

BFD3

OPERATION MANUAL



fxpansion

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1 Introduction

Welcome to BFD3!

Thank you for purchasing BFD3!

Please take time to study this manual in order to get the most out of BFD3's deep and powerful functionality.

- For an overview of how to operate BFD3, please read chapter 1 and the opening sections of chapters 2 and 3.
- BFD3's Groove engine, mapping functions and preferences are covered in chapters 4-6.

Credits

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Preset design

Jacques Mathias, John Emrich, Drew Vernon, Rory Dow, Emre Ramazanoglu, Tristan Klein

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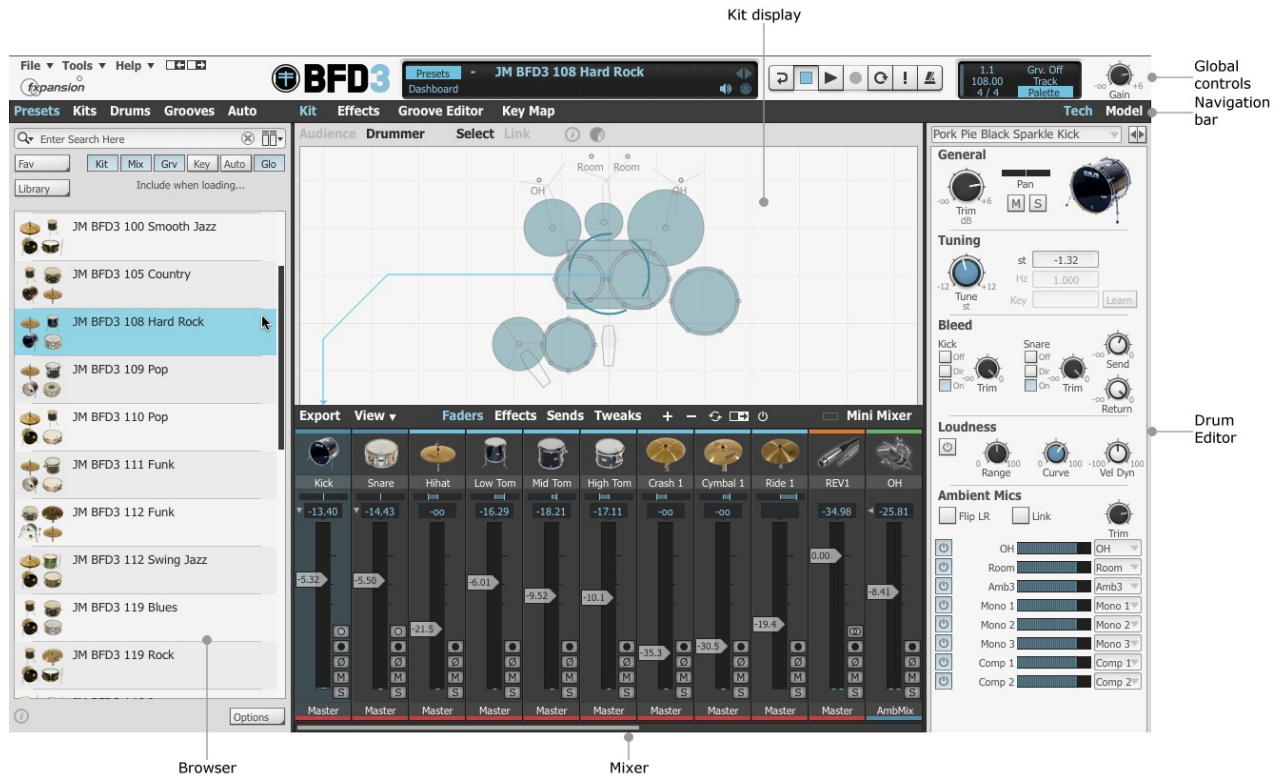
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1.1 Using BFD3

BFD3 layout



Global controls and navigation bar

The upper part of the BFD3 interface features a number of [Global controls](#) that relate to working with and managing BFD3.

The navigation bar features buttons to access various parts of BFD3, described below.

Browser

The [Browser](#) panel is used to load sounds and Grooves into BFD3. Using the tab buttons in the navigation bar at the top of this panel, it can be switched to browse for **Presets** (entire BFD3 states), **Kits** (configurations of Drums in slots), **Drums** (individual percussive instruments to load into the current kit) or **Grooves** (patterns or sequences that play BFD3's sounds).

This panel is also switchable to the Automation panel using the **Auto** button.

The Browser panel can be hidden by clicking the currently active tab button. Click any of the buttons to make it visible again.

To get started with BFD3, double-click any item in the Presets browser to load an entire mix-ready preset.

Kit display

The [Kit display](#) shows the physical layout of the kit, which is comprised of a number of Drum slots.

The currently selected Drum slot is highlighted - click any slot to select it and audition the Drum.

The Kit display is also used for the **Link** function which allows you to layer Drums together so that they are played at the same time.

Drum Editor

The [Drum Editor](#) contains a wide array of parameters for tweaking the sound and response of the currently selected Drum and contains 2 pages, accessed by the **Tech** and **Model** buttons in the navigation bar.

Clicking the currently active button hides the Drum Editor panel entirely. Click either button again to display it if it is currently hidden.



- Click the **Effects** button to show the Effects Editor

Additional pages and panels

The following pages and panels are accessed using buttons in the navigation bar:

Groove Editor

The Groove Editor is displayed by clicking the **Groove Editor** button. This page represents the entire [Groove engine](#) - it shows the Groove Palette, Groove Editor and Groove FX sections.

Key Map panel

Click the **Key Map** button to display the [Key Map page](#), used for creating and editing custom Key Map setups for assigning MIDI notes to Drum articulations.

This page is also useful for checking the layout of the current Key Map.

Automation panel

Click the **Auto** button above the Browser to display the [Automation panel](#) in place of the Browser. This panel provides control over assigning MIDI CC, note and host automation parameters to BFD3 controls for remote control purposes.

Click any other Browser tab button to exit the Automation panel.

How to approach the BFD3 interface

The philosophy of BFD3 is to recreate all aspects of studio drum recording and production within your computer.

- The **Kit display** and **Drum Editor** can be considered as the *drumkit* in a studio.
- The **Mixer** and **Effects Editor** represent the *control room* with a mixing console and outboard processing.
- The **Groove engine** and **Key Map panel** are related to the 2 ways that BFD3's sounds can be played, in effect representing the *drummer*.

Working with BFD3

The basic workflow in BFD3 can be considered in the following steps:

1. Load a BFD3 Preset, a kit or assemble a kit from individual Drums using the Browser.
2. Use the Drum Editor to modify the underlying drum sounds.
3. Use the Mixer to either process the sounds internally or to route microphone audio channels (either completely discretely or after some submixing if you require) into individual channels in your host/DAW for further processing or recording.
4. Play the Drum sounds with MIDI notes or with the Groove engine.
5. The resulting audio can be recorded by BFD3's audio export functions or, if you've routed channels discretely into your host, you can use its own recording functions.

Please consult the opening sections of [chapter 2](#) and [chapter 3](#) for a more detailed guide to the main aspects of this workflow. See [chapter 4](#) for a full guide to operation of the Groove engine.

Mixer

The [mixer](#) area represents a comprehensive mixing engine for the audio channels within BFD3's sounds.

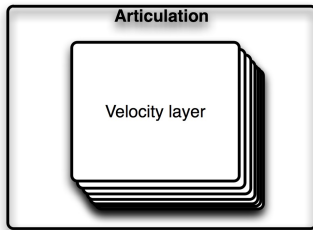
A Drum (or Drum slot if it is empty) can be selected by clicking its mixer channel.

Effects Editor

The [Effects Editor](#) is shown by clicking the **Effects** button in the main BFD3 navigation bar. It displays the currently selected mixer channel's effect slots and Send controls.

Important concepts in BFD3

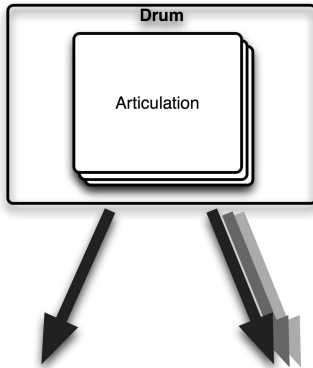
Drums, articulations and velocity layers



An **articulation** is a type of way of hitting a drum, cymbal, hihat or other percussive instrument. The following are examples of articulations:

- striking the main surface, bell or edge of a cymbal
- striking the main head of a snare or playing a rim-shot or sidestick

Within BFD3, an articulation is the smallest addressable entity. It is itself composed of a series of individual samples, called **velocity layers**, due to the fact that they represent a dynamic graduation from quiet to loud, designed to be addressable by the MIDI note velocity range of 0 (silent) to 127 (loudest possible sound).



Each velocity layer sample is actually composed of multiple *direct and ambient mic channels*: audio channels captured by multiple microphones.

See below for more details on mic channels.

Articulations can be triggered in 2 ways:

- MIDI notes assigned to articulations with the Key Map
- Groove engine events

Articulations can also be triggered by audition previews in various parts of BFD3 - the Drum Editor lets you preview all articulations in a Drum, for example.

BFD3's Drums contain a variety of articulations - see the section below for a list of available articulations.

Direct mic channels

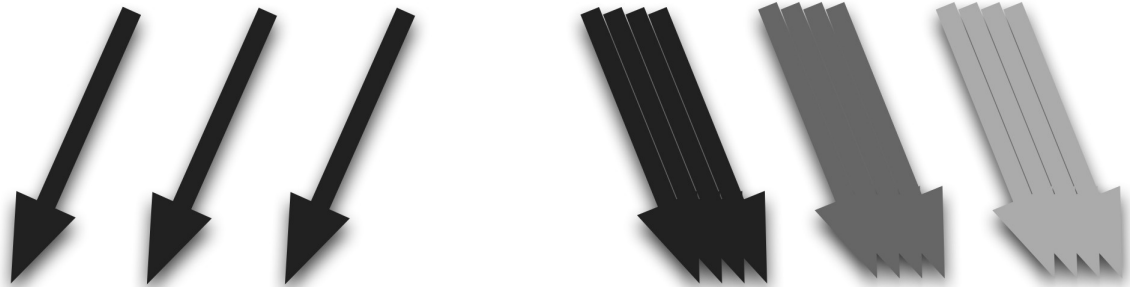
Ambient mic channels:
OH, Room,
Amb3 etc.

A **Drum** is composed of 1 or more articulations, and is the name given to any instrument within the kit in BFD3, whether it is a kick, snare, tom, cymbal, hihat or percussion instrument.

Snares contain between 5 and 7 articulations and hihats contain up to 11 while other instruments such as toms may feature only 1.

Mic channels

When Drum articulations are triggered by incoming MIDI or Groove engine events, the audio generated is fed to BFD3's mixer in the form of Direct mic channels and Ambient mic channels. Direct mic channels contain audio signals recorded by microphones close to the Drum, while Ambient mic channels contain audio signals recorded by stereo mic pairs over the kit (Overhead, or OH) and at various positions in the recording room (Room, Amb3). BFD3's library also contains further mono and hardware-compressed room mic channels for increased mixing flexibility.



Direct mic channels from each Drum are represented by an individual Drum channel on the BFD3 mixer.

Ambient mic channels of each type - OH, Room, Amb3 etc. - from all Drums are mixed together into the OH, Room, Amb3 etc. channels in the BFD3 mixer.

Kicks and Snares feature multiple sub-mics which are mixed into single Kick and Snare 'mix' channels. These channels, along with Tom channels, can also contain bleed and spill signals from other Drums, depending on their Bleed settings.

These Ambient mic channels are mixed into the **Ambient Mix** channel.

For further details on mic channels, bleed and spill signals and other aspects of mixing within BFD3, see [chapter 3](#).

Articulations in BFD3's Drums

Note: the following list represents all possible articulations for each Drum. Not all included Drums include all possible articulations. Articulations also vary between different BFD-compatible libraries and expansion packs. BFD3 is capable of supporting all articulations - any Key Map assignments use an intelligent substitution system if a required articulation is not present in the currently loaded Drum.

Kicks

- Hit [Default]
- NoSnare

Snares

- Drag
- Flam
- HalfEdge
- Hit [Default]
- Rim Shot)
- SS (SideStick)
- Rim Click

Hihats

- Closed Shank
- Closed Tip [Default]
- Half Shank
- Half Tip
- Open Shank
- Open Tip
- Quarter Shank
- Quarter Tip
- Splash
- ThreeQ Shank
- ThreeQ Tip
- Bell Tip
- Splash

Toms

- Hit [Default]
- Rim
- Rim Click

Cymbals

- Edge
- Bow [Default]
- Bell

Percussion

- Hit
- Alt

Note:

Some Percussion Drums are classified as Snares, due to possessing more than 2 articulations - for example, the included Carroll Sound Tambourine which features 5 articulations. Drums such as these can be loaded in the same way as any other Percussion Drum into a Percussion slot. However, the additional articulations are not available via MIDI notes until they are assigned in the Key Map panel. They are, however, always accessible in the Groove engine.

