **kit** stores the configuration of kit-pieces that form a drumkit along with settings for the kit-piece's Inspector controls.

- Kit-pieces contained within slots
- Kit-piece inspector settings (except the **Aux1 / Aux2 Send** controls)

Mixers

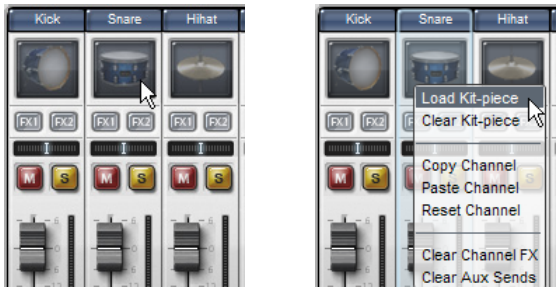
A **mixer** is a preset that stores the state of the mixer, including output routings and FX settings.

- It also stores the state of the **Aux1 / Aux2 Send** controls, located in the Channel page for kit-piece and ambience channels.

Loading Kit-pieces

Kit-pieces (without any additional settings, as opposed to kit-piece presets – see below) do not feature pickers like the main preset types. Instead, they are loaded using the kit-piece browser which is displayed in either of the following ways:

- Double-click on a kit-piece channel image
- Right-click (or CTRL-click on Mac) on a kit-piece channel and use the **Load Kit-piece** function in the Channel context menu that appears



Double-click channel image to load kit-piece *OR* **Right-click on the channel and click 'Load Kit-piece'**

3:2 Other preset types used in BFD Eco

The following types of preset files both feature preset pickers, although they are not located along with the main preset pickers at the top-right of the BFD Eco interface:

Kit-piece presets

A kit-piece preset stores the entire contents of a kit-piece channel – the kit-piece contained within the channel, its mixer settings and its Channel page settings (including all Inspector, EQ and FX slot settings).

The kit-piece preset picker is located above the large kit-piece image on the Channel page when a kit-piece channel is selected.

Key maps

Key maps store MIDI key assignments for playing articulations with MIDI note input.

The key map picker is located in the Key Map panel, accessed via the Options menu.

3:3 Using Preset pickers

As well as a listing of the currently available presets (click on any preset in the list to load it), each preset picker's drop-down menu features the following functions:

Load...

Click the **Load** function to open the preset browser.

Save...

The **Save** function opens an OS file Save As dialog for saving the the current settings as a preset.

Clear...

The **Clear** function clears the contents of BFD Eco relevant to the preset type:

- Preset picker: clears the entire state of BFD Eco
- Kit picker: clears the kit and inspector settings
- Mixer picker: clears the entire mixer and EQ/FX settings
- Key map picker: clears the entire key map

Using the preset picker for BFD Eco Presets

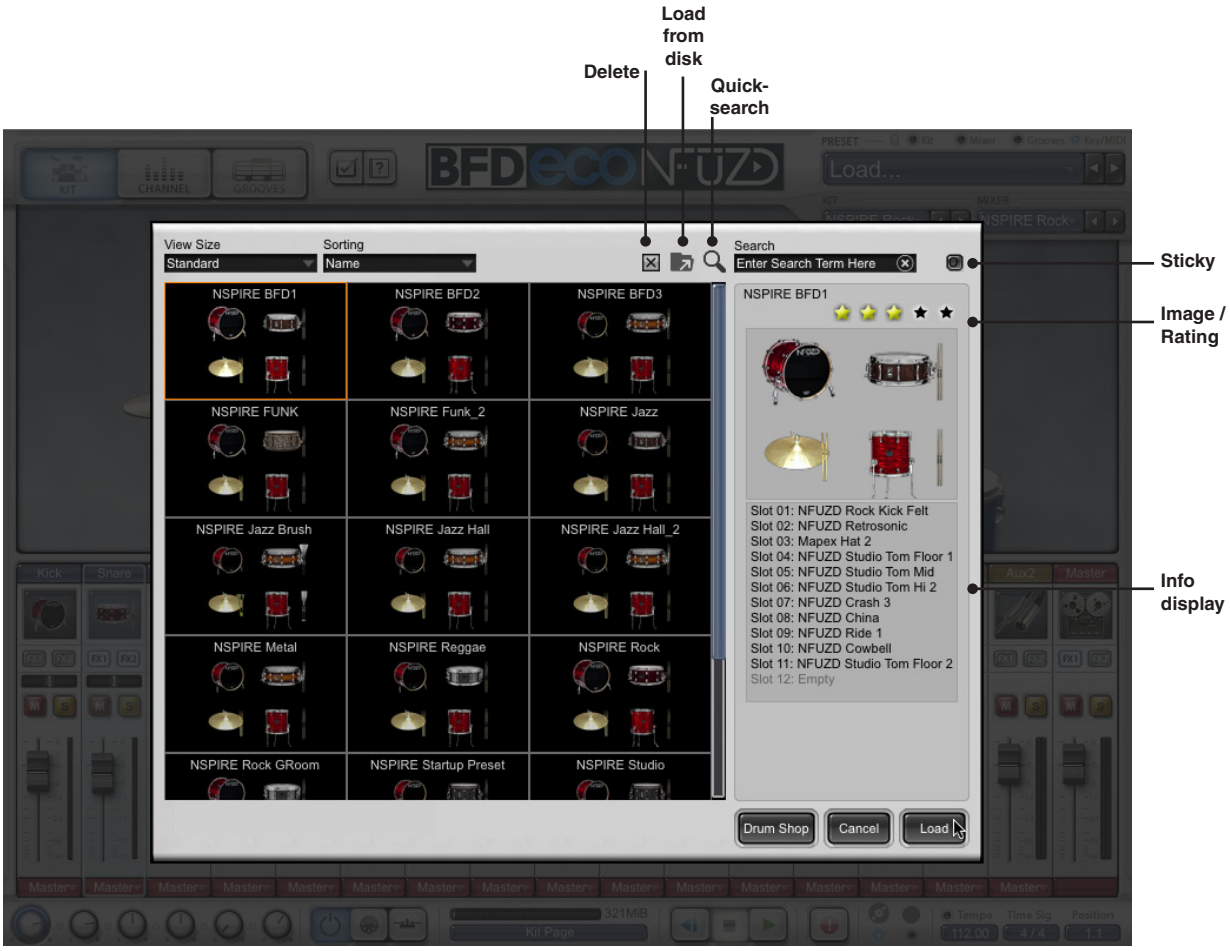
3:4 Lock buttons

Lock buttons exist for the **Kit**, **Mixer**, **Grooves** and **Key/MIDI** (key map and MIDI CC assignments made in Learn mode) above the preset picker area. Activating any of these buttons locks the relevant parts of BFD Eco, so that they remain unaffected when a relevant **Load...** or **Clear...** function are used.

The **Key/MIDI Lock** button is activated by default when BFD Eco is launched – this is in order to preserve your input setup when loading Presets which may have a different key map saved with them.

3:5 Using preset browsers

A preset browser appears when using the **Load...** function on any preset picker (for the Preset, kit, mixer or key map) or when loading kit-pieces (either with the channel context menu or by double-clicking a kit-piece channel image).



Preset listing, Load and Cancel

The main part of the browser is the preset listing. Click a preset in the listing to select it, and click the **Load** button to load it.

Alternatively, double-click any preset in order to load it.

To exit the browser without loading a preset, click the **Cancel** button.

Previewing kit-pieces in-context (kit-piece browser only)

When using the kit-piece browser, selecting a kit-piece in the listing results in it being previewed 'in-context' – any MIDI notes for the kit-piece that are sent to BFD Eco result in triggering the currently selected kit-piece.

View Size / Sorting

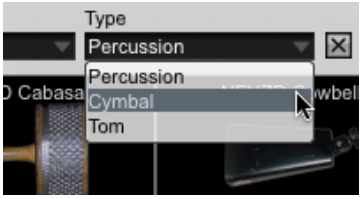
The **View Size** drop-down menu sets the size of images shown in the browser listing. The *List* and *Details* settings are text-only and can display more items at once without scrolling (useful with multiple expansions installed). The default setting is *Standard*.

The **Sorting** drop-down menu sorts items in the listing by *Name* or *Star Rating* (the default setting is *Name*). In the kit-piece browser, this drop-down menu also contains *Manufacturer*, *Artic Count* (the number of articulations present within the kit-piece), and *Disk Size* (the size of the kit-piece on disk, which is an indication of how much RAM it uses when loaded).

Rating presets or kit-pieces and sorting them by *Star Rating* can make it easier to find favourites.

These settings are recalled between sessions. Their state is stored in the preferences – they are reset to default if the preferences are reset.

Type (kit-piece browser for Percussion slots only)



The **Type** drop-down menu specifies the type of kit-piece to browse and load for Perc1, Tom4 and Perc2 slots (slots 10-12) – toms, cymbals or percussion can be browsed and loaded into these slots.

Note that when using cymbals in these slots, only the first two articulations are available. This typically means that these slots cannot utilize the Edge articulation when Hit and Bell articulations are also present. These slots also provide 2 articulations for toms (Hit and Rim-shot are prioritized) and percussion (the first 2 articulations, usually Hit and Alt).

Delete

This button is used to remove unwanted presets or kit-pieces from the database if they are not required. BFD Eco prompts for confirmation before proceeding.

When removing a user preset from the database, BFD Eco also asks if its files should be removed from disk. Click *Yes* to remove the files from the relevant user preset location. Clicking *No* results in the preset's files remaining untouched (they are found when using the **Rebuild Databases** function in the Options menu).

It is not possible to delete the files on disk for factory-installed preset files or kit-pieces from within BFD Eco – these are always found when using the **Rebuild Databases** function unless they are manually deleted using the OS file system.

Load from disk (Preset, kit and mixer browsers only)

Click this button to display an OS file Open dialog for navigating to a specific preset. When loading a preset in this way, BFD Eco asks if it should be imported into the database. This function is intended for loading new presets without copying them to the correct location and using the **Rebuild Databases** function.

Above: the Search function

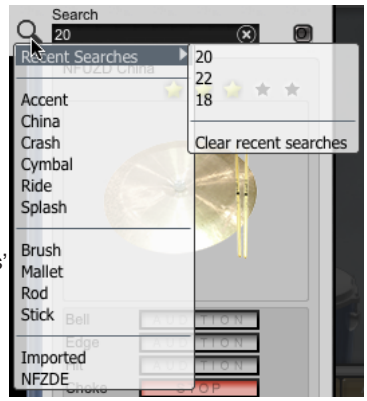
Below: the Quick-search drop-down

Search

Click inside the **Search** box and enter one or more search keywords to narrow down the browser listing – for example, enter 'Maple' to see all Maple drums of the current type, or '14' to show all 14-inch drums.

Quick-search

Useful search terms are stored in the **Quick-search** drop-down menu to the left of the **Search** text-box. Recent searches are shown in the menu along with other relevant terms.



Sticky

With the **Sticky** button enabled, the browser stays open after a preset/kit-piece is loaded – BFD Eco can be played via MIDI to try different presets/kit-pieces while the browser remains open.

Image / Rating

Presets can be rated using the **Rating** control above the large image – ratings can be used as a 'favourites' system when **Sorting** is set to *Star Rating*.

Info display

The **Info display** varies depending on which type of preset is being browsed.

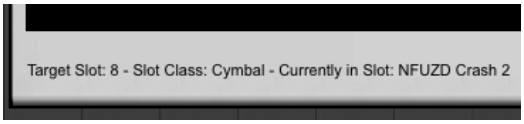
Presets/kits:	The display shows a list of the kit-pieces within each slot.
Mixers:	The display is blank.
Kit-pieces:	The display shows audition preview strips for each articulation within the kit-piece, along with additional background information.

Kit-piece articulation audition strips (kit-piece browser only)

The display features an audition strip for each articulation within the selected kit-piece. Click towards the left of the strip to hear lower velocity layers, and to the right for higher layers. To stop a long articulation like that of a cymbal, click the Choke (Stop) strip.

Target slot information (kit-piece browser only)

This indicator displays the following information about the destination kit-piece channel:



Target Slot (slot number and name)

The name/number of the slot to which the kit-piece will be loaded.

Currently in Slot

The name of the kit-piece currently loaded into the target slot.

Drum Shop (kit-piece browser only)

Use this function to browse and purchase from the huge and growing range of sound and Groove expansions for BFD Eco.

Ch.4 Kit Page and Mixer

4:1 Kit page

The Kit page, shown when the Kit page button is active, features a visual representation of the BFD Eco kit layout. The first 11 kit-piece channels are represented on the display – only the Perc2 slot is not represented (there is no trigger for this 12th channel on the NSPIRE module).

Click the drum heads or the cymbals/percussion to preview the main articulation of the kit-piece at a velocity of 100. It is also possible to ALT-click kit-piece channel images in the mixer for velocity-sensitive previews – see below.

4:2 Mixer

BFD Eco's mixer features several types of channels:

Kit-piece channels

• Kit-piece channels are mono channels that contain the direct mic signals from a kit-piece.

These channels are also kit-piece *slots* for loading kit-pieces. Double-click a kit-piece channel's image to bring up the kit-piece browser, or right-click (or CTRL-click on Mac) on a channel and use the **Load Kit-piece** function in the channel context menu.

Ambience channels: OH and Room

• Ambience channels are stereo and feature a mix of either the OH or the Room signals from all kit-pieces.

The level of each kit-piece in the ambience channels is set by its **Ambience OH** and **Ambience Room** controls (located in the Channel page's Inspector). By default these are set to send the natural level of all kit-pieces to the ambience channels.

Aux channels

The Aux1 and Aux2 channels are provided so that several signals can be processed together. Entire channels can be routed to an Aux using the channel's **Output selector**, or variable amounts of channels' signals can be routed using the **Aux1 / Aux2 Send** controls (in the Channel page Inspector).

Master channel

The Master channel represents the main stereo output (output 1-2) of BFD Eco. In the default mixer configuration, all other mixer channels are routed to the Master, meaning they are all heard mixed together in the main stereo output.

Use each channel's **Output selector** to re-route their signals to a direct output or to one of the Aux channels.

Mixer visibility

The entire mixer can always be seen when using the Kit, Channel or Grooves pages. However when using the Key Map panel, the ambience, Aux and Master channels are not visible.

Selecting channels

Select a channel by clicking anywhere within it. Channel page Inspector and EQ/FX operations are performed on the *currently selected* kit-piece or ambience channel.

Selecting multiple channels

Multiple channels can be selected in order to perform simultaneous adjustments – **Level** fader, **Pan**, **Mute/Solo** buttons and the **Output selector** can all be adjusted for multiple channels.

• CTRL-click (Windows) or Command-click (Mac)

This adds the channel to the current selection. If a channel is already selected, this operation de-selects it.

• SHIFT-click

This creates a contiguous selection between two channels.

4:3 Mixer channel controls

Kit-piece channel controls

Channel image

Kit-piece direct channels

Each kit-piece channel features an image of the kit-piece currently loaded into it. When a kit-piece channel is empty, the image is a representation of the type of kit-piece intended to be loaded into it (although the Perc1, Tom4 and Perc2 channels can load toms, percussion or cymbals).

When a kit-piece is loaded, ALT-click the image to hear a preview of its main articulation. Click towards the left of the image to preview lower velocities, and towards the right for high velocities.

ALT-click the image to preview the kit-piece

Loading kit-pieces

Double-click a kit-piece channel image to open the kit-piece browser.

Ambience, Aux and Master channels

The images on these channels are solely for identification purposes and are not used for any additional functions.

FX1 / FX2 Power

Each channel's FX1 and FX2 buttons allow a quick way to enable or bypass the channel's 2 FX devices without needing to switch to the Channel page. They perform the same function as each FX device's **Power** button in the Channel page.

Note that these buttons are only usable when an FX device is loaded into the relevant slot.

Pan (kit-piece channels only)

All kit-piece channels feature a **Pan** control in order to adjust the position of the mono channel within the stereo field.

Note that a kit-piece channel's panning cannot be applied to its signal in the ambience channels, which are stereo recordings. However, the **Flip LR** button in the Channel page Inspector can be used to invert the stereo image of a kit-piece's ambience channels to better represent the Pan position of a kit-piece being moved to the other side of the stereo image.

Ambience, aux and Master channel controls: note the lack of a Pan control on these channels because they are stereo.

Mute / Solo

All channels feature **Mute** and **Solo** buttons.

Level fader / meter

Each channel's **Level** fader adjusts its volume. The level of the channel is indicated by the meter to its right.

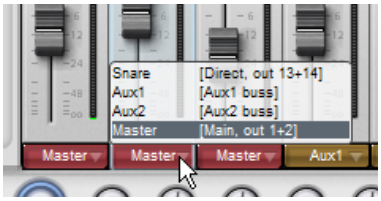
Note that the Master channel fader only affects channels which are routed to the channel. If the output of any channel is set to its direct output, the **Global Volume** control (in the Global controls area) can be used to adjust the level of all channels simultaneously.

Output selector

The **Output selector** at the bottom of each channel allows you to route its signal to the kit-piece's direct output, to the Aux1 and Aux2 channels, or to the Master channel which is hard-wired to the first stereo output from the plugin.

Note that the signal flow between channels is always from left to right – a channel cannot be routed to any channel on its left.

By default, all channels are routed to the Master channel.



Setting the Snare channel output

Available plugin outputs:

Plugin output	Output name	Contents
1-2	Master	Any signals routed to the Master channel
3-4	OH	Stereo OverHead mic signal – amount of each kit-piece in this channel is set by its channel's **Ambience OH** control
5-6	Room	Stereo Room mic signal – amount of each kit-piece in this channel is set by its channel's **Ambience Room Send** control
7-8	Aux1	Aux1 channel – route entire channels to Aux1 using the Output selector, or use the **Aux1 Send** controls to route variable amounts of channels to **Aux1** in parallel
9-10	Aux2	Aux2 channel – route entire channels to Aux2 using the Output selector, or use the **Aux2 Send** controls to route variable amounts of channels to **Aux2** in parallel
11-12	Kick	The direct output of the Kick kit-piece channel
13-14	Snare	The direct output of the Snare kit-piece channel
15-16	Hihat	The direct output of the Hihat kit-piece channel
17-18	Toms	The direct output of the first 3 Tom kit-piece channels (Floor Tom, Mid Tom, Hi Tom)
19-20	Cyms	The direct output of the Cymbals kit-piece channels (Crash, Cymbal, Ride)
21-22	Perc	The direct output of the Percussion and 4th Tom kit-piece channels (Perc1, Tom4, Perc2)

4:4 Channel context menu

Right-click (or CTRL-click on Mac) on a channel in the mixer to display the channel context menu.

Load Kit-piece

This function displays the kit-piece browser.

Alternatively, double-click a kit-piece channel image.

Clear Kit-piece

The **Clear Kit-piece** function removes the currently loaded kit-piece from the channel. The channel's additional settings remain unchanged.

Copy Channel
Paste Channel

These functions allow you to copy and paste the contents of a channel. All the channel's controls, with the exception of Mute/Solo buttons, are copied/pasted – this includes the **Level**, **Pan** and all controls in the Channel page Inspector (where applicable), EQ and FX slots.

Reset Channel

This function resets all channel controls to their default settings except the EQ, FX slots and Aux Sends, which are all unaffected.

Clear Channel FX

This function removes any FX devices loaded into the channel's FX slots and resets the EQ to default settings.

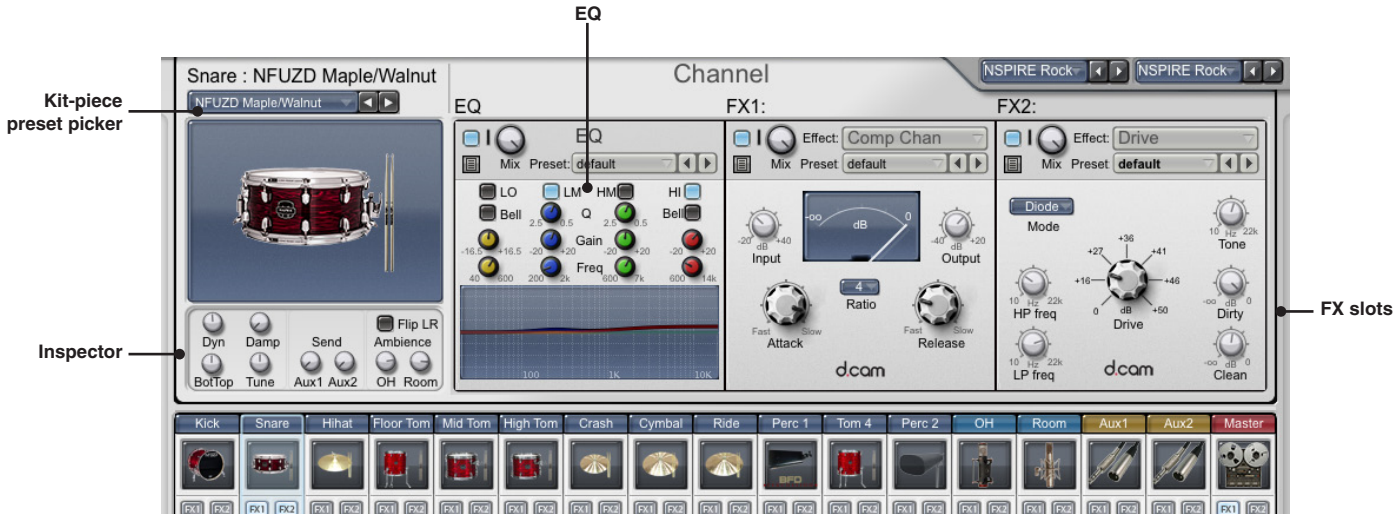
Clear Aux Sends

The values of the **Aux1 / Aux2 Send** parameters for the channel are reduced to 0.

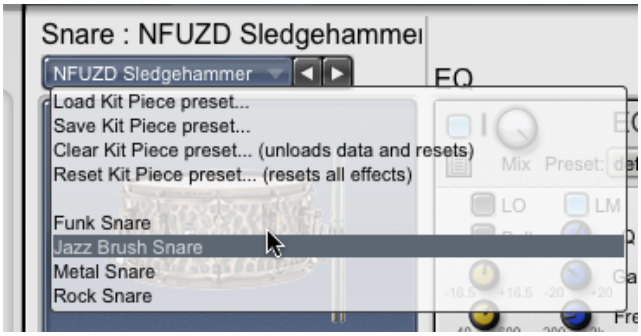
Ch.5 Channel page

Click the Channel page button to display the Channel page. This page features controls that apply to the *currently selected* mixer channel.

There are 3 main areas – the kit-piece preset picker, the Inspector and the EQ/FX slots.



5:1 Kit-piece preset picker



This preset picker provides access to entire channel presets for kit-piece types. These *kit-piece presets* store the state of a kit-piece along with other channel settings.

- the kit-piece loaded into the slot
- channel Inspector settings
- EQ and FX settings
- mixer channel **Level** fader/**Pan** settings.

5:2 Inspector

This area of the interface allows specific aspects of the channel to be adjusted. The controls vary for different kit-piece and ambience channels. There are no Inspector settings on the Aux1, Aux2 or Master channels – only the channel image is shown.

Large channel image

This is a large version of the mixer channel image. ALT-click the image to hear a preview of its main articulation. Click towards the left of the image to preview lower velocities, and towards the right for high velocities.

Inspector display for Kick channel

Tune

The **Tune** control adjusts the pitch of the kit-piece.

Although this control has no logical real-world equivalent for cymbals and hihats (as opposed to drums with tunable skins), the ability to tune them is nevertheless provided.

The **Global Tune** control, found in the Global controls area at the lower-left part of the BFD Eco interface, adjusts the pitch of all kit-pieces relative to their individual **Tune** settings.

Dyn (Dynamics)

The **Dynamics** control scales the velocity of events played by the kit-piece, from the Groove engine or from incoming MIDI note events. The control offsets the velocity of incoming events up or down by up to 127.

The **Global Dynamics** control, found in the Global controls area, offsets the velocity of all kit-piece events relative to their individual **Dynamics** settings.

In/Out (kick only)

This control adjusts the balance between inside (**In**) and outside (**Out**) kick drum mics.

The inside mic provides more attack and sounds more 'clicky', while the outside mic contains more sustained, deep low-end.

Inspector display for Snare channel

Bot/Top (snare only)

This control adjusts the balance between mics below (**Bot**) and above (**Top**) the snare.

The top mic captures more of the sound of the drum-head (skin), while the bottom mic picks up most of the snare wire sound – the 'crunch' and 'rattle' of a snare drum.

Damp (Damping)

The **Damp** (Damping) control reduces the decay of the kit-piece, in a similar way to using a damping method such as a snare ring, a blanket in the kick drum, or damping gel/tape on a cymbal.

Tighten (hihat only)

This control 'tightens' the sound of closed hihat articulations. The control simulates pressing down hard on a hihat clutch, a process that moves the two hihat surfaces more tightly together.

Note that this parameter is not capable of being MIDI-controlled.

Inspector display for Hihat channel

Width (ambience channels only)

This control adjusts the width of the ambience channels' stereo field, from mono to fully enhanced stereo.

Distance (ambience channels only)

This control increases the distance of each set of ambience mic channels from the kit.

The function creates the impression of moving the mics further back in the room by introducing a delay between the direct mics and the ambience channel. It has a similar effect to the ambience as a 'pre-delay' control has over the processed signal on an digital reverb processor.

Ambience controls (kit-piece channels only)

Flip LR

While the stereo position of kit-pieces in ambience channels cannot be adjusted, due to them being stereo recordings, the **Flip LR** button makes it possible to swap the left and right channels of the ambience if a kit-piece is panned to the other side of the stereo field.

Ambience OH/Room

These controls adjust the amount of the kit-piece in the OH and Room ambience channels.

Aux sends (kit-piece and ambience channels only)

Aux1/Aux2 Send

These controls send variable levels of the channel to the Aux1 and Aux2 channels. Sends are useful for parallel processing such as artificial reverb effects.

Note that it is also possible to route the entire output of one or more channels to the Aux channels. Using Sends makes it possible to vary the amount of each channel's signal in the Aux channels without altering the original channels' **Level** faders.

Inspector display for OH and Room channels

5:3 EQ and FX slots

All mixer channels – kit-piece, ambience, aux and Master channels – feature a hard-wired EQ and 2 FX slots, each of which can host one of the 15 internal FX devices.

EQ

Each channel has a 4-band EQ hard-wired into it prior to the 2 FX slots in the signal path. The top part of the EQ device features the same common controls as the FX slots except for an Effect picker. See below for more details of these controls. Additional EQ devices can be loaded into FX slots if required.

Each of the 4 EQ bands features a power button (**LO**, **LM**, **HM** and **HI**) to activate/deactivate it. Bands are also activated automatically when their settings are adjusted.

The Low (LO) and High (HI) bands can be switched from a 'shelf' to a 'bell' response by activating the **Bell** button. The Low Mid (LM) and High Mid (HM) parametric bands include a **Q** control. All bands feature **Frequency** and **Gain** controls.

Frequency Display control

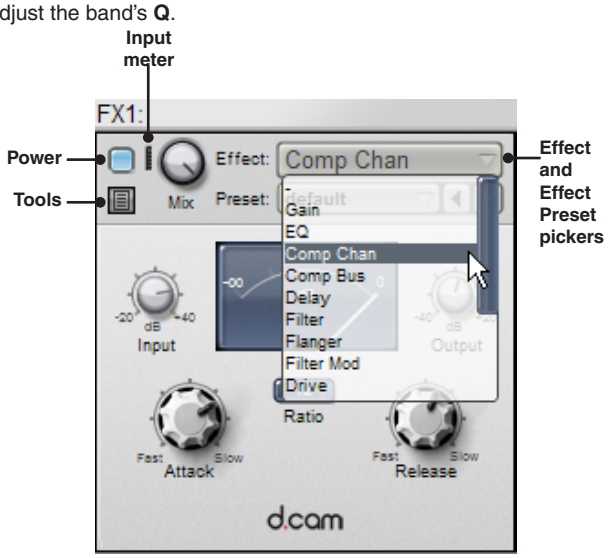
EQ curves can be adjusted by clicking and dragging the graphical display on the EQ interface.

To edit a band in this way, move the mouse cursor over the display. The display is divided into 4 zones for each band from LO to HI, from left to right. Each zone is highlighted in a different colour, corresponding to the colour of the bands' controls.

- With a band highlighted, click and drag up/down to adjust the band's gain, and left/right to adjust its **Frequency**.
- For the Mid bands, click and drag up/down while holding down the ALT key to adjust the band's **Q**.

FX slots

This section describes the common controls of the FX slots. See chapter 10 for more details of each FX device.