Alternatively, these drums can be loaded into the Snare slot if you prefer, in which case the articulations are already mapped to MIDI notes. An additional Snare slot can also be used, although all its articulations would need to be mapped using the Key Map panel.

1.2 Global controls



Master Gain

The **Master Gain** control can be considered as an overall volume level for the entire BFD3 audio engine. It adjusts the level of all kit-piece mic channels relative to any individual settings.

BFD3 LCD: Presets view



Current Preset

The Preset indicator displays the name of the last loaded BFD3 Preset. You can also double-click it to manually type a new name for the current session, which is also used as the suggested filename when a Preset is next saved.

Program change index

If a Program Change playlist is currently active, this part of the LCD displays the index number of the current program in the playlist.

Previous/Next Preset

These buttons browse through the available Presets sequentially.

Current Groove

If the Groove engine is currently active, the currently playing LCD Groove is shown here.

Audio indicator

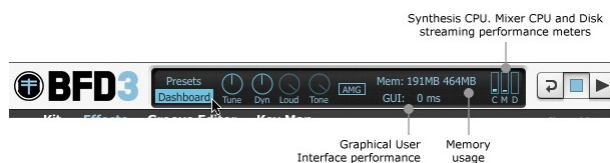
The **Audio indicator** is lit when BFD3 has successfully launched and been integrated into the host audio engine (when running as a plugin) or when the standalone version of BFD3 has successfully established communication with the specified audio device.

MIDI indicator

The **MIDI indicator** is momentarily lit whenever BFD3 receives any MIDI input.

LCD Dashboard

Click the **Dashboard** button in the LCD to show the Dashboard controls if they are not currently visible.



Tune (Master Tune)

The **Tune** control adjusts the overall tuning (pitch) of all Drums in the kit relative to their individual **Tuning** settings.

Dyn (Master Dynamics)

The **Dyn** control shifts the velocity range of incoming events (from MIDI notes or from the Groove engine) across the entire kit - in effect, making the 'drummer' play the kit with more or less intensity.



AMG mode (Anti-MachineGun mode)

The **AMG mode** button activates or deactivates the AMG (Anti-MachineGun) functions in BFD3. If it is deactivated, there is no additional humanization applied - each incoming event velocity always triggers the corresponding velocity layer directly.

Loud (Loudness Randomization)

The **Loud** control sets the overall amount of loudness randomization across all Drums while the **AMG** button is activated. The degree of randomization imposed upon each Drum in the kit depends upon its individual **AMG Var.** setting, found within the Articulations section of the Drum Editor's Model page - in fact, this setting can be made for each articulation within each Drum.

Since this control scales, or multiplies, the individual **AMG Var.** settings (in the [Drum Editor](#)) for each Drum articulation, if it is set to 0 then no loudness randomization will occur for any Drum articulations.

Tone (Tone Randomization)

The **Tone** control sets the amount of velocity layer randomization across all Drums while the **AMG** button is activated. The name of this control relates to the fact that velocity layer randomization predominantly imparts timbral or tonal variation due to multiple velocity layer samples being used. As well as sounding different due to subtle differences in drum resonances on each strike, different samples also feature subtle differences in loudness, so a degree of subtle variation in amplitude is to be expected.

The **Tone** control operates in conjunction with each Drum articulation's **AMG Var.** setting in exactly the same way as the **Loud** control described above.

Memory usage

This indicator features 2 parts:

- The first part displays how much RAM is being used by BFD3 - this includes the cached start portion of each sound, plus a small overhead for BFD3's engine.
- The second part displays the entire size for the current kit - including the start portions of sounds held in RAM and the remaining data on disk.

CPU and disk performance meters

The 3 horizontal meters in the status bar provide a performance gauge for several aspects of BFD3's system resource usage.

Synthesis engine CPU usage

The synthesis engine is involved in receiving MIDI input or generating Groove engine events and playing back the relevant articulations.

Mixer engine CPU usage

The mixer engine processes all routing, mixing and FX functions in BFD3.

Hard disk load

This meter indicates the intensity of hard disk resource usage. Do not be alarmed if this meter reaches high values, as your machine may well be able to handle a large amount of disk usage. It is intended as an indicator of the amount of hard disk activity that is occurring.

If your machine cannot handle the amount of disk usage required, the side-effects are usually clearly audible - tails may be cut or intermittent, and audio dropouts or other artifacts may occur.

Transport, Position, Tempo & Time Signature controls

These controls are used in conjunction with the [Grooves engine](#).

Grooves Auto-play mode

The **Auto-play mode** allows you to define how the BFD3 Transport affects Groove playback.



Auto-play Off

In the *Off* mode, Groove playback is not started automatically when the transport is started.

Instead, Grooves must be assigned to MIDI notes and played via MIDI. This mode should be used if you intend to trigger BFD3's sounds with external MIDI notes rather than with its internal Groove engine.

Auto-play Palette or Track

When set to *Palette* or *Track*, Groove playback is started in the Palette or Drum Track.

See the [Palette](#) section for more details on the **Auto-play mode** setting.

Interface width

The **Interface width** buttons adjust the horizontal size of the BFD3 interface window. Increasing the width allows larger visible areas of BFD3's panels: the size of the interface is not scaled.

Context info display



The context info display, located underneath the Transport, provides information about the control currently under the mouse cursor. Parameter names and values are shown.

While a control is being adjusted, the context info display remains locked to the parameter until the mouse button is released, showing the control's value as it changes.

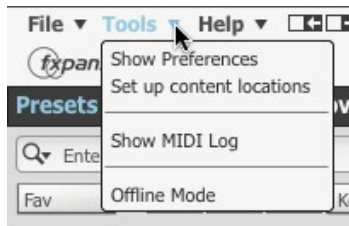
BFD3 main menus

The BFD3 menus at the upper-left of the interface provide a number of additional functions.

File menu

The contents of this menu are covered in the [Browser](#) chapter - it mainly provides additional loading/import and functions to those in the Browser as well as functions to save various elements in the current BFD3 session.

Tools menu



Show Preferences

This function displays the [Preferences](#) panel.

Set up content locations

This function displays the [Content Locations](#) panel.

Show MIDI Log

This function displays the external MIDI Log window, showing incoming MIDI data for troubleshooting purposes.

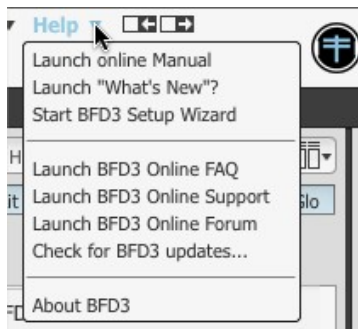
Offline mode

This switch is intended for use with hosts that provide an offline (non-realtime) bounce or mixdown facility. When the **Offline** switch is activated, BFD3 waits for all data to be properly delivered from the hard disk before allowing the host to continue, ensuring that sounds are not cut off before their full decay is complete.

Please note that Offline mode is non-realtime, and should only be used during offline mixdown or rendering in your sequencer, if it even offers this feature. Do not leave the **Offline** switch enabled during regular realtime playback.

If your sequencer only provides realtime bouncing facilities, you should leave Offline mode turned off at all times.

Help menu



Launch online Manual

This function launches the online HTML operation manual. A PDF manual can also be downloaded from FXpansion.com/BFD3

Launch "What's New?"

This function launches the What's New document which details changes since BFD2.

Start BFD3 Setup Wizard

This function starts the BFD3 Setup Wizard, which adjusts a few preferences, the most important of which is the **Profile** - this sets up BFD3's engine preferences in a way that is best suited to the amount of RAM you have in your machine.

Use the drop-down menu to specify the amount of RAM in your machine from the 3 available choices.

The **Main host application** setting simply adjusts the **Octave numbering scheme** setting in the BFD3 Preferences, while the **MIDI controller** setting specifies the current Key Map - this can also be achieved using the **Load Key Map** function in the **File** menu.

Launch BFD3 Online FAQ/Online Support/Online Forum

These functions launch various online help resources.

Check for BFD3 updates

This function checks the FXpansion.com website for BFD3 updates.

About BFD3

This function displays the About box, containing the credits listing for BFD3. Click the About Box to return to the main BFD3 interface.

1.3 BFD3 Core Library tracking notes

Kits 1-4

Kits 1-4 were recorded at Ocean Studios, Burbank, California, USA and are oriented towards metal, indie, 70s rock and pop, but they are capable of being used for all kinds of styles with the right Drum Editor tweaking and mixer processing.

Production/engineering by Rail von Rogut and Andrew Scheps for Platinum Samples.

Kit 1 (Metal)

DW Mardi Gras Sparkle kit

- 2 kicks and 6 toms

Tama Tempesta snare

Zildjian cymbals

- 3 crashes
- splash
- china
- ride
- New Beats Mastersound hihat

Kit 2 (Indie)

Pork Pie Black Sparkle kit

- Kick and 3 toms

Tama Bell Brass snare

Zildjian A-series cymbals

- Crash
- 2 rides

Kit 3 (70s rock)

Ludwig Stainless Steel kit

- Kick and 3 toms

Ludwig Hammered Supraphonic snare

Paiste cymbals

- 2002 crash
- 202 ride
- 2002 hihat
- Giant Beat crash

Kit 4 (Pop)

Gretsch Purple kit

- Kick and 4 toms

Canopus Bronze Piccolo snare

Paiste Signature cymbals

- ride
- 2 crashes
- hihat

Recording chain includes:

- Neve 80 series console with 1081, 1073 and 1084 EQ modules
- Neve 2254E, 33609 compressors
- Fairchild 670 and 660
- EL8 Distressors
- ADR Vocal Stresser
- DBX 160
- Urei 1176

Kits 5, 6, 7

These kits were recorded at Omega Studios, Maryland, USA and provide dedicated Stick, Brush and Mallet kits. These kits offer a different room sound to kits 1-4 and a different character of sound with its own recording chain. They are very well suited to jazz and funk projects, but with tweaking and processing can be used for a variety of sounds for other genres.

Kit 5 (Stick) / Kit 6 (Brush) / Kit 7 (Mallet) Mapleworks Custom kit

- Kick and 6 toms

Mapleworks Custom snares

- 2 versions: 13" and 14"

Mapex Black Panther Blade snare

Bosphorus cymbals

- 6 crash/ride/splash cymbals
- Hihat

Bonus Percussion

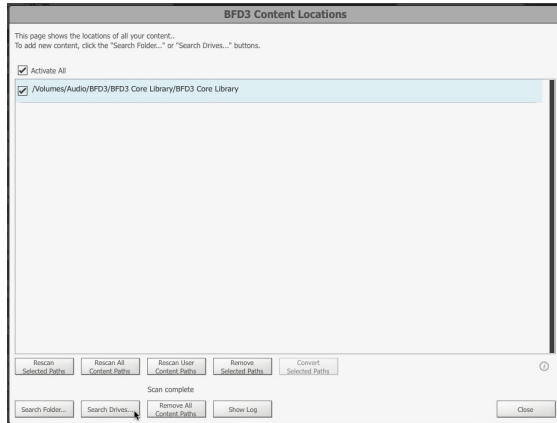
- Cabasa
- Tambourine
- Group claps
- Jam blocks
- Cowbell

Recording chain includes:

- UA, API, JDK AT18MX2, Neve VR-60, Metric Halo ULN2 preamps
- Yamaha SubKick mic on kicks

1.4 Setting up additional content

Content Locations panel



If you're using BFD3 with only the BFD3 Core Library, the location to which the audio data was installed is already specified within BFD3 when it is launched.

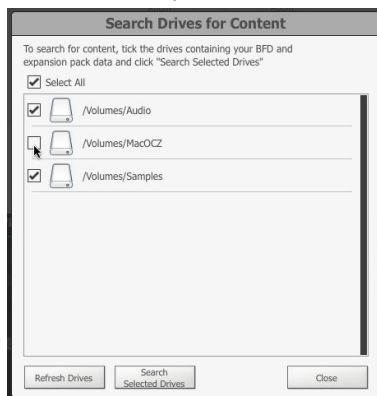
If you would like to use additional libraries or expansion packs with BFD3, they must first be added to the BFD3 Content Locations panel and scanned.

To display the Content Locations panel, use the **Set up content locations** function in BFD3's **Tools menu**.

Searching for additional content locations

Before any additional content can be specified within BFD3, one or more content locations must be detected on your drive(s) by performing a search using the controls in the *Search for content* section of the Set up Content Locations dialog box.

There are 3 ways to search for content locations:



Search a hard drive or multiple hard drives

All drives on your system are shown, along with a checkbox indicating that it will be searched. Uncheck any drive(s) if required and then click the **Search Selected Drives** button. You can click the **Search All** checkbox to click the checkbox for all detected drives.

Click the **Refresh Drives** button to refresh the list of detected hard drives in your system - you may need to do this after connecting an external disk, for example.

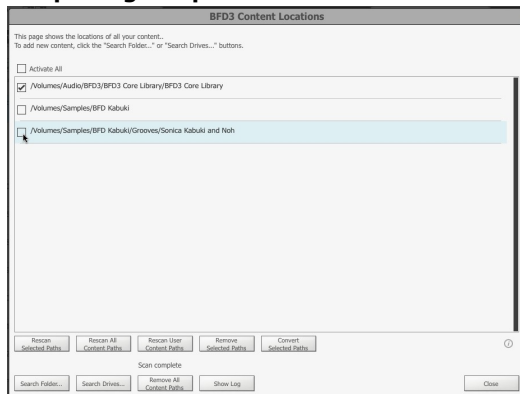
Specify a folder to search

To search within a specific folder (and sub-folders within it), click the **Search Folder...** button to navigate to and select the desired folder.