Power

The **Power** button activates/deactivates the FX slot. With the button deactivated, the effect is bypassed and inactive (its controls cannot be adjusted). These buttons are duplicated in the mixer in the form of the **FX1** and **FX2** buttons so that individual FX can be powered on/off without using the Channel page.

Effect devices all channels can be toggled on/off using the **FX Power** button in the Global controls area.

Input meter

This meter represents the level of the signal entering the FX slot. It is useful for ensuring that the FX device in the slot is receiving a signal and that the input is not clipping.

Mix

The **Mix** control, which blends between the processed (wet) and unprocessed (dry) signals, exists on all BFD Eco FX. By default, all FX are set to 100% wet, but this control adjust the wet/dry mix as required.

While it is not common to see a wet/dry mix control on compressors, it is available on all BFD Eco FX including its dynamics processors as it can be very useful for parallel compression on a single channel.

Effect picker

Select the desired FX device for the slot using this drop-down menu.

Effect preset picker

Each FX device features its own set of presets, selectable from this drop-down menu. Cycle through the available presets using the **Previous** and **Next** buttons.

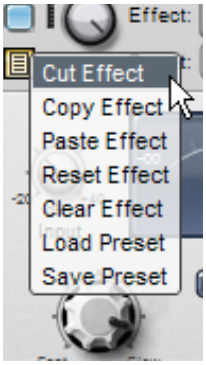
Effect preset picker

Tools menu

The Tools menu is displayed by clicking the **Tools** button, or by right-clicking anywhere in the common controls area of the EQ and FX slots. This menu offers a number of functions for managing FX and their settings.

Cut / Copy / Paste Effect

These functions cut, copy and paste FX devices (with their current settings) between any FX slots on any channel.



Reset Effect

This function reverts to the FX device's default settings.

Clear Effect

This function removes the FX device from the slot.

Load Preset

This function displays an OS file Open dialog for navigating to and selecting an effect preset file (the file extension is **.bfdfx**).

The default folder is **<Documents>/FXpansion/BFD Eco/Mixers/Effects/<effect>**

Save Preset

This function displays an OS file Save As dialog for saving a preset to any location.

The default folder is **<Documents>/FXpansion/BFD Eco/Mixers/Effects/<effect>**

It is strongly recommended to store presets in the default folders, for ease of reloading in the future!

Ch.6 Grooves

6:1 Introduction to Grooves

The Grooves page is shown when the Grooves button is active, and provides realistic drum patterns (Grooves) in a variety of genres to play using the BFD Eco sounds.

The Grooves page features the following main areas:

- Groove browser: this area is for finding and playing individual Grooves
- Grooves Mode buttons – these buttons dictate the playback behaviour of the Groove engine
- Drum Track – this provides a single-track Groove arrangement function
- Additional Drum Track controls and Groove FX – these include export and humanization functions

The Transport controls are also very important when using the Grooves page.

Using Grooves

Grooves can be used in the following ways:

Single mode: Single Grooves in the browser can be previewed in sync with your host
Track mode: Drag & drop Grooves to the built-in Drum Track to create a sequence of Grooves
Drag+drop to host/file: Drag & drop Grooves to a MIDI track in the host/DAW which is routed to the BFD Eco plugin

6:2 Groove browser

The Groove browser is used to find and audition Grooves. Grooves can then be dragged to the Drum Track, exported to the host or simply looped using the *Single* **Grooves Mode**.

Groove list

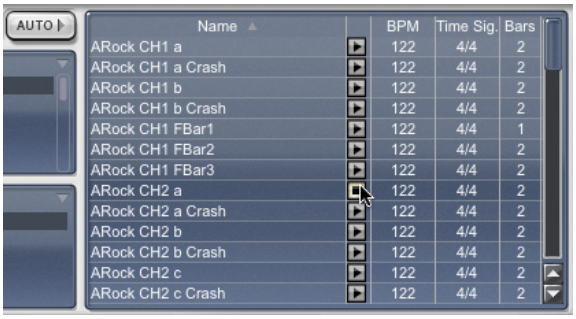
All available Grooves are shown in the list. There are a number of columns which display extra information about each Groove. The list can be sorted by the *Name* or *BPM* columns (the other columns represent the time signature and length in bars of each Groove).

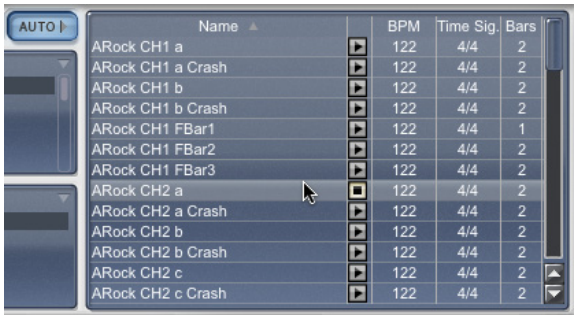
Auto-Preview and individual Preview buttons

With the **Auto-Preview** button activated, selecting any Groove in the browser results in it automatically being previewed (in sync with the host if it is playing).

With the **Auto-Preview** button deactivated, click a Groove's individual **Preview** button to preview it.

Note that BFD Eco cannot play more than 1 Groove simultaneously – if a Groove is already playing (for example, from the Drum Track), it is muted while Groove browser previews occur. Whenever previewing is stopped, the previously playing Groove is restored.





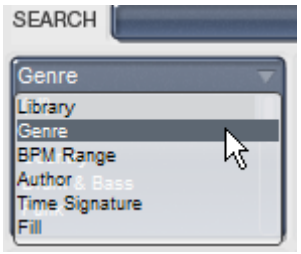
When Auto-preview is enabled, simply select a Groove to audition it.

Category filters

4 category filters are available to narrow down the Groove list. Each filter can be set to one of the following categories by using its drop-down menu:

- Library
- Genre
- BPM Range
- Author
- Time Signature
- Fill/Groove

The defaults are *Genre*, *BPM Range*, *Time Signature* and *Fill/Groove*. Each of these categories features a number of items with which to filter the Groove list. By default, all filtering is turned off (each category is set to *All*).



Selecting a category

Selecting an item with which to filter the category

Search

The **Search** function looks for Grooves that match one or more keywords. The *Name*, *Author*, *Library*, and *Genre* information fields are searched.

6:3 Setting the behaviour of the Groove engine

Grooves Mode

This set of 3 buttons dictates how BFD Eco responds when its transport is started – either using the **Play** button on BFD Eco's Transport, or in the host/DAW when using BFD Eco as a plugin.

Off

No Grooves start playing automatically when the transport is started.

This mode should be used when working with the MIDI functionality of a host/DAW to send notes to BFD Eco. Note that Grooves can still be previewed within the browser, and exported to tracks in the DAW if desired.

Single

The currently selected Groove is played when the transport is started.

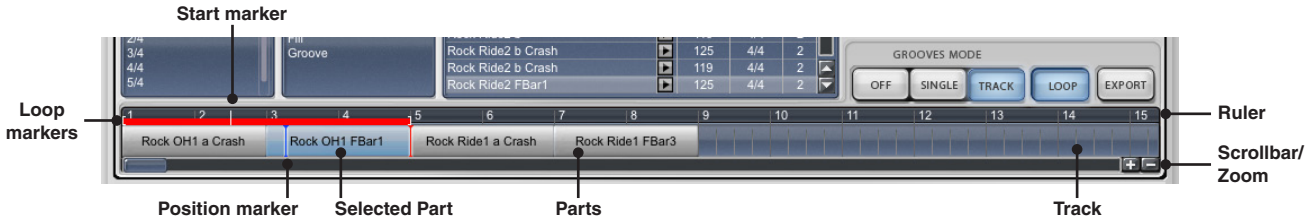
Single mode effectively offers a simple Groove player which indefinitely loops the currently selected/previewed Groove in the browser. The selected Groove is saved and recalled with the BFD Eco Preset or with the host project.

Track

The Drum Track is played when the transport is started.

6:4 Drum Track

The Drum Track allows an arrangement of Grooves to be created by dragging Grooves from the browser onto a timeline.



Ruler

The **Ruler** represents the Drum Track timeline in bars.

Track

Grooves are added as 'Parts' onto the **Track** using drag & drop (see below). The Track also features markings to indicate bar and beat divisions.

Scrollbar / Zoom

The **Zoom** buttons control the Drum Track's horizontal zoom level. The mousewheel can also be used while holding down the ALT key to change the zoom level. If the zoom level results in part of the Drum Track not being visible, use the **Scrollbar** (or mousewheel) to adjust the visible area.

Drum Track markers

Position marker (blue)

The blue **Position marker** indicates the current playback position while the Drum Track is playing back.

Click in the **Ruler** (outside the loop indicator if it is active) to set the marker's position – if the Drum Track is currently playing, playback 'jumps' to this new position. This also disconnects host/DAW sync while running BFD Eco as a plugin. Stop and restart the host transport to 'reconnect' synchronization.

Insert marker (red)

The red **Insert marker** indicates the insertion point when adding a Groove to the Drum Track and when moving or copying parts within it.

Its position also specifies the point at which Parts are split when using the **Split Part at Marker** function in the Track context menu.

Changing the insert marker position

To change the position of the **Insert marker**, click the desired position on the Track.

Start marker (white)

• Standalone mode or host transport stopped

The white **Start marker** indicates the point in the Drum Track to which the position marker is sent when using the **Return to start** button on the transport.

The next time the BFD Eco Transport is started, playback starts from the **Start marker** point. Clicking the **Return to start** button during playback causes the play position to jump to the start marker immediately.

• Host transport started

When the host transport is active, the Drum Track playback position always starts in sync with the host position.

Click the **Stop** or **Return to start** buttons on BFD Eco's Transport during playback in order to disconnect the synchronization between host and plugin. To re-establish host synchronization, stop and restart the host transport.

Changing the Start marker position

To change the position of the **Start marker**, click in the **Ruler** while holding down the ALT key.

Alternatively, click twice in the Ruler (without holding down the ALT key) – the first click sets the blue **Position marker** and the second click sets the white **Start marker**.

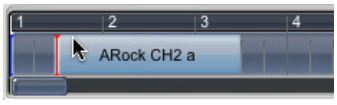
Loop markers

These markers are active when the **Loop** button is activated.

6:5 Adding parts to the Drum Track

To add a Part to the Drum Track, drag and drop any Groove from the browser to the desired position in the Drum Track. The insertion point is shown by the red **Insert marker**. Once a Groove has been dropped onto the Track, it is referred to as a 'Part'.

1. **Drag a Groove from the browser over the Drum Track**
2. **The position at which it will appear is indicated by the red Insert marker**
3. **Drop the Groove to add it as a Part at the Insert marker position**



It is not possible to layer multiple Parts on top of each other – only one Part can be playing on the Drum Track at once. For more complex sequencing, MIDI tracks in a host/DAW must be used to send events to the BFD Eco plugin. Grooves can be exported to host/DAW MIDI tracks via drag and drop.

6:6 Manipulating Parts on the Drum Track

Selecting Parts

Click on a Part to select it. Several adjacent Parts can be selected by clicking on the song background and drawing a selection box over the desired Parts. You can also select multiple parts in the following ways:

• CTRL-click (Windows) or Command-click (Mac)

This adds the Part to the current selection. If a Part is already selected, this operation de-selects it.

• SHIFT-click

This creates a contiguous selection between two Parts.

Moving selected Parts

Using drag & drop

To move Parts within the Track using drag & drop:

1. Select one or more parts and then drag them left/right along the Track.
2. The position at which they will be dropped is shown by the red **Insert marker**.
3. Release the mouse button to drop the part at the desired position.

If there is a gap between the insert marker and subsequent Parts identical to or greater than the size of the moved Part(s), the moved Part(s) simply slot into the gap.

If there is no gap, or a gap smaller than the moved Part(s), all subsequent Parts in the track are nudged later in time by the length of the moved Part(s) – in other words, the gap is preserved.

Using the Track context menu

The Track context menu features **Cut selected Parts** and **Paste Parts at Marker** functions for Part selections, which can be used as an alternative method of moving Parts.

Copying selected Parts

Parts can be copied using drag and drop while holding down the ALT key. This follows exactly the same behaviour as that which occurs when moving Parts, except that the original Part is copied instead of being moved.

Parts can also be copied using the **Copy selected Parts** and **Paste Parts at Marker** functions in the Track context menu.

Changing the size of Parts

When the mouse cursor is moved over the right/left edges of a Part, it indicates the Part's size can be adjusted by clicking and dragging left/right.

Click the right edge and drag towards the left in order to shorten the Part. A truncation indicator at the right of the Part shows that it has been shortened. The length of a shortened Part can be increased by clicking the right edge and dragging towards the right.

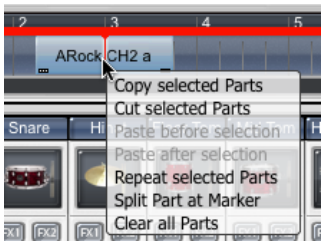
Click the left edge of a Part and drag towards the right in order to change the Part's start point. A truncation indicator at the left of the Part shows that its start point has been changed. Click the left edge of the Part and drag towards the left in order to move the start point towards the start of the Part.

It is not possible to change the length of a Part beyond that of the original Groove.

Truncation indicators show Part has been shortened and start point has been changed

Track context menu

Right-click (or CTRL-click on Mac) on the Drum Track to display the Track context menu, featuring several additional functions for manipulating Parts on the Drum Track. The available functions on the menu depend on whether an empty area of the Track or a selection of Parts is right-clicked.



Track context menu when right-clicking on a Part

Cut selected Parts

This function removes the selected Parts from the track and stores them in the clipboard.

Copy selected Parts

This function stores the selected Parts in the clipboard.

Paste before selection / Paste after selection

These functions are visible in the Track context menu when the Insert marker is positioned within a selected Part. They allow any Parts in the clipboard to be pasted before or after the currently selected Part on the Track.

Paste Parts at Marker

This function pastes any Parts stored in the clipboard to the point indicated by the Insert marker.

This function is visible in the Track context menu when the Insert marker is positioned on an empty section of the Track.

Parts are inserted sequentially in their original order. Their relative positions when they were originally copied are not retained.

Track context menu when right-clicking on empty Track

Repeat selected Parts

This function inserts a copy of all selected parts sequentially at the end of the last selected part.

Split Part at marker

This function splits a Part at the **Position marker**.

When a Part is split, the first of the resulting two Parts has a truncation indicator at its right, to show that it has been shortened, and can be increased. The second of the resulting Parts has a truncation indicator at its left side, to show that the start point has been changed.

Clear all Parts

This function clears the current contents of the Drum Track after prompting for confirmation.

6:7 Additional Drum Track controls

Loop

This function causes playback to repeat between the **Loop markers** in the Drum Track.

When the **Loop** button is activated, 2 Loop markers (for the Start and End of the loop) appear on the **Ruler**. When the **Position marker** reaches the **End Loop marker**, playback loops back to the position specified by the **Start Loop marker**.

Adjust the position of the Loop markers by clicking and dragging them left and right along the ruler.

Export

This function exports a stereo mixdown of the contents of the Drum Track from the Master channel output.

Click the **Export** button to display a file Save As dialog for navigating to and selecting a folder for the exported audio file.

Before the function can be used, there *must* be Grooves present in the Drum Track. The Export function cannot be used when sending MIDI notes to BFD Eco from a MIDI input or sequencer/DAW/host. In such cases, one of the following methods must be used:

- the BFD Record function to record BFD Eco's master output to disk
- run BFD Eco as a plugin and use the recording/mixdown functions of the host/DAW

It is highly recommended to use the latter method as a DAW is able to record BFD Eco's multiple outputs, thereby allowing kit-piece channels, ambience channels and aux channels to be recorded discretely. Using BFD Eco's built-in export methods, it is only possible to record a stereo file from the output of the Master channel – only channels whose outputs are routed to the Master channel will be heard in the audio export.

6:8 Groove FX

The Groove FX section contains several functions to alter the feel of Grooves. For example, 'humanization' effects like timing randomization and syncopation can be added, or the feel can be tightened up with the **Quantize** function. Note that the **Humanize Velocity** function in the Global controls affects the Groove engine as well as MIDI note input.

Quantize

The **Quantize** function forces Groove events towards timing quantization (with a 16th-note grid).

The control adjusts the amount of quantizing applied from none (minimum position) to fully quantized (maximum position). Settings between these values allow tighter timing without entirely losing the original feel of the Groove(s).

Hum. Time (Humanize Time)

The **Humanize Time** control applies varying amounts of timing randomization to playing Groove events.

Lower settings are recommended for subtle and non-intrusive humanization while high settings can result in extremely sloppy timing.

Swing

The **Swing** control applies a variable amount of non-destructive swing to playing Groove events.

Simplify

This control applies an algorithm that selectively mutes events in terms of 'importance' to the Groove. As the control is increased, more events are muted. This parameter essentially behaves as a 'threshold' on a 'complexity gate'. It is very useful if a Groove is too 'busy' for a particular musical situation.

6:9 Exporting Grooves as MIDI

Grooves can be exported as MIDI from BFD Eco in the following ways:

1. Drag & drop as host MIDI part to host MIDI track

Drag and drop any Groove from the browser to a MIDI track in the host/DAW. The Groove appears as a standard MIDI clip. The current Key Map note assignments are used to translate the Groove's articulation triggers into suitable MIDI notes in the exported MIDI clip.

Once the Groove has been exported in this way, it can be edited using the host's editing facilities such as a piano roll and manipulated with MIDI functions such quantizing.

When using host MIDI tracks to trigger BFD Eco's articulations, remember to set **Grooves Mode** to *Off* if it isn't already.

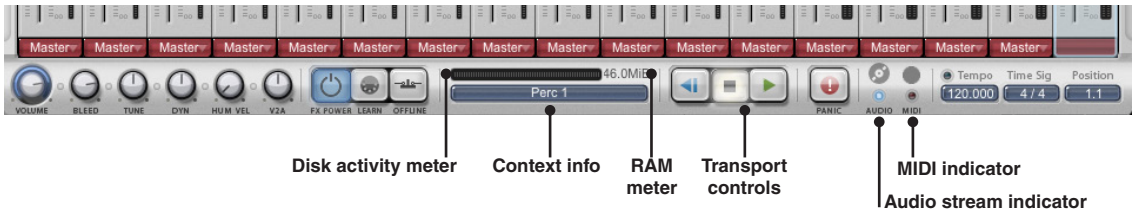
Once the MIDI clip exists in the host/DAW, it can be routed to any instrument instead of BFD Eco if required (and if the instrument features relevant MIDI note assignments).

2. Drag & drop as MIDI file to disk folder

Drag and drop any Groove from the browser to the desktop (or any other folder on the system) to export it as a MIDI file. The current Key Map is used to translate the Groove's articulation triggers into suitable MIDI notes in the exported MIDI clip.

The file is saved as a standard MIDI file, which can be imported into any compatible software or hardware device for playback and editing.

Ch.7 Global controls



Bleed

This control adjusts the level of kick bleed in the Snare Bottom channel.

Global Tune

The **Global Tune** control adjusts the tuning of all kit-pieces, relative to their individual **Tune** settings in the Channel page.

Global Dyn (Dynamics)

The **Global Dynamics** control adjusts the velocity of incoming MIDI or Groove events up or down by up to 127, relative to the kit-pieces' individual **Dynamics** settings in the Channel page Inspector. It is an easy way of making the 'drummer' play with more or less intensity.

Hum Vel (Humanize Velocity)

This control introduces velocity randomization. This is applied both to events generated by MIDI input *and* by the Groove engine. Humanized velocity leads to timbral variation due to more velocity layers being triggered.

Volume

The **Volume** control adjusts the level of all channels simultaneously. The Master channel's **Level** fader only affects channels routed to the Master channel. If any channel is routed to a direct output, only the Volume control can function as a 'global' level control that affects all channels in BFD Eco.

V2A

The **V2A** control adjusts the amount of amplitude scaling in response to incoming MIDI velocity. By default, this control is set to 50%.

With a setting of 0, there is no amplitude scaling applied – each velocity layer is played back at its actual level with the natural dynamics of the kit-piece unchanged. When V2A is set to 100%, the amplitude is more linearly scaled across the velocity range.

FX power

This button powers on/off all currently enabled FX on all channels.

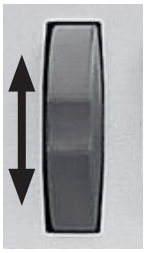
Offline

Most hosts/DAWs properly handle BFD Eco's engine when performing an 'offline' (faster-than-realtime) export but if it does not, the **Offline** button should be activated. This will ensure that BFD Eco has enough time to deliver the data from disk. When using BFD Eco during normal playback, this button should always be deactivated.

Learn

This button is used for BFD Eco's built-in MIDI Learn mode which allows interface controls to be assigned to MIDI continuous controllers (MIDI CCs) and even notes, so that physical keys, knobs, faders or other controllers can be used to adjust BFD Eco's interface controls.

1. When the **Learn** button is enabled, an overlay appears on the interface, with all MIDI-controllable parameters highlighted in green.



2. Click the desired control and then do one of the following:
   - move the physical knob, fader or other variable controller to assign a MIDI CC
   - play a MIDI key to assign the note – this is especially useful for buttons

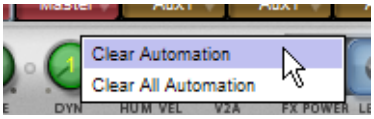
3. The assigned MIDI note/CC number is overlaid on the control.

MIDI CC assignments are loaded and saved with BFD Eco Presets and in host projects containing the BFD Eco plugin.

When the **Key/MIDI Lock** button is active, MIDI CCs are not restored from BFD Eco Presets.

Learn context menu

While MIDI Learn mode is active, right-click on any assignable control to display the Learn context menu, which contains the **Clear automation** function.



Clear Automation

This function clears the control's current MIDI assignment. If the parameter has not yet been assigned to a MIDI CC, this function is greyed out on the menu.

Clear All Automation

This function clears all current MIDI CC assignments.

Managing MIDI CC assignments

There is no dedicated preset format for MIDI CC assignments – they are simply saved within a BFD Eco Preset or with the host project when using the BFD Eco plugin. It is possible to define a default Preset which has been saved with the required MIDI CC assignments.

The **Key/MIDI Lock** button affects loading both key maps and MIDI CC assignments when loading BFD Eco Presets. However, when loading a Preset or a host project containing BFD Eco, the MIDI CC assignments (and key map assignments) saved within it are always restored.

Disk activity meter

This meter indicates the amount of disk bandwidth currently being used by BFD Eco.

RAM meter

The **RAM meter** displays the amount of RAM that is currently being used by BFD Eco.

Context info

This display shows the name and value of any control under the mouse cursor or of the control currently being adjusted.

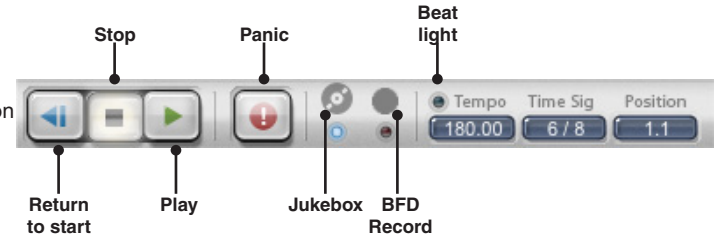
Audio stream indicator

This indicator is highlighted when BFD Eco has successfully launched within the host audio engine or when the standalone application has successfully initialized the specified audio device. In other words, it indicates whether the software is functioning correctly. If this indicator is not highlighted, check if the audio interface is correctly connected or if any other application is already using it.

MIDI activity indicator

This indicator is highlighted whenever BFD Eco receives any MIDI input.

Transport controls



Play

The **Play** button starts playback when using the standalone application or when the host is stopped (when using BFD Eco as a plugin).

Note that when the host transport is started, playback starts in sync with the host.

Return to start

This button resets the playback position to the **Start marker** position. This button can be used during playback without pressing **Stop** first. Doing so 'disconnects' synchronization if using BFD Eco as a plugin in a host. To re-establish synchronization, stop and restart your host's transport.

Stop

This button stops Groove playback.

This is possible even when the BFD Eco plugin is playing in sync with the host – Groove playback in BFD Eco stops while the host keeps playing. Click the **Play** button after using the **Stop** button to restart playback from the position at which it was previously stopped (without being synchronized to the host). To re-establish host synchronization, stop and restart the host transport.

Panic

Click the **Panic** button to immediately stop any currently playing sounds or Grooves.

Beat light

The **Beat light** flashes on every beat while BFD Eco's Groove engine is playing.

Tempo

This control sets BFD Eco's tempo when using the standalone application. Either click and drag the **Tempo** control or double-click it, type a new tempo and hit ENTER. When running BFD Eco as a plugin, the Tempo indicator cannot be adjusted because the plugin is always locked to the host tempo.

Time Sig (Time Signature)

This control sets the time signature when using the standalone application. Double-click the **Time Sig** indicator, type new values separated by a "/" and hit ENTER. When running BFD Eco as a plugin, the Time Sig indicator cannot be adjusted because the plugin is always locked to the host time signature.

Position

This display indicates the current playback position, in bars and beats, of either the host (when using the plugin), the Drum Track or the current Groove.

BFD Record

Click the **Record** button to display the BFD Record panel for recording the audio from BFD Eco's Master output to disk.

Jukebox

The Jukebox player offers a simple way to play audio files such as backing tracks for practice sessions.

Ch.8 Key Map panel

The Key Map panel allows customization of the MIDI note assignments for all kit-piece articulations. It is also possible to define a hihat pedal MIDI CC, for expressive playing with an electronic drumkit, and several other parameters to tailor BFD Eco's playing response.

Click the **Close** button to exit the Key Map panel and return to the previous page.

8:1 Key map picker

The key map picker functions in the same way as other preset pickers in BFD Eco. **Load Key Map...** displays a browser similar to those for Presets, Kits and Mixers. The **Save Key Map...** function displays an OS 'Save As' dialog for saving the current key map.

The **Clear Key Map** function removes all current key map assignments so that a new map can be created from scratch, while **Reset Key Map** reverts to the last-saved version of the currently loaded map.

Default key map

When BFD Eco is launched, it loads the last *saved or loaded* key map that was in use. When creating or editing key map assignments, make sure to save the key map so that it can be loaded when BFD Eco is next launched.

Key maps are saved and reloaded within BFD Eco Presets and within host projects containing BFD Eco, depending on the **Key/MID Lock** state.

Key/MIDI Lock

The **Key/MIDI Lock** button at the top-right of the BFD Eco interface is activated by default. This means that existing key map assignments are not affected when a BFD Eco Preset is loaded, or when the **Clear Preset** function is used in the Preset picker. This is because there generally should not be a need to change the key map for every project. Simply disable the **Key/MIDI Lock** button in order to restore key maps embedded within Presets or host projects.

8:2 Creating assignments

A vertical keyboard is shown at the right side of the interface, and represents the entire MIDI keyboard range from the lowest at the bottom, and the highest at the top.

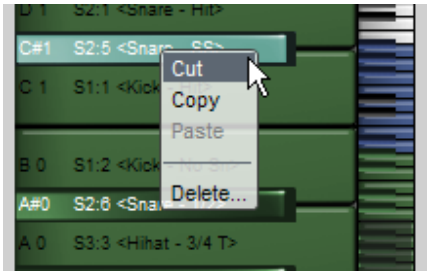
The selected kit-piece channel's articulations are shown in the **Articulations** section.

The keys are colour-coded to indicate their current status, illustrated by the screenshot.

Creating an assignment

1. Select the desired kit-piece channel by clicking its image.
2. Play the MIDI note to which you wish to assign an articulation if the **Key Select** button is activated – the relevant key is highlighted on the on-screen keyboard. Alternatively, scroll up and down the keyboard using the keyrange selector to find the desired key.
3. Drag and drop an articulation from the **Articulations** section to the desired key. If the key is not currently in view on the keyboard, scroll up or down by moving the mouse towards the high and low ends of the keyboard.

8:3 Key context menu



Right-click (or CTRL-click on Mac) on any of the vertical keys to display the key context menu. This menu contains functions to **Cut**, **Copy** and **Paste** assignments between keys, as well as to **Delete** any assignment on a key.