Drag and drop a folder onto the Content Locations panel

To proceed, search for valid content locations using the Search Drives... or Search Folder... buttons. Alternatively, you can drag a folder from an OS file window onto the Content Locations panel to initiate a search.

Completing the process



The drive(s) or folder is searched for compatible data - this process can take a while so please be patient.

Any folders which contain expansion packs usable within BFD3 are shown in the list of content locations along with the Core Library location. If its **Activate** box is checked, it is ready to use after clicking the **Close** button to exit the Content Locations panel.

To avoid using any detected content location, simply deactivate its **Activate** box.

Additional Content Path functions

The main part of the Content Locations panel is a listing of the currently specified content locations (known as 'data paths' in previous versions of BFD).

A content location can contain more than 1 BFD-compatible library.

It can also contain presets, kits, key maps and other files. A summary of each location's contents can be viewed by selecting the relevant content location in the list and then clicking the the **Content info display** button at the lower-right of the panel.

Activate

Each content location features a checkbox which activates it within BFD3. Uncheck the box in order to deactivate any path.

Activate All

Click the **Activate All** button to activate all paths currently listed.

Rescan Selected Path

Click this button to rescan the data within the selected content path. You may need to do this if you have manually deleted any items to save disk space.

Rescan All Content Paths

This function rescans the contents of all currently detected content locations in the list.

Rescan User Content Paths

This function rescans the BFD3 user content location, within your **Documents/FXpansion/BFD3** folder. This can be useful for installing some new presets that you copied into your user folder.

Note that the BFD3 user content location is not shown in the Content Locations panel listing.

Remove selected Path

This button removes the currently selected location in the list. The removed path does not reappear in the list until it is encountered by one of the search operations described earlier.

Convert selected Paths

This function is only available when the selected content location contains legacy data - Kits, Grooves and Drums (known as kit-pieces in previous versions) in BFD 1.5 and BFD2 format. It converts these items to BFD3-format files and saves them to the original locations - note that no previous data is ever overwritten.

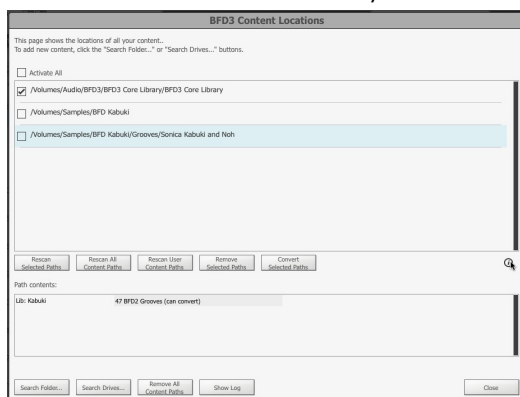
This function applies to BFD1.5 and BFD2 Kits, BFD2 Grooves and Palettes and kit-pieces/Drums from all versions. BFD1.5 format Grooves and Groove Bundles must be converted manually using the Import functions in BFD3's **File menu**.

When BFD3's scanning operation encounters a location with BFD3 and legacy format data, it ignores the legacy format data and only shows the converted BFD3 versions within the BFD3 Browser listings.

Note that if the selected location is a system folder (and may be a UAC-protected location on Windows), this button is actually labelled **Copy and Migrate selected paths**. It must be copied to an unprotected location first, for which you are prompted. You can use the path without conversion - the contents are still displayed within the BFD3 Browsers - but if you wish to update the files to BFD3 format, you must choose an alternative location.

Remove All Content Paths

This function removes all currently detected content locations in the list.



Show Log

Click the Show Log button to display a separate log window. This window contains diagnostic information which may be requested by our technical support team in case you encounter problems during the process of adding content locations to BFD3. The Log window contains buttons to **Clear** the currently stored log buffer, to **Save...** the log to a file. To copy/paste the contents of the log into an empty text file or email, use the **Copy to Clipboard** button and then paste elsewhere as required.

Path info display

This display is hidden by default - its visibility is toggled by clicking the **Info display** button. When visible, it lists a summary of the contents of each selected path in the listing.

Close

Click the **Close** button to exit the Content Locations panel and return to the main BFD3 interface.

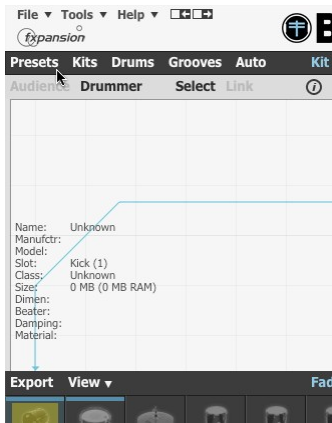
Authorizing additional expansion packs

If you are upgrading to BFD3 with BFD2 on the same system and your expansion packs are already authorized for use within BFD2, they do not need to be re-authorized for use in BFD3.

If they have not yet been authorized, they must be authorized in License Manager at this point. Once it has been encountered during a BFD3 content scan, each expansion pack is inserted as a separate product into FX License Manager.

Therefore, after scanning, launch License Manager if it is not already running and authorize the expansion packs in the same way as you authorized BFD3.

2 Browsing for sounds



The Browser panel is actually switchable between the Browser and Automation mapping panel. It is also capable of being hidden entirely.

If the Automation mapping mode is currently active or if the panel is currently hidden, click any of the following Browser mode buttons - each of which switches the Browser view to one of 4 loadable elements in BFD3:

Presets	the entire state of BFD3
Kits	a set of Drums with additional Drum Editor settings
Drums	individual drums, cymbals or other instruments within a kit such as kicks, snares, hihats, rides, crashes, toms, cowbells and other percussion
Grooves	drum performance patterns

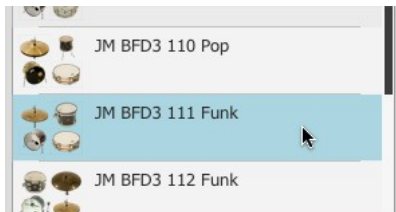
The Browser lists only 1 of these 4 types of components at any one time - click the **Presets**, **Kits**, **Drums** and **Grooves** tab buttons to switch between them.

Click the currently active Browser tab button to hide the Browser panel if required.

Loading a preset

By default, the Browser shows the available factory presets. Presets are loaded in either of 2 ways:

- **Double-click**



Double-click a Preset in the Browser listing to load it.

Loading a preset replaces the entire state of BFD3 including grooves, key and automation mappings and session-specific settings. Therefore, you are prompted for confirmation before the Preset is loaded.

This confirmation prompt can be disabled by deactivating the **Confirm Preset loading** setting in the **Options menu**.

- **Drag and drop**



Drag and drop a Preset from the Browser listing onto the main part of the BFD3 interface. Again, you are prompted for confirmation before the preset is loaded - the prompt can be disabled in the Options menu.

It is possible to avoid loading parts of presets by deactivating the various **Include when loading** buttons - see the [Browser reference](#) section.

Try loading one of the factory presets - this loads a set of Grooves, so press **Play** in the BFD3 transport or in your host/DAW to hear the sounds being played.

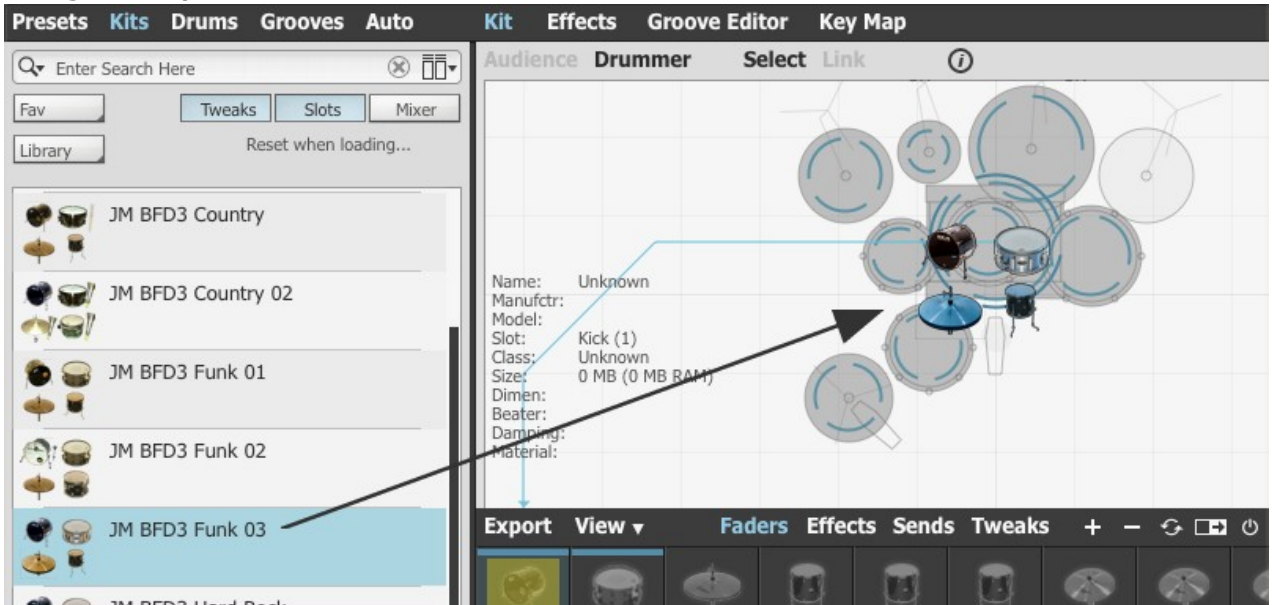
Loading a Kit

A Kit is loaded in the same ways as a Preset. In both cases, you are asked for confirmation when loading a Kit by default - this prompt can be disabled by deactivating the **Confirm Kit loading** setting in the **Options menu**.

- **Double-click**

Double-click a Kit in the Browser listing to load it.

- **Drag and drop**



Drag and drop a Kit from the Browser listing onto the main part of the BFD3 interface.

When loading a Kit you can choose whether to reset the current array of Drum Slots, Mixer settings and Drum Editor tweaks using the **Reset when loading...** buttons - see the [Browser reference](#) section for more details on these controls.

Loading Drums into slots

Drums are the basic building blocks for building your own kit or for replacing parts of an existing Kit or Preset. There are several ways of loading Drums:

- **Preview-in-context**

Let's say you've loaded a preset as described above. Try swapping out the snare as follows:



1. Press play on the BFD3 transport (or in your host/DAW) if it is not already running.



2. Double-click the Snare channel in the mixer or the Snare in the kit display. The snare slot is now selected and the Browser switches to show the available snares in your library (the **Focus Browser** setting in the Drums Options menu must be enabled for this to occur).



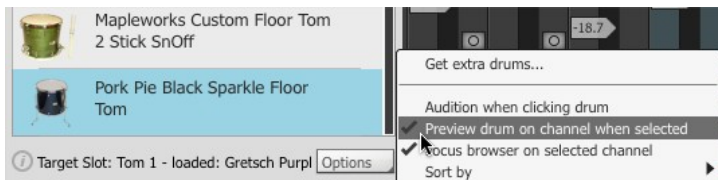
3. Click a snare in the listing - this previews it in place of the previous snare and will be heard whenever the snare slot is triggered by the Groove engine (or by incoming MIDI).



4. Try out the various snares until you find one you want to load into the kit permanently - click the **Load** button flashing at the right in order to do this.



... or click the **Cancel** button to return to the previous snare without loading anything.



The preview-in-context function requires that the **Preview drum on channel when selected** setting is activated in the Drums Browser **Options** menu.

Drums can also be loaded in the following ways:

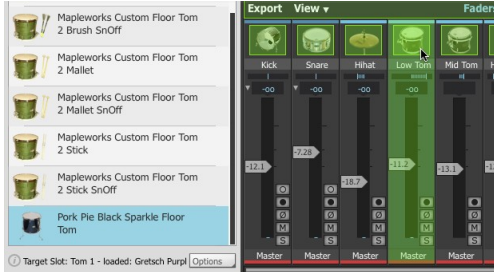
• **Double-click**



First, select the desired destination Drum slot by clicking it in the Kit display or in the mixer.

Then double-click a Drum in the Browser listing to load it to the currently selected Drum slot.

• **Drag and drop**



To load to a specific Drum slot, drag and drop from the Drums Browser onto the desired Drum mixer channel.

To load to a *new* Drum slot, drag from the Drums Browser and drop *between* channels in the mixer.



Drums can also be dragged to the Kit display - into a specific slot or to an empty area in order to load the Drum into a new slot. In the above example, a 2nd Kick is being added to the current Kit for a double-kick configuration.

The **Target slot indicator** always shows the currently selected destination slot when loading a Drum, along with its currently loaded Drum if it exists.

Audition methods

Drums can be auditioned in several ways before loading:

Preview-in-context

The preview-in-context system, enabled by the **Preview drum on channel when selected** setting in the Options menu, is described above.

Hold down ALT during selection

Hold down ALT when clicking any Drum in the listing to audition its main articulation.

The preview click area is velocity-sensitive: click towards the left side of the Drum item in the Browser for lower velocity layer previews, and towards the right for higher velocity layers.

Preview on select

If the **Audition when clicking drum** setting is enabled in the Options menu, the main articulation of the Drum is played when it is selected - without the ALT key having to be held down.

Again, the preview click area for the Drum item is velocity sensitive.

Previewing articulations

The Info display panel contains functions for auditioning any articulation within the selected Drum. See the next section for details.

Processed Drums

Many Drums in the listing feature the same underlying Drum, transformed with additional damping, tuning, effects and other settings within BFD3. The purpose of these Processed Drums is to have an array of production-ready sounds which can slot straight into a mix with little or no further adjustment. You can think of them as 'Drum channel strips'.

To show Processed Drums in the Browser, activate the **Processed** button. To revert to viewing only raw Drums with no additional processing, deactivate the **Processed** button in the browser.

Loading files from BFD 1.5 and BFD2

Presets and Kits from BFD 1.5 and BFD2 are shown in the Browser if they are found within any data locations scanned by BFD3's Content Locations panel. Their settings are recreated within BFD3 as closely as possible, bearing in mind the differences within BFD3's audio engine and approach to dynamics and humanization.

If you have chosen not to add your BFD 1.5 and BFD2 file locations to BFD3, you can use the Load from file and Import functions in BFD3's File menu in order to use your older files within BFD3.

Loading Grooves

See the [Grooves Browser](#) section for information on loading Grooves.

2.1 Browser reference

Loading options for Presets and Kits

Include when loading... (Presets only)



When the Preset Browser is visible, several toggle switches are shown at the top of the Browser panel. These allow you to activate or deactivate certain elements when loading Presets.

By default, all elements of Presets are loaded - effectively replacing the entire previous state of BFD3.

By deactivating its switch, any of the following elements can be prevented from loading:

- **Kit** (Drums and Drum Editor settings)
- **Mix** (Mixer)
- **Grv** (Groove Palette, Drum Track and Groove Editor settings)
- **Key** (Key Map)
- **Auto** (Automation map – MIDI CC, note and host automation assignments)
- **Glo** - (Global settings, Session preferences)

By default, the **Key** and **Auto** buttons are deactivated, because typically it would not be desirable to keep changing these settings when trying different Presets.

Reset when loading... (Kits only)



These buttons toggle whether certain elements in BFD3 are reset when loading a new Kit.

Slots

If the **Slots** button is activated, any current slots not which are used in the kit to be loaded are removed.

If the button is deactivated, only slots used by the kit are affected - unused slots remain completely unaffected.

Tweaks

If the **Tweaks** button is activated, the Drum Editor settings for each Drum in the Kit are not loaded - instead, the Drum Editor settings are reset to factory defaults.

If the button is deactivated, the Drum Editor settings contained within the Kit for each Drum are loaded with the Kit.

Mixer

If the **Mixer** button is activated, all mixer channels are reset when the kit is loaded - unused mixer channels including Aux channels are deleted and the Drum channels used by the Kit are set to factory defaults.

If the button is deactivated, the current mixer configuration and settings remain unchanged.

Processed (Drums only)

This button toggles visibility between regular Drums and Processed Drums in the Browser listing.

Processed Drums are regular Drums saved with additional Drum Editor and mixer channel settings for a more produced, mix-ready sound compared to that of a raw underlying Drum.

Processed Drums are shown separately to regular Drums to reinforce the fact that loading them changes the entire contents of the Drum channel including mixer settings, which is much more difficult to overcome than returning to the previous Drum if you decide you don't like the one you just loaded.

Filtering the browser listing

The Browser's filtering functions allow you to narrow down the Browser listing according to various criteria. Click the **Filters** button to open the Filters panel - this panel allows you to see all available filtering criteria simultaneously.

Many filters are also available on the main Browser panel in the form of **Quick-filter** drop-down menus - see below.

Filters panel: Drums

The Filters panel shows all filtering criteria simultaneously. The numbers in brackets represent the number of items that would be available when specifying each of the filtering criteria.



The Drums Browser offers a number of criteria with which to filter the listing.

Favourites

Favourites are user-defined groups to which any Drums can be added - working with Favourite Lists is discussed below.

Library

The Library field refers to the original library to which the Drum belongs - for example, the BFD3 Core Library content represents a library, as does the BFD2 factory content, or any expansion pack.

Class

The Class field represents the Drum class or type - whether it is a kick, snare, tom, cymbal, hi-hat or percussion instrument. Toms and cymbals also feature sub-classes.

By changing the Class that is shown by default for the currently selected slot, you can load any type of Drum into it - not just those intended for the particular slot type, but please note that certain caveats apply when doing so. See the 'Possible loading problems' section below for usage guidelines.

Beater

The Beater type varies according to various Drum classes.

Manufacturer

This filter type lets you see all Drums by certain manufacturer(s).



- Filtering the listing to display only cymbals played with mallets

Filters panel: Kits, Presets

The Kits and Presets tabs of the Browser feature only 2 filtering criteria: **Favourites** and **Library**.

Quick-filters: Class filters (Drums only)



The Drums Browser features dedicated buttons which display drop-down menus for filtering the Drum Class (and sub-class in the case of toms and cymbals) - these achieve the same function as using the popout Filters panel.

When the **Focus browser** setting is activated in the **Options menu**, the corresponding **Class filter** button is enabled when selecting a Drum slot if the Drums Browser is currently visible. Double-click the Drum slot to bring the Drums Browser into view as well as enabling the relevant Class filter.

Quick-filters: Favourites and Library filters

The Presets, Kits and Drums Browsers all feature dedicated buttons which display drop-down menus for setting the Favourites and Library filters. The Favourites system is described below.

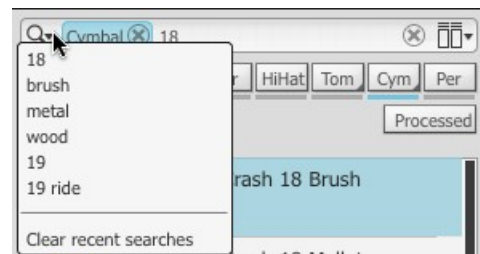
Searching



Using the Search text-box is another way of narrowing down the Browser listing.

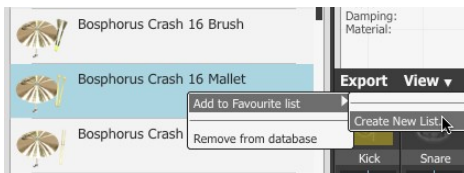
Click the text-box and type a search term - the example shows typing "18" while viewing all cymbals to find all available "18" cymbals.

Searches operate in conjunction with the Filters described above.



The **Recent searches** drop-down menu lists all recent searches for the Drum type. Use the **Clear recent searches** function to remove all entries from this menu.

Favourites



Right-click on a Browser item in order to display the **Add to Favourite list** function. This is a sub-menu showing all available Favourite Lists to which to add the selected item.

In the above example, no groups have yet been set up. Click the **Create New List...** function to display a dialog prompting you to enter a name for the new Favourite List.



The item is added to the newly created Favourite List, which is now shown on the Fav menu and also in the Filters panel under the Favourites column. When the List is activated, the Browser listing is filtered to show the items in the List.

Search/Filter status and removal



Each search term or filter that is active is represented within the search bar at the top of the Browser panel.

To deactivate any item, simply click the **Remove** button at the right side of each item - the item is then removed from the active searches/filters.

Other controls

Target Slot indicator (Drums only)



The **Target Slot** indicator displays information about the destination Drum slot:

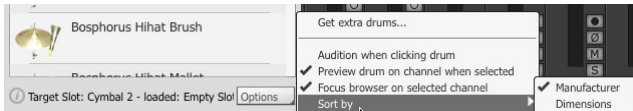
Target Slot

This part of the indicator shows which slot is currently set as the destination for previewing-in-place and loading when a Drum is selected in the listing.

Currently loaded in Slot

This part of the indicator shows the name of any Drum already loaded into the slot.

Options menu



Most functions in the **Options menu** are available only when the Drums Browser is currently visible.

Get extra drums

This function opens the FXpansion website and displays available expansion libraries for BFD3.

Import samples (Drums only)

Clicking this button opens the [Sample import panel](#) with which you can create single-articulation mono or stereo Drums with multiple velocity layers from a set of one or more samples. These Drums can be loaded from the Browser into any BFD3 session after they are created.

Audition when clicking Drum (Drums only)

Enabling this setting results in the main articulation of each Drum being automatically previewed as it is selected in the Browser.

Preview drum on channel when selected (Drums only)

Activating this setting enables the preview-in-place functionality of the Browser.

Focus browser on selected channel (Drums only)

With this setting activated, selecting a Drum slot or Drum mixer channel results in the relevant Drum type being shown in the Browser listing. This means that with a kick slot selected, the Browser shows available kicks, when a snare slot is selected, the available snares are shown, and so on.

Sort by... (Drums only)

The **Sort by** function toggles between sorting Drums in the list alphabetically by **Manufacturer** name or by their **Dimensions**.

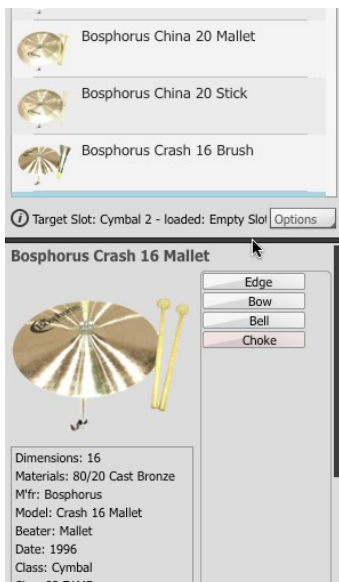
Confirm Preset loading (Presets only)

Deactivate this setting to disable the confirmation prompt when loading a new Preset.

Confirm Kit loading (Kits only)

Deactivate this setting to disable the confirmation prompt when loading a new Kit (or when using the **Load random Kit** function in the **File menu**).

Browser info display



- **Resizing the Info display**



- **Auditioning a Bell articulation for a ride cymbal**

Activating the **Info display** button enables the Info display at the lower part of the Browser. This display contains information about the currently selected item in the Browser. For Drums, it also has additional functions for manually auditioning individual articulations.

Click and drag up/down on the separator above the Info display to resize the area of the Browser devoted to the actual item listing and the Info display panel at the bottom.

Presets, Kits

The info display shows information about which Drums exist in each of the slots within a Preset or Kit. Any contained Drums which are invalid - unauthorized, not present or corrupt - are listed in red.

The location of the Preset or Kit file is also shown.

Drums

The Info display shows information about the selected Drum and audition functions for its articulations.

Articulation audition strips

Each articulation present within the selected kit-piece can be previewed by clicking its Audition strip. Click towards the left of the strip for lower velocity layers, and towards the right for higher layers.

Info

The info box shows factory information about the selected kit-piece.

- Dimensions
- Materials
- manufacturer
- Model/name
- Beater type
- Production date
- Class
- Size on disk
- Location in the data path
- Factory Library

Possible loading problems

Even though each Drum slot in BFD3 is intended for a certain type of Drum - be it a kick, snare, hihat, cymbal or percussion instrument - it also allows you to change the Drum Class filter to load any Drum into any slot. When building arbitrary kits in this way, you should be aware of the following potential issues:

1. Articulation mappings

Because different Drums have different numbers of articulations, the Key Map may not feature enough articulation mappings for the non-standard Drum.

If you load a Snare into a Tom slot, for instance, the slot holds 6 Snare articulations although only 3 are actually mapped. The extra snare articulations need to be mapped to MIDI notes before they can be triggered.

If, on the other hand, you load a Tom into a Snare slot, any mappings which exist for the Snare that do not have a logical equivalent for a Tom 'fall back' to a suitable available tom articulation.

It is not recommended to load different types of Drums into the Hihat slot. This slot is specially designed to load Hihats and there is no real reason to load any other type of Drum into this slot.

If you have an electronic drumkit, you should be aware that the Hihat slot is the only slot that supports variable hihat control. Likewise, only the Snare1 slot supports positional sensing control.

2. Grooves

Even though Groove events do not rely on articulations being mapped, they are nevertheless usually intended for a certain type of kit-piece articulation. In the vast majority of cases, Grooves are designed for kits that follow suggested kit-piece slot uses.

Like articulation mappings, Groove events fall back intelligently to suitable articulations in the loaded kit-piece, so this can be good for experimentation. Please bear in mind, however, that a Groove simply may not make sense when played with a completely different type of kit configuration.

2.2 BFD3 File menu

BFD3's **File menu** contains functions for managing your BFD3 session and is also used to save elements for loading into future sessions.

Many functions on the menu are context-dependent - they vary depending on whether the Groove Editor, Key Map panel or Automation panel are currently visible. These dependencies are specified below wherever applicable.



Reset BFD3

This function resets BFD3 to its factory default state.

Clear Kit

This function clears the kit within BFD3 while leaving other elements in BFD3 unchanged.