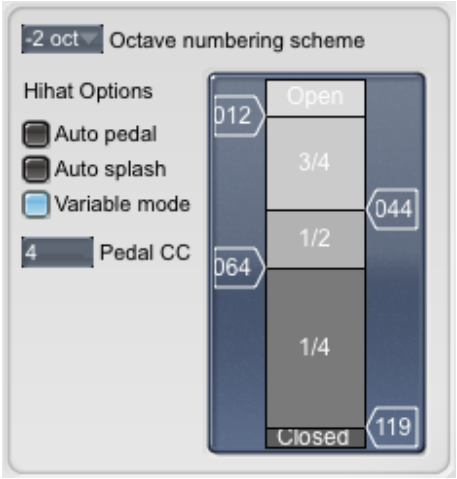
8:4 Hihat control

The hihat features more articulations than any other kit-piece, and a number of additional controls for adjusting the playing response.

Variable mode and Pedal CC

Variable mode is provided for electronic drumkits which utilize a variable hihat pedal control in order to access all positions between open and closed.

1. enable the **Variable mode** button
2. set any notes transmitted for Tip sounds to a Tip hihat articulation
3. set any notes transmitted for Shank sounds to a Shank hihat articulation
4. set the MIDI CC transmitted by the hihat pedal using the **Pedal CC** control



On an NFUZD Audio NSPIRE drum module, the following notes are mapped to hihat notes:

MIDI note (note no.)	BFD Eco suggested mapping
A#1 (46)	Open tip
F#1 (42)	Closed tip
D0 (26)	Open shank
A#-1 (22)	Closed shank
A-1 (21)	Splash
G#1 (44)	Pedal

When the **Variable mode** button is enabled, A#1 and F#1 trigger Tip articulations while D0 and A#-1 trigger Shank articulations. The position between open and closed is dictated by the pedal MIDI CC and the current Hihat transition point settings (see below). The resulting articulation – 1/2-open Shank or 1/4-open Tip for example – is played as a result of analying these received signals.

Please note that the NSPIRE module actually only sends out open articulations along with the hihat pedal MIDI CC – A#1 (46) for Tip and D0 (26) for Shank – BFD Eco NFUZD handles all the required logic to translate the incoming data into the required articulations. The other Tip and Shank articulations – F#1 (42) and A#-1 (22) – must be present in the key map for the **Variable mode** functionality to operate.

To program

Setting transition points between hihat positions for the hihat pedal MIDI CC

When **Variable mode** is enabled, the hihat pedal position slider becomes active. The slider features 4 points which can be adjusted to form 5 zones – one each for Closed, 1/4-open, 1/2-open, 3/4-open and Open articulations. These are arranged from bottom to top, reflecting the travel of the hihat pedal on an electronic drumkit – when the pedal is fully up (open), its value is 0; when it is fully down (closed), its value is 127.

In the above screenshot, the following MIDI CC values are required to trigger each hihat position when a tip or shank hihat note is received:

Open:	0-12
3/4-open:	13-44
1/2-open:	45-64
1/4-open:	65-119
Closed:	120-127

Using additional hihat articulations as MIDI notes

To access 1/4-open, 1/2-open and 3/4-open articulations as MIDI notes (for manually programming a part in a DAW's piano roll, for example), they must be assigned manually to free notes in the key map. Please remember to save the custom key map after creating the assignments.

Pedal note choking

The Pedal note (G#1, sometimes termed a 'foot-chick') chokes any playing hihat articulations.

Auto Pedal

This function, when enabled, generates a pedal note articulation whenever the incoming hihat pedal MIDI CC value reaches 127. This function is not required on the NSPIRE module or most other drum brains – it should only be required when using an electronic drumkit that does not send out a pedal note when the hihat pedal is fully depressed.

Auto Splash

If this function is enabled, a hihat splash articulation is generated when the hihat pedal is opened and closed very quickly. The NSPIRE module transmits a dedicated hihat splash note which is mapped to the BFD Eco NFUZD data's splash articulation – therefore, this setting is not required for the NSPIRE module.

8:5 Articulations and slots

Please note that each kit-piece slot or channel contains a fixed number of articulations.

- Not all kit-pieces contain all articulations. Whenever a kit-piece lacks a certain articulation, a suitable articulation is substituted when it is triggered from a mapped MIDI key or a Groove event.
- The Perc1, Tom4 and Perc channels can load percussion, tom and cymbal kit-pieces. However, only the first 2 articulations are available, which are triggered with the slot's Hit and Alt key map assignments.

8:6 Adjusting Velocity Response

The Velocity Response controls adjust how each kit-piece slot responds to the velocity of MIDI notes received. The settings can be set to different values for each kit-piece slot – they are shared between all articulations within the slot.

Vel Hi, Vel Lo

These controls remap the incoming MIDI velocity range to a specific portion of the kit-piece's available range of velocity layers. For example, setting **Vel Lo** to 64 and **Vel Hi** to 127 means that only the top half of the velocity layer range – in other words, the 'hard hits' – will be played.

For example:

- An incoming note with velocity value 1 would play a layer half-way through the range which would usually be played by a velocity of 64.
- An incoming note with velocity value 64 would play an articulation which would usually be played by an incoming velocity of 96.

Curve

This control adjusts how note input velocities are distributed across the available range of the articulation's velocity layer samples (after the **Vel Hi** and **Vel Lo** settings are applied).

By default, a *linear* 1:1 mapping is used - the active range of MIDI input velocity is distributed proportionally across the available velocity layers for each articulation in the kit-piece. This is shown as a straight diagonal line.

Click and drag *upwards* on the **Curve** control to vary the response towards an *inverse-exponential* curve. Lower velocities are concentrated within the quiet part of the velocity layer range (approximately the first 25%) with higher velocities spread over the middle and loud parts of the velocity layer range (the remaining 75%).

Click and drag *downwards* on the control to vary the response towards an *exponential* curve. Lower velocities are spread over the quiet and middle parts of the velocity layer range (approximately the first 75%) with higher velocities concentrated over the loudest part of the velocity layer range (the remaining 25%).

8:7 Additional controls

MIDI Log

The **MIDI Log** is provided to help during the mapping process and to troubleshoot MIDI-related problems. It displays a real-time readout of incoming MIDI messages which can be useful when creating key map assignments. Click the **Clear Log** button to reset the display.

Octave numbering scheme

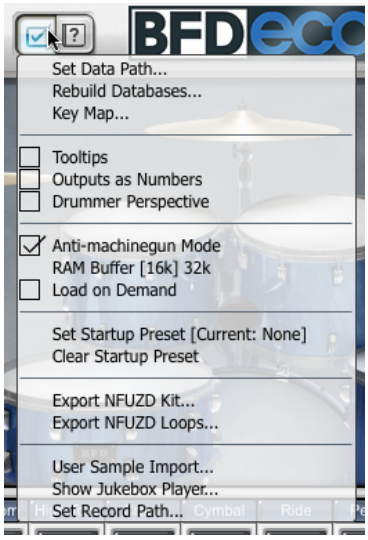
This setting changes the MIDI note octave numbering scheme. When this is set to *Normal*, the lowest octave is numbered 0. Some sequencers/ drum modules number the lowest octave as *-1* or *-2*.

8:8 BFD Eco NFUZD Key map reference

MIDI note	MIDI note number	Slot : Articulation	Kit-piece articulation
E3	64	8:2	Cym2 Bell
D3	62	7:2	Crash (Cym1) Bell
B2	59	9:3	Ride (Cym3) Edge
A#2	58	4:3	Floor Tom Rim
A2	57	8:1	Cym2 Hit
G2	55	7:3	Crash (Cym1) Edge
F2	53	9:2	Ride (Cym3) Bell
E2	52	8:3	Cym2 Edge
D#2	51	9:1	Ride (Cym3) Hit
D2	50	6:3	Hi Tom Rim
C#2	49	7:1	Crash (Cym1) Hit
C2	48	6:1	Hi Tom Hit
B1	47	5:3	Mid Tom Rim
A#1	46	3:1	Hihat Open Tip
A1	45	5:1	Mid Tom Hit
G#1	44	3:11	Hihat Pedal
G1	43	4:1	Floor Tom Hit
F#1	42	3:9	Hihat Closed Tip
F1	41	11:1	Tom4 Hit
E1	40	2:4	Snare Rim
D#1	39	11:3	Tom4 Rim
D1	38	2:1	Snare Hit
C#1	37	2:5	Snare SideStick
C1	36	1:1	Kick Hit
D0	26	3:2	Hihat Open Shank
A#-1	22	3:10	Hihat Closed Shank
A-1	21	3:14	Hihat Splash
D#-1	15	10:1	Perc1 Hit
D-1	14	10:2	Perc1 Alt

Ch.9 Options and Help menus

9:1 Options menu



When BFD Eco is launched, it restores the preference settings from the last time the software was used.

When saving a Preset or a host project containing the BFD Eco plugin, the current preferences are saved with it and recalled when the session is restored.

Set Data Path...

This function opens the data path panel which specifies one or more folders that contain BFD Eco-compatible data (kit-piece audio and Grooves). At least 1 data path must exist in order for BFD Eco to be usable!

Multiple data paths can often be beneficial when using additional expansions – additional hard disks with more free space can be used.

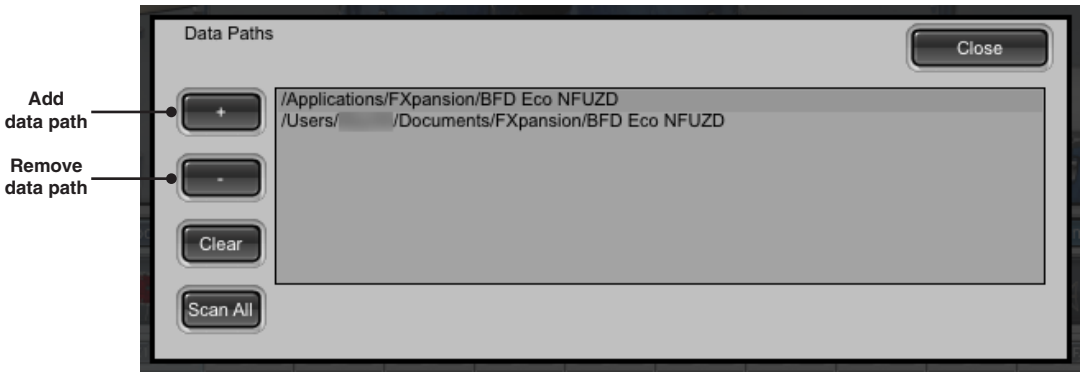
To add a data path, click the **Add data path** button. An OS browser dialog is displayed for navigating to and selecting the desired folder. When selecting a data path, BFD Eco's database of kit-pieces and Grooves is refreshed. To remove a data path, select it in the list, and click the **Remove data path** button. Click the **Clear** button to remove all data paths from the list.

After installing BFD Eco, the path for its supplied data is already specified in this panel.

When setting a data path, select the top level of the folder – here's an example:

BFD Eco /Audio
/Grooves

In this case, select the **BFD Eco** folder as the data path – *not* **/Audio** or any other folder.



Rebuild Databases...

This function rescans the currently-specified data path(s), and rebuilds BFD Eco's internal databases.

Key Map...

This function opens the Key Map panel for assigning kit-piece articulations to MIDI notes.

Tooltips

This setting activates/deactivates BFD Eco's built-in tooltips.

Outputs as Numbers

Most hosts display each plugin output as a name while others display them as numbers. If the host labelling differs from BFD Eco's own labelling, try toggling this setting to force them to match.

Drummer Perspective

When this setting is deactivated, the kit is heard from the 'audience' perspective – in other words, on the other side of the kit to the drummer – all pan settings (including any **Flip LR** settings for kit-pieces' ambience channels) and ambience channels are inverted relative to their current settings. When the setting is activated, the kit is heard from the drummer's perspective – all direct pan and ambience settings are unchanged.

Anti-machinegun Mode

With this setting activated, the same velocity layer is never played twice in sucession for an articulation.

RAM Buffer

The **RAM buffer** is used to store the beginning of each velocity layer for all kit-piece articulations in memory. When a layer is triggered, the RAM buffer is played while the rest of the audio is queued up from disk and played immediately afterwards. A *16k* RAM buffer uses less memory but requires faster disk performance. With the *32k* setting more RAM is used but this allows more time for disk access.

Load on Demand

Load on Demand is intended for conserving RAM by only loading the velocity layers that you need, as they are played, *in their entirety*.

Before any notes are played, a single velocity layer is loaded for each kit-piece's articulations. When a kit-piece articulation is played for the first time, the loaded layer is played with amplitude scaling (according to the velocity of the MIDI input event) while the actual layer which would have been played from the input MIDI note's velocity is loaded from disk. The next time this velocity is played, the actual layer is played. As more velocity layers are triggered (with varying note input velocities), more layers are loaded from disk, and RAM usage increases.

In situations when it is acceptable, Load on demand can save a lot of RAM – even all layers for some articulations are eventually played and loaded, there are other articulations and kit-pieces which aren't played as frequently and so will not occupy much RAM.

If the **Humanize Vel**, **Anti-machinegun Mode** or **Dynamics** functions are used, a greater variety of layers is accessed, therefore increasing the amount of RAM used.

Using Load on demand in the studio

In the studio, Load on demand may be more sensible to use after a drum track is programmed to free up RAM for other tasks in your host. Ensure that you play the song fully from beginning to end in order to load all required velocity layers. This results in consistent playback until further layers are played/programmed or until BFD Eco's Humanize or Dynamics functions are used.

Using Load on demand during live performance

Load on demand allows very fast switching between kits during live performance. The differences between the initial amplitude-scaled and eventually loaded velocity layers may not be such a concern because of noisy, distorted PA systems and compromised venue acoustics and listening conditions.

Set Startup Preset

This setting specifies a BFD Eco Preset to load when the plugin or standalone application is launched. The name of the currently specified Preset is shown if it is defined. A Startup Preset is especially useful for recalling a preferred set of MIDI CC assignments whenever BFD Eco is launched.

Clear Startup Preset

This function clears any currently specified startup Preset so that BFD Eco opens with a factory default state when it is launched.

Export NFUZD Kit (NFUZD edition only)

This function dislays the Export to NFUZD dialog which allows the current kit/mixer audio to be exported in a format which can be loaded into NFUZD Audio NSPIRE series drum modules.

Export NFUZD Loops (NFUZD edition only)

This function opens the Loop Export panel designed to compile a set of 12 audio loops to be imported to the NSPIRE drum module for practice/performance purposes without requiring additional hardware or software.

User Sample Import

This function opens the Sample Importer panel for creating single-articulation kit-pieces with mono or stereo WAV files. Imported kit-pieces are limited to a single velocity layer which is amplitude-scaled with velocity.