Load random Kit

This function loads a random selection from the available Drums into the current set of Drum slots. You are prompted for confirmation in order to continue, in the same way as when a Kit is loaded from the Browser.

Save Preset

Save Kit (not available with Groove Editor or Key Map panel visible)

These functions save a Preset (entire BFD3 state) or a Kit (Drums loaded into Drum slots along with Drum Editor settings) from the current session.

A system file save dialog is displayed, prompting you to save the Preset or Kit to disk. Type the desired name and hit ENTER or click the Save button.

The default save location is within the user folder: **<user location>/Presets** or **<user location>/Kits**

It is recommended that you use this location so that your Presets and kits are accessible from the Browser without further adding and scanning of data locations.

Elements saved with Presets

When a Preset is saved, all the following elements are always saved with it:

- Kit (Drums and Drum Editor tweaks)
- Mixer
- Groove Palette, Drum Track and other Groove page settings
- Key Map
- Automation map – MIDI CC, note and host automation assignments
- Session Preferences

Using the **Include while loading** buttons in the Preset Browser, you can choose to load only certain elements (with the exception of embedded Session preferences) when reloading Presets at a later time.

If you specifically do not want to save certain elements, for example Grooves or mixer effects, within a Preset, you should first clear the Palette or remove the effects from mixer channels before saving the Preset.

Save Processed Drum Preset (not available with Groove Editor or Key Map panel visible)

This function saves the current slot's Drum with its Drum Editor settings as a Processed Drum preset, available when the **Processed** button is activated in the Drum Browser (see the previous section for details).

Load Preset from file

Load Kit from file (not available with Groove Editor or Key Map panel visible)

Clicking this button brings up a system file open dialog that allows you to browse to and load a specific Preset or Kit file into the current session. This may be useful after downloading a file created by another user.

When loading the file, you are prompted if you would like to save it into the BFD3 database for future use. Even if you opt not to do so, the current session can be saved later as a Preset or Kit into your user location if you change your mind.

These functions can load Presets and Kits in BFD 1.5 or BFD2 format - their contents are recreated within BFD3 as closely as possible.

Import multiple Presets**Import multiple Kits (not available with Groove Editor or Key Map panel visible)**

These functions create BFD3 Presets or Kits within the database (saved into the user location) from a folder containing these files. It may be useful to do this if downloading multiple presets or kits created by another user.

The **Import multiple Kits** function can import BFD 1.5 or BFD2 format kit files - their contents are recreated within BFD3 as closely as possible.

The **Import multiple Presets** function works only with BFD3 Presets - BFD 1.5 and BFD2 Presets can be loaded directly from the Browser - simply ensure that your BFD 1.5 and/or BFD2 user locations are included within BFD3's Content Locations panel.

Groove-related functions (only available with Groove Editor visible)**Save Groove palette****Save Groove****Export Groove MIDI****Export Groove audio****Export Drum Track MIDI****Export Drum Track audio**

These functions are discussed in the [Grooves](#) section.

Key Map-related functions (only available with Key Map panel visible)**Load Key Map****Save Key Map****Save Key + Automation maps****Load Key Map from file****Import Key Maps****Save MIDI Event Log**

These functions are discussed in the [Key Maps](#) section.

Automation Map-related functions (only available with Automation panel visible)**Load Automation Map****Save Automation Map****Save Key + Automation maps****Load Automation Map from file****Load Program Change Playlist****Save Program Change Playlist****Save MIDI Event Log**

These functions are discussed in the [Automation Maps](#) section.

2.3 Importing Samples into BFD3

Overview

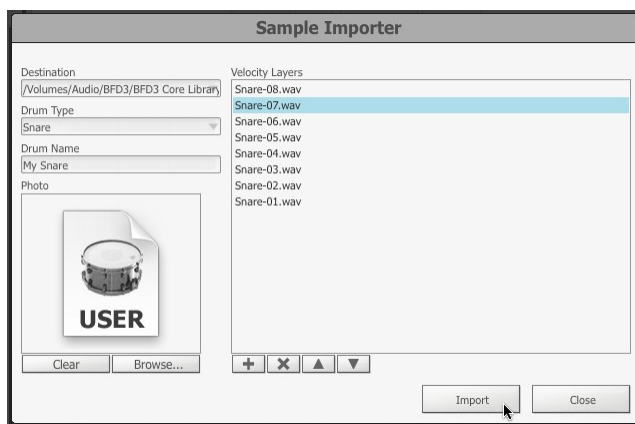


BFD3 allows you to import mono or stereo .WAV files to create single-articulation Drums, which can have multiple velocity layers.

The following caveats apply with the Sample Import function:

- There can be only 1 articulation in the imported Drum. It can be either one amplitude-scaled sample, or multiple velocity layers.
- Imported Drums only produce sound in the direct bus. There is no facility for multiple microphones or ambience channels. It is possible to add space to imported sounds by using BFD3's reverb effects.
- Only 1 channel is active for the imported Drum in the mixer, regardless of which Kit-Piece slot is used, unless it is loaded into the kick1 or snare1 slots.
- Samples can be mono or stereo, but you cannot use a combination of mono and stereo samples in the same imported Drum.

Sample Import panel



In order to create a Drum from a set of one or more samples, you must open the Sample Import panel using the **Import samples...** function in the Drum Browser Options menu.

Import settings

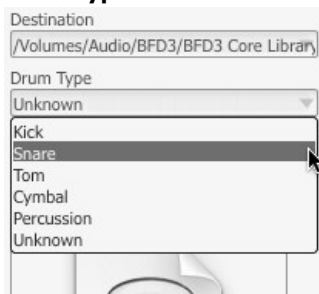
Destination

Select a Content Location to which to save the imported samples as a Drum.

Imported sounds stream in the same way as other sounds in BFD3, so the path must be one of the locations set up in the BFD3 Content Locations panel.

If you receive an error when importing samples, make sure that you have adequate permissions to write to the location, and try again.

Drum Type



Choose the Drum type (Class) from this drop-down menu. The Drum can be classified as a Kick, Snare, Tom, Cymbal or Percussion Drum. Hihats are not an available option because they would require more than one articulation.

If you require imported hihats, create separate Drums for open and closed samples with a Percussion classification. Load each of these into Percussion slots, then use the Key Map page to layer the relevant hihat articulations with those of the imported Drums. It is advised to save the session as a Preset in order to use it again in future if required.

Drum Name

Type a name for the created Drum. This is the name which is visible in the Drum Browser.

Photo settings

Any JPEG, PNG or TGA image file can be specified as a photo to associate with the imported Drum. If none is specified, a default image is used.

Browse button

Clicking the **Browse** button opens a system file open dialog allowing you to browse to a JPEG, PNG or TGA file to specify for the imported Drum. The file must have a resolution of 180x150 pixels.

Clear button

Clicking this button removes the photo currently specified for the imported Drum.

Velocity layer settings

This section lets you add samples, and sort them into the desired order, from the lowest velocity layer at the top of the list, to the highest layer at the bottom.



Add Layer(s)

Click this button to add a sample. 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.

If only one sample is specified, BFD3 automatically scales the amplitude of the imported Drum with incoming Groove/MIDI event velocity.

If 2 or more samples are specified, they are split proportionally across the velocity range. Any additional amplitude scaling must be applied manually with the Range control after the Drum has been loaded.

Remove Layer(s)

With a sample selected, click this button to remove the sample from the list of velocity layers.

Move layer up

Click this button to move the selected sample up the list of velocity layers: it changes places with the sample immediately above it.

Move layer down

Click this button to move the selected sample down the list of velocity layers: it changes places with the sample immediately below it.

Import & Cancel

Click the **Import** button to import the Drum with the current settings - it is saved to the content location specified and added to the current database, so once the Import operation is complete, it is now available to use from the Drum Browser (it is not loaded automatically to the current session).

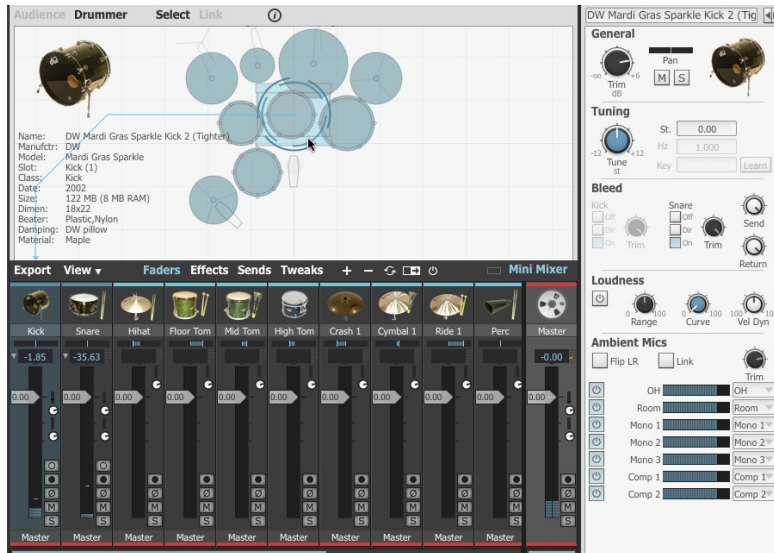
If you change your mind and decide that you don't want to import a Drum at this time, click the **Cancel** button.

3 Using BFD3's sounds

Once you've assembled a kit in BFD3 using the Browser (see the previous chapter), you're free to manipulate the sounds using the extensive Drum modelling and mixing engine.

This section provides an overview for using BFD3's audio engine. The subsequent sections throughout this chapter go into more detail about each part of the interface.

1. Drum slots and selection



Central to BFD3 is the concept of selection - selecting a Drum slot results in showing its adjustable parameters in the Drum Editor.

Selecting a Drum slot in the Kit display

Click a Drum slot in the Kit display to select it.

Selecting Drum slots is central to many functions in BFD3.

As described in the previous chapter, the selected slot is used as the target destination slot for loading Drums from the browser via double-click.

If the slot already contains a loaded Drum, its contents are shown in the Drum Editor when selected.



Selecting a mixer channel

Clicking a mixer channel to select it. If a channel is associated with a Drum - a Drum channel or one of its mic sub-channels - it is also selected as the current Drum slot, and its contents are displayed in the Drum Editor.

The differences between Drum slots and mixer channels

While some mixer channels represent Drum slots, this is not true of all mixer channels, such as Ambient or Aux channels for example.

The currently selected Drum slot is effectively *the last Drum slot that was selected*.

See the [Kit display](#) section for further details on using the Kit display panel to manage slots and use the **Link** function for Drum layering.

2. Using the Drum Editor

The Drum Editor contains a comprehensive set of tools to adjust the sound and response of the Drum in the currently selected slot. It is divided into 2 pages - the **Tech** page features 'drum tech'-oriented functions, while the **Model** page's functions deal with modelling real-world kit behaviour. Click the **Tech** or **Model** buttons to show the panel if it is currently hidden. The following controls are described in full detail in the [Drum Editor](#) section.

Tech page



General & Tuning

The **Trim** and **Pan** controls allow you to change the overall level of the Drum and the panning of its direct mic channels within the stereo field. Each Drum also features **Mute** and **Solo** buttons. The **Tuning** function changes the pitch of the Drum.

Bleed and Ambient Mics

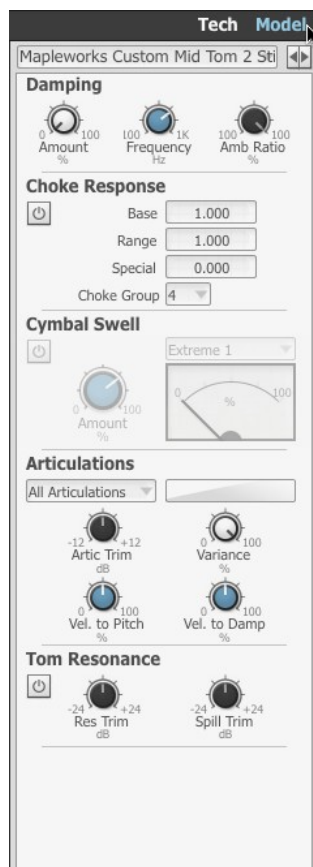
These controls relate to certain mic channels for the each Drum which are mixed with signals from other Drums before the mixer. These controls allow you to adjust levels and other aspects of these signals - bleed can be disabled or routed to the Drum's own mixer channel while Ambient mic signals can be routed to discrete Aux channels if you wish.

Loudness

The **Loudness** functions allow you to adjust the dynamic response of the Drum. BFD3's drum sounds are recorded at a wide variety of velocities (striking intensity) - adjusting these settings can drastically alter the feel and sound of drum performances.

The **Velocity Dynamics** control scales the velocity of incoming events (from MIDI notes or from the Groove engine) - in effect, making the 'drummer' play the kit with more or less intensity. The **Curve** control alters the velocity response of incoming events to the Drum from the default linear 1:1 mapping. The **Dynamic Range** control introduces amplitude scaling to increase or decrease the dynamic range (the difference in level between the quietest and loudest layers) of the Drum's velocity layer range.

Model (Modelling) page



Damping/Hihat Tighten

The **Damping** section lets you reduce the decay time of a Drum. For basic damping, simply increase the Damping **Amount** control as desired.

The **Hihat Tighten** controls (available only for the hihat slot) achieve a similar result, except that only the closed articulations of hihats are affected.

Choke Response

This set of controls provides adjustment over the choking behaviour of a Drum - in other words, how a preceding event for the Drum decays when a new event is triggered.

Tom resonance and Cymbal Swell

The modelled functions in BFD3 use dedicated synthesis in order to recreate certain properties of a drumkit.

The **Tom Resonance** function creates the sympathetic resonance generated by toms when other toms, kicks and snares are struck.

When the **Cymbal Swell** function is activated, additional shaping is applied to cymbal articulations when played rapidly in succession to simulate their real-world behaviour.

Articulations

This section offers level control and more advanced velocity-related functions for individual articulations.

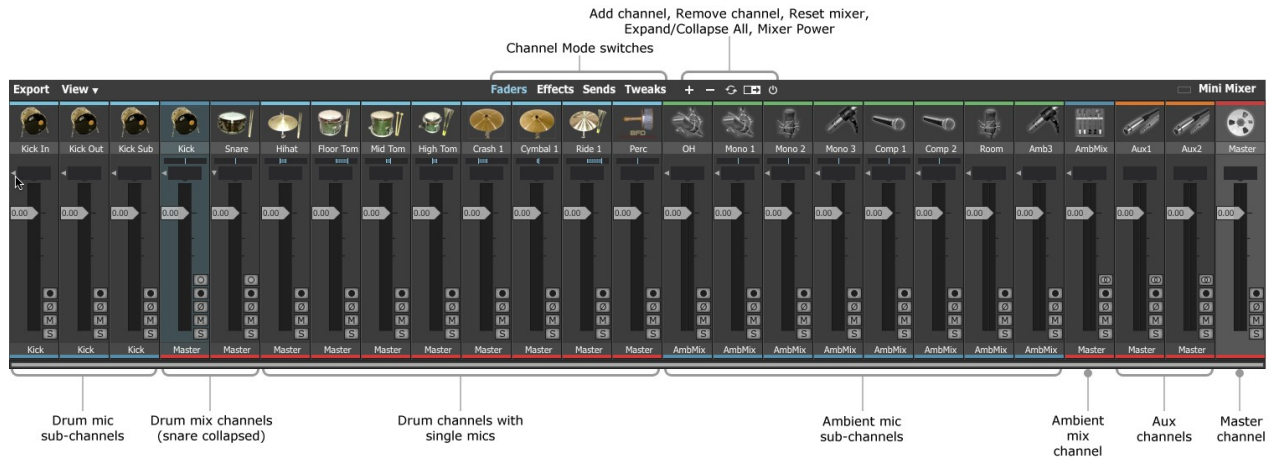
It also contains the **Variance** control - this adjusts the degree to which articulations are affected by the **AMG** (Anti-MachineGun) functions in BFD3's [Dashboard](#) panel.

By default, these controls are applied to *All Articulations* - as indicated by the drop-down menu - so the entire Drum is affected.

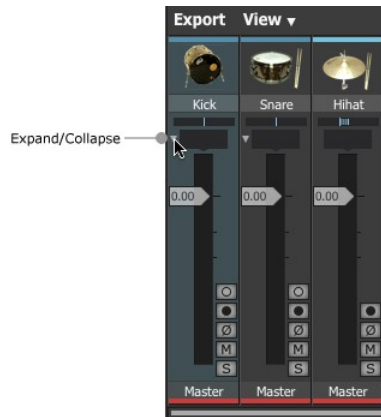
3. Using the Mixer and Effects

Channel types

BFD3's mixer contains a number of different types of channels.



Drum channels



Drum channels are the basic building blocks in BFD3's mixer - they can be considered in the same way as recorded drum tracks.

A Drum channel represents a Drum slot and its direct microphone channel (s) and can take the following forms:

- A *Drum Mix channel* fed by a mix of *Drum mic sub-channels*
The first Kick and Snare slots exist in this form.
- A single direct microphone channel
Hihat, Tom, Cymbal, Percussion and further Kick/Snare slots

Using the Kick 1 and Snare 1 channels



Click the **Expand/Collapse** button to show the mic channels within the Kick or Snare channel.



Click the **Expand/Collapse** button again on any of the mic sub-channels or the parent Mix channel to return it to a single mixer channel.

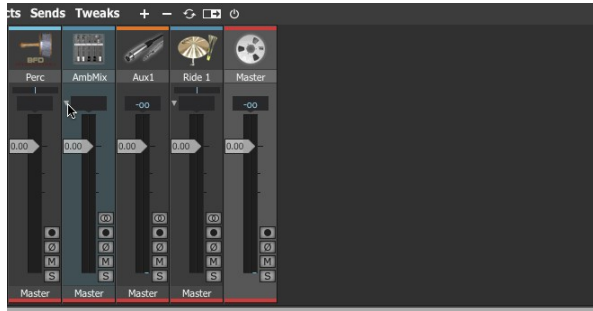
Each mic sub-channel can be treated individually, from basic adjustment of the level and pan controls to using effects and sends for processing. If you prefer, these channels can be routed to other Aux channels instead of their parent Kick or Snare channel.

Auditioning Drum channels

Drum channels feature an audition function for auditioning the main articulation of the Drum loaded within them - ALT-click the image at the top of the channel to preview its main articulation.

Ambient channels

Ambient mic channels appear in the mixer in a similar way to Kick and Snare mic channels - they are comprised of an *Ambient Mix channel* fed by a mix of *Ambient mic sub-channels*.



Click the **Expand/Collapse** button to show the ambient mic channels within the Ambient Mix channel. The Ambient Mix channel is selected in this example.



Click the **Expand/Collapse** button again on any of the Ambient mic sub-channels or the parent Ambient Mix channel to return it to a single mixer channel.

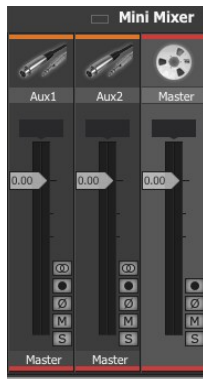
Each *Ambient mic sub-channel* is a mix of the Ambient mic channels of that type from all Drums in the current kit: for example, the OH channel is a mix of all Drums' Overhead mic channels.

All sounds compatible with BFD3 contain at least 3 sets of stereo ambient mics - OH (OverHead), Room and Amb3 (usually a set of PZM boundary mics or a room mic set further back than the primary room). Some Drums feature additional mono and compressed room channels, which appear as numbered Mono and Comp channels.

Adjusting the *Ambience Mix* channel's level effectively sets the 'wet' level of the overall mix.

Note that the Drum Editor's Ambient Mics section allows powerful control over each Drum's Ambient mic channels - it is possible to independently set levels and also to route Ambient mic channels to Aux channel destinations rather than the default routing to the corresponding Ambient channel in the mixer.

Aux channels



Aux channels, 2 of which exist in the default BFD3 mixer layout, can be considered in the same way as a 'buss' or a 'group' on a mixing console. Any number of signals can be routed to an Aux channel, from the following sources:

- Drum and Ambience mixer channels

The entire output of one or more mixer channels can be routed to an Aux channel using their **Output selector** controls for sub-mixing before further routing afterwards.

Alternatively, a variable amount of one or more mixer channels can be routed to an Aux channel in parallel using the Send controls.

The **Output selector** and other mixer channel controls are discussed in detail in the [Mixer controls](#) section later in this chapter.

- Drum Editor

The controls in the Ambient Mics section of the [Drum Editor](#) allow individual Drums' Ambient mic channels to be sent to Aux channels for discrete processing.

In actual fact, the Kick, Snare and Ambient mix channels are special Aux channels to which the Kick, Snare and Ambient sub-mics are routed via their **Output selector** controls. However, even if their sub-mics are routed to other destination channels or outputs, the **Expand/Collapse** buttons still toggle their visibility in the mixer.

Master channel

The *Master channel* is, by default, the eventual Output destination for all channels in BFD3. It is effectively a special Aux channel that is hard-wired to the primary stereo output of the BFD3 plugin.

As mentioned above, channels can be sub-mixed into other Aux channel 'stems'. Alternatively, channels can be routed outside BFD3 using its multiple sub-outputs.

Of course, a combination of all these approaches can be used.

Routing channels to plugin outputs for further external processing



The **Output selector** control at the bottom of each channel lets you route any channel to one of BFD3's multiple sub-outputs. This routing can occur at any stage of the mix - individual Drum mic channels can be routed externally to do all your mixing with plugins in your DAW or outboard gear, or some sub-mixing using Aux channels can be conducted first within BFD3, with the Aux channels being routed to external outputs.

Shortcuts for sequential output assignment

The mixer channel context menu, displayed by right-clicking on any channel, offers shortcuts for simple sequential output assignment. To conduct all mixing and processing of mic signals outside BFD3, use the **Auto-Assign outputs (Direct)** function on the mixer's channel context menu. Use the **Auto-Assign outputs (Master)** function to return to the default output assignments.

Using the built-in mixing functions, FX and Sends



Selecting a Mixer channel results in showing its contents in the **Effects Editor**. This panel displays the channel's 6 effect slots and 4 Sends which operate in a very similar way to those found in most DAWs - see the [Effects and Sends](#) section for a detailed guide.

This panel and the Kit display cannot be viewed simultaneously. Use the **Effects** and **Kit** buttons in the navigation bar to switch between them.

4. Mixer channel modes

The mixer features 4 modes, activated by the Channel Mode switches: the **Faders**, **Effects**, **Sends** and **Tweaks** buttons above the mixer. Each mode shows a different set of controls on each mixer channel.

Faders channel mode

The **Faders** mode is the default, and displays controls regularly found on mixer channels, most of which should be familiar to you already. See the [Mixer channel controls](#) section for full details of all the controls.

Tweaks channel mode

The **Tweaks** channel mode offers varying types of controls for each channel, depending on the channel type. The most important functions are described below - see the [Mixer channel controls](#) section for details of all controls.



Drum channels

Drum Mix channels feature **Tune**, **Trim** and **Damp** (Damping amount) controls in Tweaks mode. These parameters are also found in the Drum Editor but are provided within the mixer for convenience and an overview of multiple channels' settings.

Ambient channels

The **Distance** control adjusts the distance of each pair of ambience mics from the kit. This control effectively introduces a delay between the relevant set of ambient mics and the direct mic signals.

The **Width** control (available only on stereo channels such as OH (Overhead), Room and Amb3) adjusts the stereo width of the channel between mono (especially useful for powerful, fat room sounds), stereo at the centre position and expanded stereo at the fully clockwise position.



Effects and Sends channel modes

The **Effects** channel mode displays all channels' Effect insert slots, allowing an overview of multiple channels' Effect slots simultaneously.

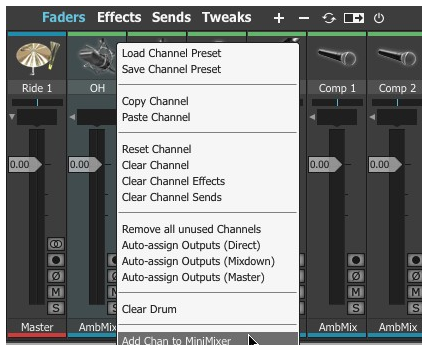
Effect devices cannot be edited directly in this mode - devices can be only inserted and powered on/off. Clicking the **E** (Edit) button for a slot takes you directly to the device within the [Effects Editor](#).

See the [Effects/Sends modes](#) section for more details of these controls.

The **Sends** channel mode shows all controls for the channel's 4 Sends. The controls are smaller versions of all the controls in the Sends panel in the Effects Editor.

5. Other mixing functions and exporting audio

Minimixer



The Mini Mixer displays any combination of often-used mixer channels within a panel visible at the right side of the mixer. Click the **Mini Mixer** button to toggle its visibility.

Any channel(s) can be added to the Mini Mixer using the channel context menu - simply right-click on any channel and use the **Add Chan to Mini Mixer** function.

See the [Mixer controls](#) section for more details on using the Mini Mixer.

In the example below, the Overhead, Room, Amb3 and Master channels have been added to the Mini Mixer so they are always visible.



Mixer toolbar

The toolbar above the mixer features a number of controls for managing mixes - see the [Mixer controls](#) section for a guide to these controls.

Export panel

BFD3 allows you to export audio directly to disk using the controls in the Export panel. These functions are useful for creating drum recordings using the BFD3 standalone application, or they may be more convenient for creating multi-channel mixdowns than your host/DAW. See the [Exporting audio](#) section later in this chapter for more details.

3.1 Kit display

The kit display offers a top-down view of the current kit, representing its physical layout. Each part of the kit that is shown represents a Drum slot.

Selecting slots



The Kit display has 2 modes - **Select** and **Link** - selectable via the **Select** and **Link** buttons at the top of the panel.

With the **Select** function active, click a Drum slot in the display to select it.

When a slot is selected in the Kit display, it also becomes selected in the mixer, and vice versa. Its contents are also shown in the Drum Editor if it is currently visible.

When the **Link** function is active, slots cannot be selected. See below for details of using Link mode.

Slot indicators



Moving the cursor over a Drum slot results in indicating the location of the slot in the mixer with an arrow.