Show Jukebox player

The Jukebox player offers a simple way to play audio files such as backing tracks for jamming/practicing sessions without requiring additional software or mixing setups.

Set Record Path

This function opens the BFD Record panel for recording the output of BFD Eco's Master channel.

9:2 Help menu

Launch Online Manual

This function launches the BFD Eco manual in the system's default web browser.

Launch BFD Eco Online FAQ
Launch BFD Eco Online Support
Launch BFD Eco Online Forum

These web pages, launched in the system's default browser, provide various help resources.

Check for BFD Eco NFUZD updates...

This function checks the FXpansion site for newer versions of the software.

Get BFD3 Upgrade

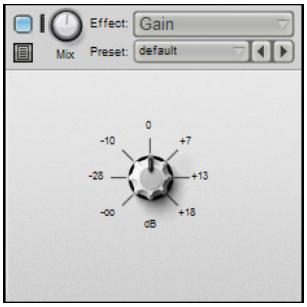
Click for information on upgrading to BFD3, opening up a huge variety of additional features.

Visit the BFD Drum Shop

Use this function to browse and purchase from the huge and growing range of sound and Groove expansions for BFD Eco.

About BFD Eco NFUZD

This function displays the credits and version number of the software.



Gain

This effect is a simple tool for increasing or decreasing a channel's gain. The **Gain** control sets the channel's gain between -inf dB and +18 dB.

Comp Chan

This is a DCAM circuit-modelled channel compressor, based on a classic 'limiting amplifier' design. Increase the **Input** control to make the sound more compressed, and adjust the **Output** level as required. Use the **Ratio**, **Attack** and **Release** controls to affect the compression characteristics.

Comp Bus

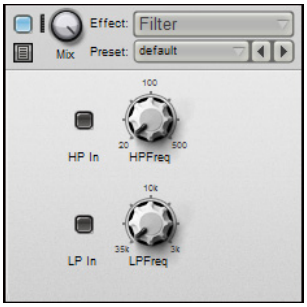
The Comp Bus is a DCAM circuit model of a classic British console bus compressor design, and features **Threshold**, **Ratio**, **Makeup**, **Attack** and **Release** controls.

The **Key HP** control adjusts a high-pass filter on the signal used for the amplitude-detection circuit (not the signal that is processed) while the **Analog Limit** control applies non-linearities to the detection circuit, resulting in a compression characteristic that is more transparent on attacks.

Delay

This is a classic stereo delay line. As well as **Time** and **Feedback** controls, it features a **Swing** control for achieving a variety of delay feels, and adjustable **LowCut** and **HighCut** filters in the feedback chain.

The **Sync** control switches between time-based (Sec) and tempo-synced (BPM) delay times. The **SumInput** control (available on stereo channels only) sums the left and right inputs to a single mono signal and feeds one delay line instead of two.



Filter

The Filter effect provides simple 1-pole high-pass and low-pass filters. Each filter features power (**LPin** and **HPin**) and frequency (**LPFreq** and **HPFreq**) controls.

Flanger

The Flanger effect is a short modulated delay line with feedback to the input. It is used to create psychedelic effects and a sense of movement.

The **Freq** control sets the frequency of the sine LFO used to modulate the flanger's delay time, while the **Depth** control adjusts the amount of modulation. The **Pos** (Position) control adds up to 10ms to the flanger's delay time. The needle display in the Flanger effect represents the delay time modulation.

The **Feedback** control adjusts the amount of the processed signal that is fed back into the input. Higher settings result in a more pronounced flanging effect, with settings over 50% leading to extreme comb filter type effects.

The **Mode** button dictates the phase relationship between the input and processed signals. With the button disabled, the two signals are in phase (resulting in a more pronounced flanging effect); with it enabled, the signals are out of phase.

The **Spread** and **Phase** controls are only available on stereo channels. Spread adjusts the panning of the left and right channel processed signals, while Phase offsets the phase of the internal LFOs for the left and right channels.

Filter Mod

This is a DCAM circuit-modelled multimode resonant filter with modulation and drive. As well as the **Pitch** (cutoff frequency) and **Res** (resonance) controls, the filter features a **Mode** control to switch between low-pass, band-pass, high-pass, peak and notch modes. There is even an audio-rate **FMDepth** control which sets the amount of cutoff modulation derived from the input signal's waveform. The device's Drive circuit provides controls for input (**Drive**) and output (**OutDrive**) drive stages.

The effect contains a built-in envelope follower for modulating the cutoff frequency with the amplitude of the input signal. It is controlled by the **Attack**, **Release** and **Env Depth** parameters.

Drive

Drive is a versatile, DCAM-modelled overdrive/distortion effect. The **HPFreq** and **LPFreq** controls filter the signal with high-pass and low-pass filters before the distortion stage, while the **Mode** control switches between 4 different distortion models – *Diode*, *OTA*, *OpAmp* and *HalfRect*.

The **Dirty** control sets the amount of the distorted signal that is heard at the output, while the **Clean** control introduces the signal that was filtered out before the bitcrushing stage by the high-pass and low-pass filters. The **Tone** control adjusts a simple 1-pole low-pass filter to remove unwanted high-frequencies from the Dirty signal.

BitCrusher

This effect emulates the digital distortion that occurs when lowering the bit-depth or sample-rate of an audio signal. Adjust the bit-depth with **Bits** control and the sample-rate with the **Freq** control. The effect also includes a **Drive** control for adding distortion.

Like the BitCrusher effect, it features pre-distortion high-pass and low-pass filters before the distortion stage, as well as similar **Dirty**, **Clean** and **Tone** controls.

RingMod

The RingMod effect is used for radical timbral shifts and experimental effects. It multiplies the input signal with its internal oscillator, the shape and pitch of which are set with the **Mode** and **Pitch** controls. The **Drive** control sets the amount of distortion on the input signal.

TinCanVerb

This effect is a recreation of a low-end room reverb unit, perfect for emulating 'cheap and nasty' onboard synth FX. Use the included Overloud Breverb Plate device for high-quality reverb FX.

As well as the ubiquitous **Size**, **Decay Time** and **Damp** parameters, TinCanVerb features **Pinch** and **Squeeze** controls for manipulating the room shape, while the **Freeze** control loops the current reverb buffer indefinitely until it is turned down again – useful for dubby special effects.

NoiseGate

The Gate attenuates the signal until its amplitude reaches the **Threshold** level. The **Attack** and **Release** controls set the speed at which the gate opens and closes after the signal goes above or below the threshold, while the **Hold** control forces the gate to remain open for a certain length of time after it is opened.

The **HPFreq** and **LPFreq** controls provide high-pass and low-pass filtering for the signal routed to the amplitude-detection circuit (this filtering is not applied to the processed signal). Activating the **Key Listen** button monitors the signal used for the amplitude-detection circuit.

Increasing the **Hysteresis** control smooths the gate's response at the expense of more sensitivity to small changes around the threshold level.

Env Shaper

The Envelope Shaper adjusts transients and changes the dynamic shape of a signal in a different way to a conventional compressor. The **Sensitivity** control adjusts how much the Env Shaper's reacts to transient peaks detected in the signal.

The **Attack** control adjusts the intensity of the attack phase of detected transients in the audio. Increase the control to intensify attack transients, and decrease it to soften transients.

The **Sustain** control adjusts the intensity of release portions of detected transients in the audio – this increases or decreases the apparent sustain of sounds in the signal. Increase the control for more sustain, and decrease it for less sustain. This control is useful for adjusting the perceived level of ambience in a channel. Very low settings can produce damping effects for drum sounds.

The processed signal level can be adjusted using the **Gain** control, between -12 dB and +12 dB.

Breverb Plate

The duration of the reverb tail is dictated by the **Time** and **Size** controls, while the **Diffusion** parameter adjusts the degree to which the initial echo density increases over time. The **Predelay** control adjusts the time that elapses between the input signal and the onset of reverberation.

The Shape control dictates the contour of the reverberation envelope. At the minimum setting, reverberation builds explosively and decays very quickly. As the control is raised, reverberation builds up more gradually and sustains longer.

The **Low** control sets the frequency under which the reverb effect is attenuated while the **High** control sets the frequency over which the reverb effect is attenuated.

Ch.11 Standalone application and plugin usage

Using the BFD Eco Standalone application

The BFD Eco standalone application is provided so BFD Eco can be used without a host/DAW. It can be convenient to operate BFD Eco in this way for live use or quick drum composition. BFD Eco is capable of exporting audio and MIDI directly. Also, presets can be saved for later recall when running BFD Eco as a plugin within a host.

It is also very useful as a means of authorizing BFD Eco, as the plugin-initializing mechanisms of some hosts can disrupt the authorization process.

Tempo and Time Signature

When running BFD Eco as a standalone application, the **Tempo** and **Time Sig** controls can be edited directly on the interface.

Open Audio Preferences

This panel specifies the standalone application's audio settings accessed via the the standalone application's standard OS menu-bar (**BFD Eco / Preferences** on Mac; **Options** on Windows).

Output device (Mac)
ASIO device (Windows)

On Mac OSX, all available CoreAudio devices are shown in the **Output devices** drop-down menu. Click to select the desired audio interface. Note that the **Input device** setting has no effect in BFD Eco as external audio signals are not used for any functions.

On Windows, available ASIO devices are shown in the ASIO device drop-down menu. Click to select the desired audio interface. When using the NSPIRE drum module as an audio interface, please remember to install the ASIO driver provided on the USB drive.

Samplerate

The standalone application attempts to detect this setting for the current Output/ASIO device. In some cases this may not be possible due to the device's driver not properly responding to the standalone application's request. In such cases, set the **Samplerate** to the same value as that defined in the audio device's settings/control panel.

Buffer size

Again, the standalone application attempts to detect this setting for the current Output/ASIO device. In some cases this may not be possible due to the device's driver not properly responding to the standalone application's request. In such cases, set the **Buffer size** to the same value as that defined in the audio device's settings/control panel.

Open ASIO Panel (Windows only)

On Windows, this function displays the ASIO settings/control panel for the current audio device.

This function is not available on Mac – the audio device's companion software/control panel must be launched directly.

Audio Channels

This section shows the available stereo output pairs for the currently selected **Output device**. To enable multi-output operation (if the audio interface is capable of this), activate the *All outputs* setting. Outputs for each channel are set via the **Output Selector** controls.

Open MIDI Preferences

This panel specifies MIDI input and output settings from the BFD Eco standalone application and is accessed via the application's menu-bar.

Input Devices

This section specifies the MIDI input port(s) for playing BFD Eco, All detected MIDI input ports in your system are detected and displayed – activate any available port to enable MIDI input from the port to BFD Eco. More than one MIDI port can be selected if required.

Each input port features an additional **CLK** checkbox – activate this checkbox for any port on which to receive MIDI clock. To successfully slave to the clock signal, the **Sync to MIDI clock** setting must be activated (see below).

Output Devices

BFD Eco is capable of transmitting the output of the Groove engine as MIDI notes with which to trigger other MIDI devices. All MIDI out ports in your system are detected and displayed – activate any available port to enable the MIDI output. Only 1 output port can be specified.

Sync to MIDI clock

Enabling the **Sync to MIDI clock** function results in the BFD Eco standalone application responding to MIDI clock from specified MIDI input ports in order to synchronize with another device. You must make sure that the currently enabled MIDI ports include the port on which the clock is being transmitted and that the relevant port's 'CLK' checkbox is activated.

The standalone application can only slave to an external master MIDI clock source. It cannot generate or transmit its own MIDI clock – if such functionality is required, please use BFD Eco as a plugin in a suitable host/DAW that provides these features.

Using BFD Eco as an RTAS or AAX plugin in Digidesign Pro Tools 7.x or later

The RTAS version of BFD Eco requires Pro Tools 7-10. For best performance, version 7.1 or later is highly recommended. The AAX version requires at least Pro Tools 11. BFD Eco cannot be used in Pro Tools 6.x, or any earlier versions.

Launching BFD Eco

1. Insert the BFD Eco multi-channel plugin onto a stereo Instrument track. The Instrument channel's output plays the output of the first stereo pair - channels 1-2.

Setting up additional output monitoring

By default, all channels in BFD Eco are routed to the Master channel in the BFD Eco mixer, which is hard-wired to the first stereo output (output 1-2).

In order to separate channels into discrete outputs, the relevant channels must first be routed to the desired outputs in the BFD Eco mixer using the **Output Selector** controls.

Once the channels are routed as desired, proceed as follows to monitor each output separately:

1. Create a mono or stereo Aux track.
2. Set the input of the Aux track as the relevant stereo or mono output from BFD Eco – after the plugin is inserted into the project, its outputs become available as track input sources.
3. Repeat this process for as many additional mono/stereo BFD Eco outputs as required.

If any problems are encountered while performing the steps above, please consult the host's documentation or contact the manufacturer's tech support channels – BFD Eco operates in the same way as any other multiple-output instrument plugin.

Using BFD Eco as an AU plugin in Apple Logic 8 or later

Logic 8 currently has a limitation on the number of outputs available from a plugin. When using BFD Eco in Logic 8, only outputs 1-24 are available – stereo outputs 1-8 and mono outputs 1-8.

The AU format does not support MIDI output from plugins – therefore, BFD Eco's MIDI Out function cannot be used in Logic 8.

Launching BFD Eco

1. Insert the BFD Eco multi-channel AU plugin onto an audio instrument channel. The instrument channel's output plays the output of the first stereo pair - channels 1-2 – as well as any other outputs which have not yet been assigned to be monitored from an additional Aux channel.
2. Create a track in Logic's Arrange window, corresponding to the audio instrument channel on which BFD Eco was originally inserted. BFD Eco can now be played from this track.

Setting up additional output monitoring

By default, all channels in BFD Eco are routed to the Master channel in the BFD Eco mixer, which is hard-wired to the first stereo output (output 1-2).

In order to separate channels into discrete outputs, the relevant channels must first be routed to the desired BFD Eco outputs in the BFD Eco mixer using the **Output Selector** controls.

Once the channels are routed as desired, proceed as follows to monitor each output separately:

1. Create a mono or stereo Aux channel.
2. Set the input of the Aux channel as the relevant stereo or mono output from BFD Eco – after BFD Eco is inserted into the project, its outputs become available as track input sources.
3. Repeat this process for as many additional mono/stereo BFD Eco outputs as required.

If any problems are encountered while performing the steps above, please consult the host's documentation or contact the manufacturer's tech support channels – BFD Eco operates in the same way as any other multiple-output instrument plugin.