The same is true of the reverse - mousing over a Drum mixer channel highlights the corresponding slot in the Kit display (if it is currently displayed) using the same type of indicator arrow.

In the screenshot, the Snare slot is selected - shown by the selection indicators on the Kit display and mixer - but the cursor is hovered above the Hi-hat slot - its mixer channel is indicated by an arrow.

Auditioning Drums within slots

The current contents of any slot can be quickly auditioned by clicking the slot. This plays the main articulation for the Drum - closed tip for hi-hats or 'Hit' for other Drum types. To audition any articulations, use the Articulations section in the Drum Editor Tech page.

Drum event indicators

When a Drum receives a MIDI, Groove or preview event, its surface flashes in the kit display to indicate that it has been played.

Info display



Click the **Info display** button to show the Kit display info. This shows information about the Drum slot under the cursor. If the cursor is moved away from any slots, information about the currently selected slot is shown.

The display shows information such as the name, manufacturer, model, materials and other information about the Drum within the slot.

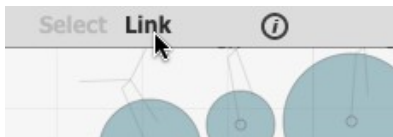
This display also shows the Drum **Slot** identifier, the **Class** (type) of Drum currently loaded into it and its **Size**, in MB, both on disk and currently in RAM.

Audience / Drummer perspective

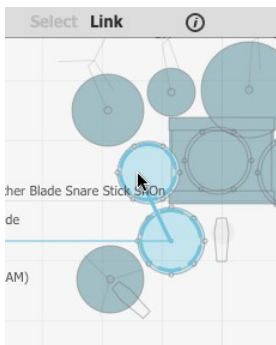
By default, BFD3 is set to Drummer perspective, meaning that the panning of the kit is oriented towards the drummer's perspective, as seated at the drumkit.

Switching to Audience perspective by clicking the **Audience** button inverts all mic channels within BFD3, meaning that the kit is heard from the other side - the audience facing the drummer at the kit. Click the **Drummer** button to switch back to Drummer perspective.

Link mode



Enter Link mode by clicking the **Link** button at the top of the Kit display panel. When the Link function is active, it is not possible to select Drum slots in the Kit display. Instead, this mode is used for linking Drums together for layering purposes.



To link two Drums while in Link mode, click and drag one of the Drums (the source) onto the other (the destination).

When the source Drum is triggered, the linked destination Drum is also triggered. If it is the same Drum type, the corresponding articulation is triggered. If the destination Drum's Class differs from that of the source Drum, an attempt is made to trigger an articulation with the same name. If this does not exist, the first articulation is played ('closed tip' for hihats and 'hit' for all other Drum types).

It is also possible to set up Links using the slot context menu - see below.

Note that to layer specific individual articulations, it is necessary to set this up in the Key Map.



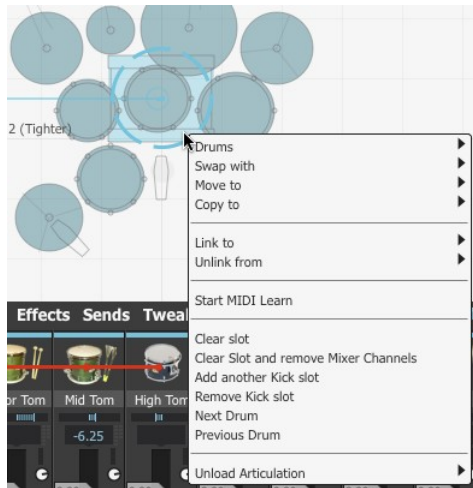
After the link has been created, it is represented on the Kit display and in the mixer when the mouse cursor is moved over the source slot.

Removing a link

To remove a link, right-click on the source Drum slot and use the **Unlink from...** sub-menu on the slot context menu that appears.

A list of links from the Drum are shown in the context menu that appears. Click on the link that you want to remove in order to break the link.

Slot context menu



Right-click on a slot to display the slot context menu.

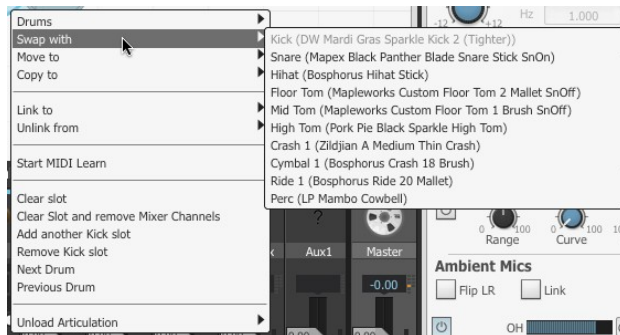
Note that the channel context menu applies only to the slot on which it appears, regardless of whether multiple slots are currently selected. The exception is the 'Remove all unused' function, which removes all currently unused channels in the mixer.

The Slot context menu is also available on the mixer channel context menu for Drum slots (within its Drum sub-menu).

Drums load menu

This menu item is used for loading Drums without using the Browser.

The item opens a sub-menu that displays the available Drums in the database, arranged into sub-menus according to their parent library. Navigate to the required Drum in the menu and click on it to load it.



Swap with Move to Copy to

These menu items allow you to swap, move and copy Drums between slots. All slots in the current kit size are shown in a sub-menu for each function, with details of their contents if applicable.

Navigate to the required slot in the list and click on it to perform the swap, move or copy operation. If a move or copy operation is attempted on an occupied slot, a warning is shown and you are prompted for confirmation in order to continue.

Generally, during conventional kit-oriented usage, these functions should be used for rearranging kicks, toms, cymbals and percussion. It is recommended to avoid rearranging snare and hi-hat slots, as these slots feature more articulations than others - if a snare or hi-hat is moved to a slot with fewer articulation mappings, the additional articulations are inaccessible via MIDI until they are assigned to keys using the Key mapping panel. All articulations are always accessible via the Groove engine.

Link to

This context menu item performs the same function as Link mode (see above), using a list of Drum slots in a sub-menu instead of dragging one slot over another.

Unlink from

This function allows you to unlink Drum slots that have been previously linked using the Link function.

In the context menu for the source slot, any links that exist are shown as items on the Unlink from sub-menu. Click an item to remove the link.

Start MIDI Learn

This function starts the MIDI Learn wizard from the slot - see below for details of this function.

Clear slot

This function clears the slot of any kit-piece it contains.

Add another [Drum type] slot

This function adds another Drum slot of the same type to the kit. To add a channel for any type of kit-piece, use the Add Channel button in the mixer.

Note that only 1 hi-hat slot is available in BFD3 - it is not possible to add a second.

Remove slot

This function removes the selected Drum slot.

Next Drum

Clicking this item loads the next Drum of the same type from the available Drums in the database.

Previous Drum

Clicking this item loads the previous Drum of the same type from the available Drums in the database.

Unload Articulation

This sub-menu displays all the articulations present for the Drum in the slot - click on any articulation to unload it from the current session.

Unloading any articulation(s) that you don't need frees up RAM resources, as the associated pre-cached start portions of audio are unloaded from RAM.

Any unloaded articulations remain unavailable until another Drum is loaded into the slot.

Drum memory display



Click the **Drum memory display** button to show a graphic indicating the amount of RAM for the currently selected Drum.

- The upper figure shows the size of the entire Drum on disk.
- The lower figure shows the amount of RAM used by the cached portions of the Drum's samples.
- The circular graph represents the amount of RAM used by the current Drum in relation to the rest of the Kit.

MIDI Learn wizard



The MIDI Learn wizard is a simple tool for mapping Drum articulations to MIDI notes. It is provided as an alternative to using the [Key Map panel](#), although for more complex mapping operations and fine-tuning existing mappings, it is necessary to use the functions in the Key Map panel.

When the wizard is launched using the **Start MIDI Learn** button from a Drum's slot context menu (see above), the relevant Drum's first articulation is presented on-screen, along with a message indicating that BFD3 is waiting for MIDI note input - play a MIDI note to map it to the articulation.

The wizard then allows an additional time period for a different MIDI note to be played (in case the original note was played in error) - this additional time period can be defined using the **MIDI learn accept time** setting in the [Preferences](#). The default setting is 5 seconds.

The wizard then moves onto the Drum's remaining articulations until they are all assigned or until the wizard is closed with the **Close** button.

Next slot mode

If this setting is activated, the wizard moves onto the Drum in the next slot after all the current Drum's articulations have been assigned to MIDI notes.

If **Next slot mode** is deactivated, the wizard is closed after all of the current Drum's articulations have been assigned.

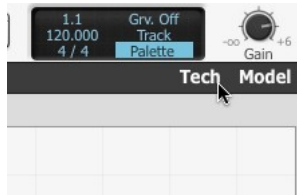
Wait for MIDI input

When this setting is activated, the wizard waits indefinitely for a MIDI note to be played before moving onto the next articulation in the Drum.

When **Wait for MIDI input** is deactivated, a set time is allowed for a MIDI note to be played for each articulation (the default is 15 seconds). If no note is received within this time, no assignment is made for the articulation.

The amount of time that is allowed can be defined in the [Preferences](#) using the **MIDI learn skip time** setting.

3.2 Drum editor



The Drum Editor contains a comprehensive set of tools to adjust the sound and response of the Drum in the currently selected slot. It is designed to allow you to tweak each part of the kit just like you would in a real-world drum recording environment.

The Drum Editor features 2 pages, each displayed with the **Tech** and **Model** tab buttons on the main BFD3 navigation bar.

Click the **Tech** or **Model** tab buttons to make the panel visible if it is currently hidden. To hide the panel again, click the currently active tab button.

- The **Tech** page deals with 'drum-technician' type tasks such as tuning, control over bleed and ambient mics.
- The **Model** page is oriented towards BFD3's drum modelling functions such as tom resonance, cymbal swells, damping and choking response. It also features advanced control over individual Drum articulations.

Tech page



General section

Trim

The **Trim** control is an overall volume control for the Drum. Adjusting it affects the level of all the Drum's mic channels equally. It can be considered as a 'pre' volume control - it sets the level of the Drum at the start of the signal path before any routing and mixing features are applied.

Pan

The Drum's **Pan** control is identical to that on its channel in the mixer.

It sets the position in the stereo field of the Drum's *Direct mics only*. It does not affect the Drum's Ambient mic channels.

The Ambient mics section features the **Flip LR** button to invert the stereo image of the Drum's stereo Ambient mic channels - this can be useful if you need to pan a Drum to the other side of the stereo field.

Mute / Solo

These buttons mute and solo all mic channels for the Drum.

Drum image

ALT-click this image to preview the Drum's main articulation.

Tuning section

Tune / st

The **Tune** function increases (clockwise from centre position) or decreases (anti-clockwise from centre position) the pitch of the Drum. It is possible to tune Drums up to an octave away from its original pitch.

The amount of tuning is shown in the **st** display. Click this display to enter a tuning amount in semitones.

While tuning cymbals has no obvious real-world equivalent, it is still very useful to do so in the virtual domain. With snares, the sidestick can optionally remain unaffected if the **Disable sidestick tuning** option is enabled in the BFD3 [Engine Preferences](#).

Hz / Key / Learn

These displays and controls are available only for Tom slots. When a Tom is loaded, BFD3 automatically calculates its fundamental pitch, which is shown in the **Hz** display and its equivalent MIDI note is shown in the **Key** display. Click the **Learn** button and play a MIDI key - the **Tune** setting for the Tom is set to a pitch equivalent to that of the played key, within an octave of the tom's original pitch. The key that is played is shown in the **Key** display, with the new pitch displayed in the **Hz** and **st** displays.

Bleed section

The Bleed controls allow you to adjust the level and routing of a Drum's bleed and spill signals. Bleed signals in BFD3 represent the sound of other Drums captured by the Kick and Snare mics, while spill is simulated bleed in the Tom mics.

Bleed destination

The Bleed destination buttons allow control over the routing of the *recorded bleed* from the Drum within the Kick and Snare mics. 3 routings are possible:

On

The Drum's bleed is routed as normal to the first Kick and Snare slots' mixer channels.

Direct

The Drum's bleed is routed to its primary direct mic channel. Therefore, there would be no bleed from the Drum in the Kick and Snare mic channels.

Off

The Drum's bleed is disabled completely and not heard in the mix at all.

Trim

This control adjusts the level of the recorded Kick/Snare bleed signals.

Bleed Send

The **Bleed Send** control adjusts the overall level of all bleed output from the Drum - this includes *recorded bleed* (the sound of the Drum recorded in the Kick/Snare mics) and *simulated spill* - simulated bleed signals of the following types:

- Kick in the Tom mics
- Snare in the Tom mics
- Toms in other Tom mics

Bleed Return

The **Bleed Return** control sets the input level of the mix of all bleed signals routed to the Drum's direct mic channels. This includes the following:

- Any recorded bleed or simulated spill signals from other Drums
- The recorded bleed signal from the Drum itself if it is routed to its primary direct mic channel (using the **Direct** Bleed destination setting described above) - this is the only possible signal for hihat/cymbal/percussion slots.