Using BFD Eco as a VST plugin or an AU plugin in Ableton Live

On Mac, Ableton Live supports both VST and AU plugins. When using the VST plugin, it is possible to use BFD Eco's MIDI Out feature to send MIDI to another track from BFD Eco. The AU format does not support MIDI output from plugins, so this feature is unavailable when using the AU plugin.

Launching BFD Eco

1. Drag and drop the BFD Eco VST or AU plugin (Mac only) from the Plug-In Devices list into the Live workspace.

Setting up additional output monitoring

By default, all channels in BFD Eco are routed to the Master channel in the BFD Eco mixer, which is hard-wired to the first stereo output (output 1-2). In order to separate channels into discrete outputs, the relevant channels must first be routed to the desired outputs in the BFD Eco mixer using the **Output Selector** controls.

Once the channels are routed as desired, proceed as follows to monitor each output separately:

1. Create an audio track.
2. Click the 'I-O' button on the right hand side of the Live interface to reveal each track's input/output settings.
3. Set the 'Audio From' selector to the BFD Eco track.
4. Set the selector immediately underneath this to the required BFD Eco output.

   Live does not possess mono tracks. Therefore, it treats BFD Eco's 16 mono outputs as 8 stereo output pairs. In order to monitor a mono output properly, insert Live's Utility plugin (found in the Audio FX folder in the Live Devices list) onto an audio track set up as above. Set up the Utility plugin so that it monitors either the right or left side of the channel, panned to the centre.

If any problems are encountered while performing the steps above, please consult the host's documentation or contact the manufacturer's tech support channels – BFD Eco operates in the same way as any other multiple-output instrument plugin.

Using BFD Eco as a VST plugin in Cubase SX

Launching BFD Eco

1. With a project open, bring up the VST Instruments panel.
2. Click on an instrument slot and select the BFD Eco plugin. Cubase SX automatically creates all additional BFD Eco outputs in its mixer.

   By default, all channels in BFD Eco are routed to the Master channel in the BFD Eco mixer, which is hard-wired to the first stereo output (output 1-2). In order to separate channels into discrete outputs, the relevant channels must be routed to the desired outputs in the BFD Eco mixer using the **Output Selector** controls.
3. Assign a MIDI track in the Project Window to BFD Eco.

If any problems are encountered while performing the steps above, please consult the host's documentation or contact the manufacturer's tech support channels – BFD Eco operates in the same way as any other multiple-output instrument plugin.

Using BFD Eco as a VST plugin in Cubase 4 or later

Launching BFD Eco

1. With a project open, bring up the VST Instruments panel.
2. Click on an instrument slot and select the BFD Eco plugin. If Cubase asks you whether it should create a MIDI track routed to the plugin, click 'Yes'.
3. Cubase 4 does not automatically create additional BFD Eco outputs in its mixer. To enable the additional outputs, click the output button in the VST Instruments panel for BFD Eco (it is to the right of the 'e' button that shows the plugin interface). In the pop-up list that appears, individual or all outputs can be enabled. This button is described on page 63 of the Cubase 4.1 plug-in reference PDF manual.

   By default, all channels in BFD Eco are routed to the Master channel in the BFD Eco mixer, which is hard-wired to the first stereo output (output 1-2). In order to separate channels into discrete outputs, the relevant channels must be routed to the desired outputs in the BFD Eco mixer using the **Output Selector** controls.
4. Assign a MIDI track in the Project Window to BFD Eco if the MIDI track was not created earlier by clicking 'Yes'.

If any problems are encountered while performing the steps above, please consult the host's documentation or contact the manufacturer's tech support channels – BFD Eco operates in the same way as any other multiple-output instrument plugin.

Using BFD Eco as a VST plugin in Sonar

Launching BFD Eco

1. With a project open, use the Insert menu to insert BFD Eco as a soft synth:
   Insert • Soft Synths • [VST plugins folder name] • BFD Eco
2. In the synth properties dialog box that appears, a setting exists for setting up BFD Eco's additional outputs in the Sonar mixer. Unfortunately, this dialog box does not include an option to create all the required stereo and mono outputs, so it is recommended to choose 'All Synth Audio Outputs: Stereo', and afterwards manually change the stereo channels created for BFD Eco's last 12 mono outputs to mono channels. Please consult your Sonar documentation for further guidance or contact Cakewalk support.

   By default, all channels in BFD Eco are routed to the Master channel in the BFD Eco mixer, which is hard-wired to the first stereo output (output 1-2). In order to separate channels into discrete outputs, the relevant channels must be routed to the desired outputs in the BFD Eco mixer using the **Output Selector** controls.

   If BFD Eco's MIDI Out function is required, remember to check the 'Enable MIDI Out' checkbox in the synth properties dialog.
3. If the 'MIDI Source' checkbox was not left checked in the dialog box, a MIDI track must now be created with its output routed to BFD Eco.

If any problems are encountered while performing the steps above, please consult the host's documentation or contact the manufacturer's tech support channels – BFD Eco operates in the same way as any other multiple-output instrument plugin.

Using BFD Eco as a VST plugin in FL Studio

Launching BFD Eco

1. BFD Eco is not displayed in the plugin list by default. To make it part of the list select 'More…' to popup a list of all available plugins. From the bottom-right of this window click 'Refresh' then 'Fast Scan (recommended)'.
2. Enable the checkboxes next to the BFD Eco plugin which is shown in red (meaning that it is a newly found plugin).
3. Now BFD Eco can be added to the project by selecting 'Channels • Add one…' and then selecting BFD Eco.
4. Assign BFD Eco to an FX track, using the 'Channel Settings' window. This FX track plays BFD Eco's outputs 1-2.

Setting up additional output monitoring

By default, all channels in BFD Eco are routed to the Master channel in the BFD Eco mixer, which is hard-wired to the first stereo output (output 1-2). In order to separate channels into discrete outputs, the relevant channels must first be routed to the desired BFD Eco outputs in the BFD Eco mixer using the **Output Selector** controls.

Once the channels are routed as desired, proceed as follows to monitor each output separately:

1. Enable the additional outputs using the down-arrow menu, just underneath the red plugin icon in the top-left corner of the plugin window.
2. The additional outputs occupy the FX tracks after the FX track that was originally specified for BFD Eco's main output (1-2).

If any problems are encountered while performing the steps above, please consult the host's documentation or contact the manufacturer's tech support channels – BFD Eco operates in the same way as any other multiple-output instrument plugin.

Using BFD Eco as a VST plugin in Reaper

Launching BFD Eco

1. Create a new track and bring up the FX Browser.
2. Add the BFD Eco plugin (located in the VSTi section of the FX Browser).

Setting up additional output monitoring

By default, all channels in BFD Eco are routed to the Master channel in the BFD Eco mixer, which is hard-wired to the first stereo output (output 1-2).

In order to separate channels into discrete outputs, you must first route the relevant channels to the desired BFD Eco outputs in the BFD Eco mixer using the **Output Selector** controls.

Once the channels are routed as desired, the relevant channels must first be routed to the desired BFD Eco outputs in the BFD Eco mixer:

1. Bring up the FX Chain for the track on which you inserted BFD Eco.
2. Right-click on the BFD Eco VSTi in the FX Chain and click on the 'Build multichannel routing for output of selected FX' function in the menu that appears.
3. The default settings for this function result in 7 extra stereo channels and 16 mono channels being added to the Reaper mixer, with the relevant outputs from BFD Eco routed accordingly.

If any problems are encountered while performing the steps above, please consult the host's documentation or contact the manufacturer's tech support channels – BFD Eco operates in the same way as any other multiple-output instrument plugin.

Potential problems

Missing plugin

Windows

- Please ensure that the host application is set to use the VST plugins folder to which you installed BFD Eco. For guidance, see the host documentation or contact the manufacturer's tech support for help. It may also be useful to check which folder is used by other applications on your system which host VST plugins.
- By default, the BFD Eco installer suggests the VST folder defined in the HKEY_LOCAL_MACHINE • SOFTWARE • VST registry key. Unless this folder was changed while installing BFD Eco, this is where the BFD Eco plugin is installed.
- If unsure about the location of the BFD Eco VST plugin, it can be copied into any desired VST plugins folder from the following folder:

  C:\Program Files\FXpansion\BFD Eco

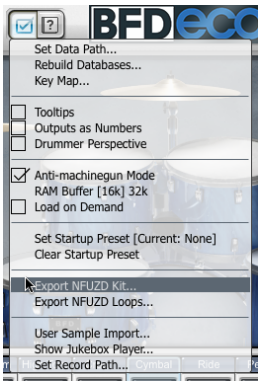
- (this is the default BFD Eco application path, although a different location may have been specified during the installer)

Mac

- The VST plugin is installed to Library • Audio • Plug-Ins • VST
- The AU plugin is installed to Library • Audio • Plug-Ins • Components
- If using Logic, please ensure the BFD Eco AU plugin is properly validated in the Logic AU Manager, located in Logic's Preferences menu. Please see the Logic documentation for guidance with this process.

Ch.12 Additional features for NFUZD NSPIRE-series electronic drumkits

12:1 Exporting kits to NFUZD Audio NSPIRE format



BFD Eco NFUZD provides an export function for the NFUZD Audio NSPIRE series, accessible via the **Export NFUZD Kit** function in the Options menu. This feature creates a mixed-down sample-bank file which can be loaded into any of 3 user soundbank 'slots' within the NSPIRE module.

The kick, snare, hihat, toms and percussion are mixed down to create mono sounds while cymbals are mixed to stereo. All mixer and effects settings which are active are applied to the exported sounds.

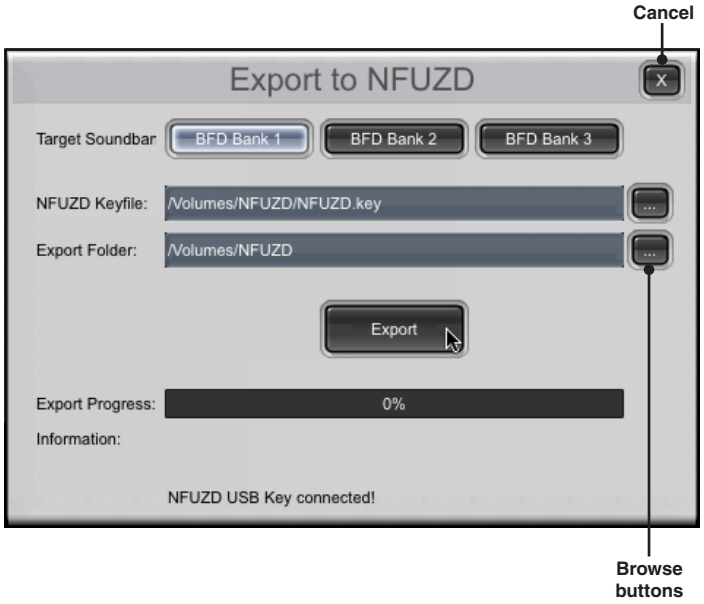
Target Soundbank

The NSPIRE drum module contains 3 slots for custom user soundbanks - specify which slot should be used for the bank using this setting. This setting is actually stored in the sample-bank filename – **BFD Bank 1** is *bfd01.bin*, **BFD Bank 2** is *bfd02.bin* and **BFD Bank 3** is *bfd03.bin*. These bank numbers can be changed afterwards by simply renaming the file.

Please note that a maximum of 3 user soundbanks – *bfd01.bin*, *bfd02.bin* and *bfd03.bin* – can exist on a single USB stick, or in any single folder, at any one time. If the specified bank number already exists within the specified **Export folder**, BFD Eco warns that data will be overwritten if you proceed.

To avoid this situation please delete existing soundbank .bin files as required or specify a new **Export folder** (in the latter case, the file eventually needs to be copied to an NFUZD USB stick, renaming or deleting files as necessary, so that it can be loaded into the NSPIRE module).

Please also note that when using the NSPIRE module's loop playback facility, the set of exported loops replaces the 3rd user soundbank (*bfd03.bin*).



NFUZD Keyfile

BFD Eco must have access to a USB stick which has been prepared in your NSPIRE drum module, or a file unique to your NSPIRE module which is created during this process called **NFUZD.key**. The exported soundbank can be used **only** on the NSPIRE module which originally prepped the USB stick (i.e. the module which created the NFUZD.key file).

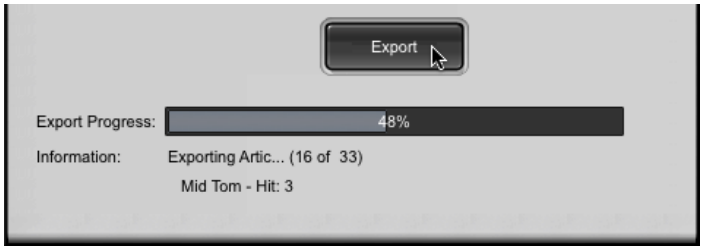
This setting defaults to the USB key path if it is found. Use the **Browse** button to specify the USB key path if it is not found automatically or to specify any other folder on the system which contains the required NFUZD.key file.

Export folder

This setting specifies the location to which to export the soundbank. By default, this folder is set to the same location as the **NFUZD Keyfile** setting. However, using the **Browse** button it is possible to specify any folder on the system (any exported banks must be subsequently copied to the USB stick to load into your NSPIRE module).

Export

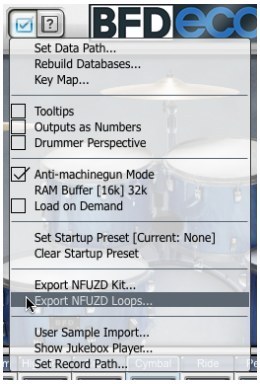
Click the **Export** button to begin the export operation. Please be patient as the process may take a few minutes to be completed.



Cancel

Click the **Cancel** button to return to the main BFD Eco interface without performing an export.

12:2 Exporting user sample loops



BFD Eco NFUZD contains an additional feature for exporting backing-loop WAV samples to the NFUZD Audio NSPIRE drum module for practice purposes using only the NSPIRE module. A set of up to 12 sample loops can be exported which is saved to the NSPIRE USB stick as a file called *loops.bin* – this replaces the *bfd03.bin* file for the 3rd exported user soundbank. If copying files to the USB stick manually, please ensure that *bfd03.bin* does not exist if *loops.bin* is required – if *bfd03.bin* exists on the USB stick, then *loops.bin* is ignored.

The set of loops is created using the Loop Export panel which provides a playlist for 12 sample loops. The panel is displayed using the **Export NFUZD Loops** function in the Options menu.

Loop Export panel

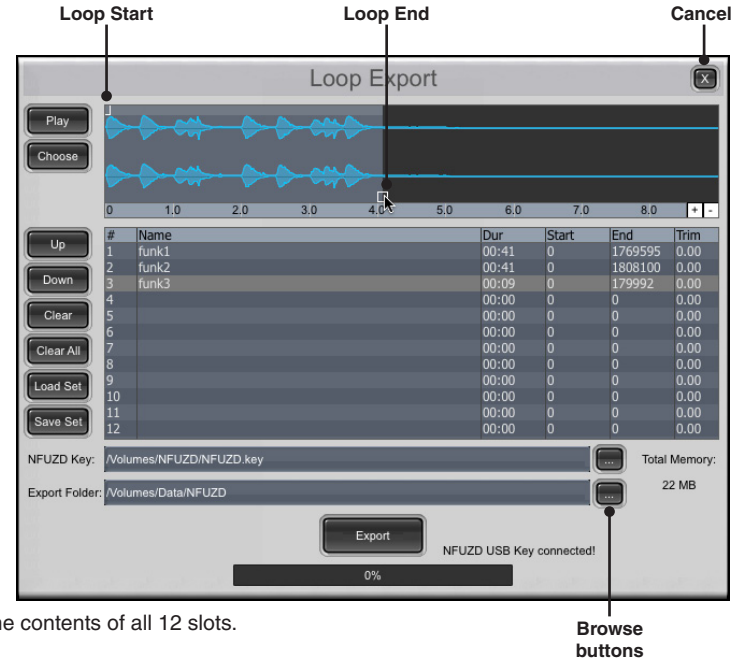
Loop playlist

The Loop Playlist represents 12 slots for loop samples which can be exported to a connected NFUZD NSPIRE drum module.

Loading a loop sample

It is possible to load a loop sample using any of the following 3 methods:

- Drag and drop a sample from any OS file browser window onto the desired slot within the Loop Playlist.
- Double-click on a Loop Playlist slot to display an OS Open file dialog box. Navigate to and select the desired sample, then click the Open button.
- Click a Loop Playlist slot to select it, then click the **Load** button – this displays an OS Open file dialog box for navigating to and selecting the desired sample.



Play

Activate the **Play** button to play the currently selected loop in the playlist – the sample plays from the current cursor position and continuously repeats according to its Loop markers.

Waveform display

The Waveform display shows a representation of the currently selected sample in the Loop playlist.

Adjusting loop points

By default, Loop markers are placed at the start and end of each sample. However, their positions can be adjusted on the waveform display: click and drag the **Loop Start** and **Loop End** markers left/right as desired. It is recommended to activate the **Audition** button during this process.

Up / Down

Select a sample slot and click the **Up** or **Down** buttons to move the sample up or down the Loop playlist. Note that if another sample already exists within the slot to which a sample is moved, the contents of the slots are swapped.

Clear / Clear All

Use the **Clear** button to remove the sample contents of the currently selected loop slot or use the **Clear All** button to remove the contents of all 12 slots.

Load / Save

The **Save** button can be used to save the Loop playlists' current contents for later use. This function does not create the exported loop bank for the NSPIRE module – it only saves the state of the playlist to edit further and export at a later stage.

The **Load** button is used to load a previously saved playlist or to add a sample to the playlist as described earlier.

NFUZD Key

BFD Eco must have access to a USB stick which has been prepped in your NSPIRE drum module, or a file unique to your NSPIRE module which is created during this process called **NFUZD.key**. The exported loop samples can be used **only** on the NSPIRE module which originally prepared the USB stick (i.e. the module which created the NFUZD.key file).

This setting defaults to the USB key path if it is found. Use the **Browse** button to specify the USB key path if it is not found automatically or to specify any other folder on the system which contains the required NFUZD.key file.

Export Folder

This setting specifies the location to which to export the sample loops. By default, this folder is set to the same location as the **NFUZD Key** setting. However, using the **Browse** button it is possible to specify any folder on the system using this setting and subsequently copy exported banks to the USB stick to load into the NSPIRE module.

Total Memory

This readout displays the total amount of RAM which will be used in the NSPIRE module by the all currently loaded loop samples when they are exported.

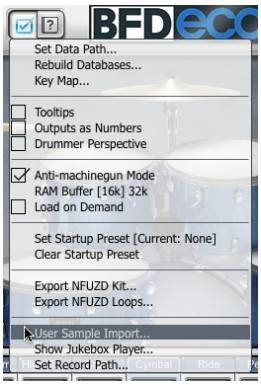
Export / Cancel

Click the **Export** button to begin the export operation. Please be patient as the process may take a few minutes to be completed.

Click the **Cancel** button to return to the main BFD Eco interface without performing an export.

Ch.13 Additional features for BFD Eco v1.6

13:1 Importing user samples



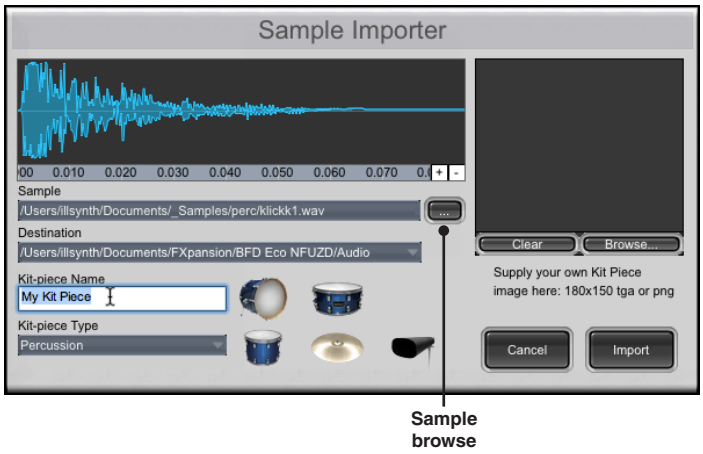
BFD Eco provides the Sample Importer panel for creating single-articulation, single-velocity layer kit-pieces from mono or stereo WAV files.

It is important to note the following:

- There can be only 1 articulation in the kit-piece, mapped to the primary Hit articulation for the slot into which it is loaded. Any additional articulation mappings for the slot will also fall through to this single articulation.
- Each kit-piece created using this process must be designated as a Kick, Snare, Tom, Cymbal or Percussion kit-piece – it then appears in the kit-piece browser for that particular kit-piece type.
- It is not possible to create Hihat kit-pieces as a minimum of 2 articulations would be required.
- The kit-piece only produces sound in the kit-piece channel (in the same way as a direct mic signal). It cannot produce audio in the OH or Room channel. However, it can be stereo and can be sent to the Aux1 or Aux2 channels for processing with reverb FX.
- There can be only a single velocity layer in the kit-piece - its amplitude level varies with incoming note velocity.
- An imported sample can be 16-bit or 24-bit WAV with a sample-rate of 44.1 kHz but the resulting kit-piece can only play back at 16-bit like all other sounds within BFD Eco.

Sample Importer panel

In order to create a kit-piece from a sample, open the Sample Importer panel using the **User Sample Import** function on BFD Eco's Options menu.



Sample

Click the **Sample Browse** button to navigate to and select a sample to import. Any mono or stereo WAV file can be selected, but it must be at a sample rate of 44.1kHz, at a bit depth of either 16 or 24 bit. The resulting kit-piece can only play back at 16-bit like all other kit-pieces within BFD Eco.

Destination

Select a data path to which to save the imported sample as a kit-piece by clicking this drop-down menu and selecting the desired path.

To use a new data path to which to save the imported kit-piece, it must first be specified with the **Set Data Path** function in BFD Eco's Options menu.

If an error is encountered when importing samples, please check for permissions problems in the **Destination** folder and try again.

Kit-piece Name

Click this text-box and enter a name for the created kit-piece. This name identifies the kit-piece in the kit-piece picker and browser.

Kit-piece Type

This drop-down menu specifies the type for the imported kit-piece. The kit-piece can be classified as Kick, Snare, Tom, Cymbal or Percussion – after the process is complete, it is added to the database and is visible in the kit-piece picker/browser for relevant slot types.

The **Kit-piece Type** can also be selected by clicking the relevant kit-piece icon to the right of the drop-down menu.

It is not possible to create Hihat kit-pieces as at least 2 articulations would be required.

Image settings

Any JPEG, PNG or TGA file can be specified as as an image to associate with the imported kit-piece. If no image is specified, a default image is used.

Browse

Clicking the **Browse** button opens a system file open dialog for navigating to and selecting a JPEG, PNG or TGA file to use as the imported kit-piece's image. The file must have a resolution of 180x150 pixels.

If no image file is specified a default kit-piece image is used, according to the selected **Kit-piece Type**.

Clear

Clicking this button removes the image currently specified for the kit-piece.

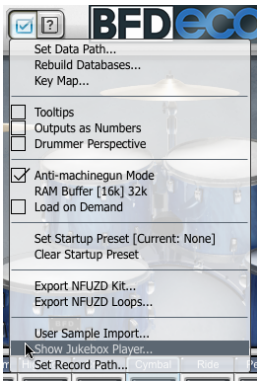
Import & Cancel

Click the **Import** button to save the user kit-piece into the database. To return to the BFD Eco interface without creating a kit-piece, click the **Cancel** button.

When a kit-piece is imported, it is *not* loaded into the current slot but is added to the database. It can then be loaded into a slot like any other kit-piece – it is visible in the kit-piece browser panel for the relevant kit-piece slot type.

13:2 Jukebox player

The Jukebox player offers a simple way to play/practice along with a playlist of any audio files such as your favourite music, backing tracks and so on, alongside BFD Eco. This function exists within a separate window - click the **Show Jukebox player** button in the Global controls area or use the **Show Jukebox player** function in the Options menu. To close the player window, use the standard OS controls at the upper-left (Mac) or upper-right (Windows) of the window.



The Jukebox player's audio output is routed to BFD Eco's master output (the first stereo output) although it is not affected by the master channel's settings or effects.

Therefore, it is routed to your audio interface along with BFD Eco's audio output, without requiring any additional mixing software or hardware. Users of the NFUZD Audio NSPIRE module may find the Jukebox useful when running the module as an audio interface.

Use the Jukebox player panel's Volume control to adjust its level relative to the sound of the kit in BFD Eco's master channel.

Browse

The **Browse** button displays an OS file browser for loading audio files into the currently selected slot in the Jukebox player playlist. 1 file can be added at a time to each slot.

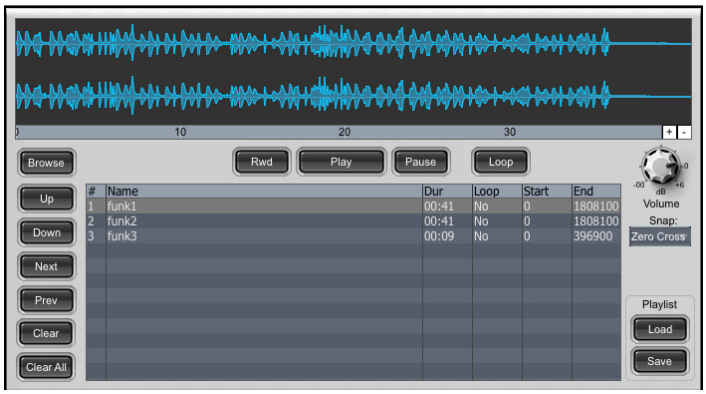
A file can also be added to a slot from an OS file window via drag and drop. Alternatively, double-click on a playlist slot to display an OS Open file dialog box. Navigate to and select the desired sample, then click the Open button.

Rwd

Click this button to rewind to the beginning of the currently playing audio file.

Play/Stop

The **Play** button starts playback from the play position in the current audio file.



Pause

This button pauses playback until it is clicked again.

Next, Previous

Click these buttons to switch to the **Next** or **Previous** audio file.

Up, Down

These buttons are used to re-order the playlist by moving the currently selected audio file **Up** (before the previous file) or **Down** (after the next file) in the list.

Volume

The **Volume** control adjusts the level of the Jukebox player's output.

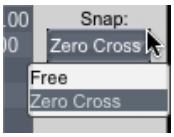
Loop

When the **Loop** button is activated, the current audio file is repeated between its **Loop Start** and **Loop End** markers.

By default these loop markers are located at the start and end of the audio file. Click and drag the markers to adjust the looping portion.

Snap

Set the Snap function to *Zero Cross* in order to snap the **Loop Start** and **Loop End** markers to zero crossings in the audio file waveform. With the *Free* setting active, no snapping occurs when adjusting the loop markers.



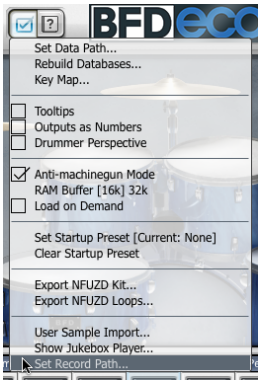
Playlist Load & Save

These functions are used to **Save** and **Load** Jukebox playlists for future use.

13:3 Exporting BFD Eco's output with the BFD Record panel

The BFD Record panel provides the ability to export BFD Eco's Master output to disk in real time. The output of the Jukebox player can optionally be added to the recording.

This panel exists as a separate window – click the **BFD Record** button in the Global controls area or use the **Set Record Path** function in the Options menu. To close the panel use the standard OS controls at the upper-left (Mac) or upper-right (Windows) of its window.



Please note that any channel(s) that you wish to be present in the recording must first be routed to the Master output!

Record Folder

By default, the location used for exported audio files is the system desktop. Using the **Browse** button it is possible to specify any folder on the system.

File Name

Specify the filename of the exported recording using this setting. After a recording has been created, further takes recorded to the same location are appended with ascending numbers. If the **Add Timestamp** setting is activated, the date and time are added to the specified filename.

Status & Duration

The **Status** display shows a readout of the current state of the recording function, while the **Duration** display shows the elapsed time while recording is in progress.

Add Timestamp

If this setting is activated, a date and time stamp is added to the exported recording's filename in the following format:

filename_year_month_day_hours_minutes_seconds.wav

Record Jukebox

With this setting enabled, the output of the Jukebox player is added to the recording. The level of the Jukebox player's output is dictated by the **Volume** control in the Jukebox panel.

Record

Click the **Record** button to commence recording to disk. The **Status** and **Duration** displays are updated to reflect progress.

Click the **Record** button again to stop recording.