Adjusting bleed levels globally

You can change overall bleed levels by using the **Kick**, **Snare** and **Other** Master bleed controls on the mixer's Master channel, visible while the Tweaks channel mode is active (click the **Tweaks** button above the mixer).

Loudness section

The Loudness controls relate to the dynamics of the Drum - its playing intensity and the resulting level and timbre.

Power

Activating this button enables the Loudness section controls. With the **Power** button deactivated, none of the controls in the Loudness section have any effect on the Drum.

Vel Dyn (Velocity Dynamics)

The **Velocity Dynamics** control shifts the velocity range of incoming events (from MIDI notes or from the Groove engine) - in effect, making the 'drummer' play the Drum with more or less intensity.

Curve

The **Curve** control allows you to alter the amplitude of the Drum in response to the incoming velocity of MIDI or Groove trigger events.

With the Curve control at 0, there is an exact 1:1 mapping of incoming velocity to the natural recorded amplitude of the corresponding velocity layer.

As the control is increased, the level of the resulting audio from the event is increased from its natural recording level between the minimum and maximum velocity values. The greatest increase in gain occurs at the middle of the velocity range.

Range (Dynamic Range)

The **Range** control effectively extends the range of the dynamics curve by using automatic amplitude adjustment of the range of samples for the velocity layers. Increasing the control creates a larger difference in amplitude between the quietest and loudest layers for each articulation.

Ambient Mics section

The Ambient Mics section's controls allow manipulation of the various Ambient mic channels for a Drum, providing many creative opportunities that would simply not be possible in a real-world drum recording.

Flip LR

Most Ambient mic channels, such as Overhead/Room/Amb3 channels, are stereo and the sound of the Drum is 'fixed' within it - it cannot be panned within the stereo field, unlike the Drum's direct mics. This is an inherent drawback of true stereo ambience.

The **Flip LR** button inverts the stereo image of any stereo ambient mic channels for the Drum which can be useful if panning a Drum's direct mics to the other side of the stereo field.

In addition the **Width** controls for Ambient mic sub-channels (when the mixer is set to Tweaks channel mode by clicking the **Tweaks** button) can be used to manipulate their stereo properties.

Trim

The Ambient Mics **Trim** control provides an overall level control for all ambient mic channels for the Drum. It can be considered as a simple 'wet/dry' control for the Drum.

Any Ambient Mics **Trim** adjustments are applied in addition to the individual **Level** controls described below.

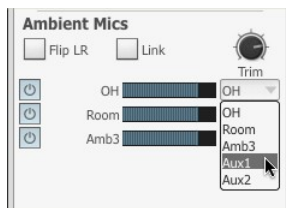
Link

Enabling the Ambient Mics **Link** button results in the Drum's main mixer channel level fader being linked to its Ambient Mics **Trim** parameter. This means that adjusting the kit-piece's mixer level results in a corresponding adjustment being applied to the **Ambience Trim** meaning that you can adjust the level of the Drum in the direct and ambient mics using a single fader.

Power / Level controls

Each Ambient mic channel type contained within the Drum features its own horizontal Level fader in this section, allowing you to independently set the level of the Drum within each set of ambient mics.

Each channel can be disabled entirely by deactivating its **Power** button.



Routing selector

By default, all Ambient mic signals for each Drum is routed to the corresponding Ambience mic channels in the BFD3 mixer. However, the **Routing selector** drop-down menus override these default routings - each channel can be routed to a discrete Aux channel for further processing or subsequent routing outside BFD3.

Model (Modelling) page



Damping section

The **Damping** controls allows you to decrease the decay of the Drum, simulating the effect of a blanket or pillow inside a kick drum or placing objects which absorb vibrations onto a snare or tom head.

Amount

Use the **Amount** control to set the amount of damping required.

Freq

The **Freq** control represents a crossover frequency. Below this frequency, the decay of the Drum's ambient mic channels is shortened according to the damping amount. Above the frequency, less damping is required. This results in a more natural ambience sound when using the damping functions. To damp the entire frequency range within the ambient mics, increase the **Freq** control to its maximum setting.

Amb Ratio

The **Amb Ratio** control allows you to adjust the amount of damping in the Ambient channels. With the control at the default maximum setting, less damping occurs in the Ambient channels than on the direct channels. With the control at the minimum setting, the same amount of damping is applied in the direct and Ambient channels.

Choke Response section

The Choke Response section provides control over the choking behaviour of a Drum - in other words, how a preceding event for the Drum decays when a new event is triggered.

Power button

The Power button must be activated for the settings in this section to be applied to the current Drum. If the button is deactivated, the default choke response settings specified in the Preferences are used.

Base/Range

All Drum types have a default choking behaviour which is defined in the BFD3 preferences using a set of Base/Range values. The **Base** and **Range** controls in the Drum Editor allow custom choking responses for individual Drums. See the [Engine Preferences](#) section for more details on setting Base/Range values.

Drag (Snare only)

This parameter allows the adjustment of the additional Drag Choke fade time for Snares, and is not available for other Drum types.

Choke Group

The **Choke Group** function allows you to create choking behaviour between Drums - setting 2 Drums to the same Choke Group means that they choke each other.

Cymbal Swell section



The controls in this section are only available when a Cymbal is the currently selected Drum. When activated with the **Power** button, Cymbal articulations played in rapid succession are shaped to simulate their real-world behaviour.

Swell algorithms

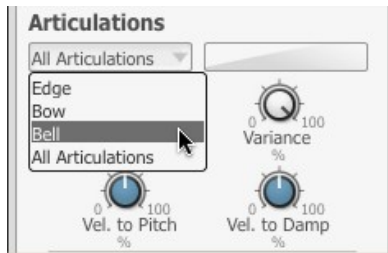
Several Swell algorithms are provided, selectable via the drop-down menu - each provides different swell characteristics.

Amount

The **Amount** control adjusts the intensity of the cymbal swell emulation.

The meter displays a real-time representation of the energy within the cymbal when the Swell function is active.

Articulations section



These controls are provided for tweaking the response of individual Drum articulations although they can be applied for all articulations if you wish.

Articulation selector

Select the articulation to adjust using the **Articulation selector** drop-down menu - select *All articulations* in order to affect all articulations in the Drum.



Multiple values

If any articulations feature individual settings for any of the controls in the Articulations section, a **Multiple Value** indicator is shown beside it when *All Articulations* is currently selected for editing. Note that adjusting any control with *All Articulations* selected results in overwriting the individual settings for any articulations.



Audition strip

The **Audition strip** plays a preview the selected articulation when clicked. The velocity of the audition depends on where the strip is clicked - the lowest velocity layer is at the left side of the strip and the highest later is at the right.

With *All articulations* specified in the selector, a preview of the Drum's main articulation is played.

Artic Trim

The **Artic Trim** control adjusts the level of articulations between -inf and +12dB.

One of the most common examples for using this control would be to change the level of closed hihat articulations in relation to open ones. With the Hihat slot selected, select the Closed Tip articulation and adjust the **Artic Trim** control, repeating the process for the Closed Shank articulation.

The default setting for this control is 0 dB, meaning that all articulations are played at their natural recorded levels.

Vel to Pitch

The **Vel to Pitch** control allows the tuning of each articulation to vary depending on incoming trigger event velocity. Uses of this control range from extreme creative effects to very subtle changes which can give some extra character to the sound of the kit.

Settings range from -100% to 100%. Positive values result in increasing pitch with higher velocities, while negative values result in decreasing pitch with higher velocities.

Vel to Damp

The **Vel to Damp** control allows the amount of damping applied to the articulation to be varied according to the velocity of incoming trigger events. It effectively allows you to control the decay of articulations with velocity and can offer very interesting approaches to dynamics and space within your drum tracks.

Any changes in the damping applied to each articulation as a result of this parameter are applied relative to the Drum's overall **Damping Amount** setting.

Settings range from -100% to 100%. Positive values result in increased damping with higher velocities, while negative values result in reduced damping with higher velocities.

Variance (Anti-machinegun variation)

This control adjusts the maximum amount of loudness or tonal humanization that is possible for the articulation.

BFD3 features 2 controls to adjust the global amount of 'Anti-MachineGun' humanization, located in the [Dashboard](#) - click the **Dashboard** button in the LCD display in the top-centre of the interface. The **Loud** (Loudness humanize) control adjusts the amount of volume randomization applied across the kit, while the **Tone** (Tone humanize) adjusts the amount of randomization between velocity layers, leading to tonal variation due to the Drum being struck at a different intensity. The maximum amount of variation for each Drum in the kit is dictated using the Drum Editor's **Variance** control. The **AMG** button in the Dashboard must be activated to enable these functions.

These functions serve to make drum parts sound less 'robotic' or 'machinegun-like' by adding natural-sounding dynamic and tonal variations that are inherent in a human drummer's performance.

Setting the **Variance** control to zero can be useful for avoiding humanization of certain parts of the kit.

Tom Resonance

The **Tom Resonance** functions create the sympathetic resonance generated by Toms when other Drums are played. These functions are available only for the Kick, Snare and Tom slots.



Power

This button enables or disables the resonance function for the Drum. When it is active, the Drum triggers the tom resonance algorithm in the Tom slots.

Res Trim

This control adjusts the level of the resonance generated by the Drum in the Tom slots.

Spill Trim

This control adjusts the level of the Drum's bleed or spill signals (if they exist) in the Tom slots.

Hihat tighten (Hihat slot only)

This function allows you to adjust the closed Hihat sound to sound tighter and more snappy. It achieves a similar result to the regular Damping functions at the top of the Modelling page, except that only the closed Hihat articulations (Closed Tip and Closed Shank) are affected.

The **Damping** control adjusts the amount of tightening that is applied to closed tip articulations. The **Pitch** control adjusts the amount of subtle pitch increase that occurs as the hihat is tightened.

The Hihat Tighten function varies within the closed zone when using [variable hihat control](#) so that the amount specified with the controls is applied at the maximum closed pedal position (when the pedal MIDI CC# value is 127)

3.3 Mixer controls

Mixer Toolbar

The toolbar at the top of the mixer channels provides several useful functions for managing your mixes.

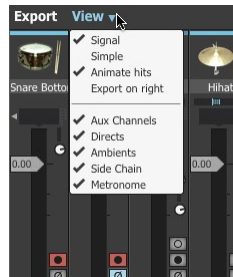


Export

This button toggles visibility of the Export panel, containing settings relating to exporting audio from BFD3.

View menu

The **View menu** features several settings to customize the current view of the mixer.



Simple

When this setting is enabled, certain advanced controls are omitted from being displayed on BFD3's mixer channels:

- Input trim controls (Input, Bleed, Sidechain)
- Effect/Send slot indicators

Animate Hits

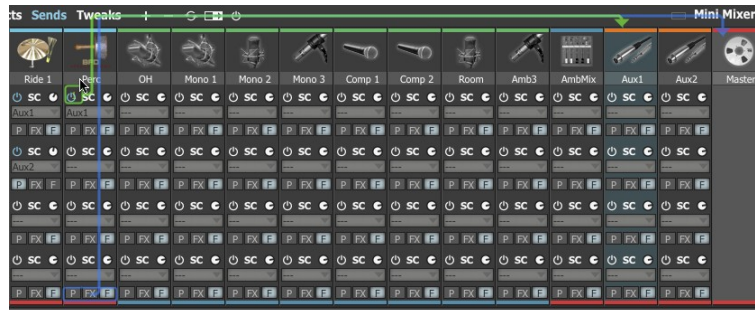
When this setting is enabled, Drum channels are animated to indicate that an incoming trigger for one of its articulations has been received.

Export on Right

Enabling the **Export on Right** setting results in the Export panel appearing on the right side of the mixer when opened, rather than the left.

Visibility toggle settings

The relevant settings toggle the visibility of **Aux Channels**, **Direct** channels, **Ambient** channels, **SideChain** and **Metronome** channels in the mixer.



Signal

The **Signal** setting toggles the overlaid signal routing indicators which visually indicate output, send and sidechain routings for the channel underneath the cursor.

Add channel



Clicking the **Add channel** button displays a menu of the types of channels that can be added: Aux channels and kit-piece channels/slots.

There are also 2 additional functions for automatic routing to newly created Aux channel(s).

Add Aux channel (Buss Selected)

If one or more mixer channels are currently selected, using this function creates a new Aux channel and sets their **Output selectors** to route the channels' audio to the new aux channel.

Add Aux channel (Send Selected)

If one or more mixer channels are currently selected, using this function creates a new Aux channel, creating Send routings to it from each of the selected channels.



In this example, the Floor Tom, Mid Tom and High Tom channels are selected before using the **Add Aux Channel (Buss Selected)** function.



The new Aux channel is added to the right of the selected channels. The **Output selector** of all 3 channels is set to the new Aux channel.

Remove channel

The **Remove channel** button removes the currently selected channel(s) from the mixer.

Reset Mixer

The **Reset Mixer** button resets the current mixer to the default settings for the currently loaded set of Drums.

Clicking the **Reset mixer** button resets all channel settings to their defaults, as well as removing any FX and Sends settings entirely. You are prompted for confirmation before this is performed.

If there are any unused channels in the current mixer, you are also prompted to remove them. Unused channels are typically Drum channels that are empty or do not have any signals routed to them from other Drums.

Expand/Collapse all

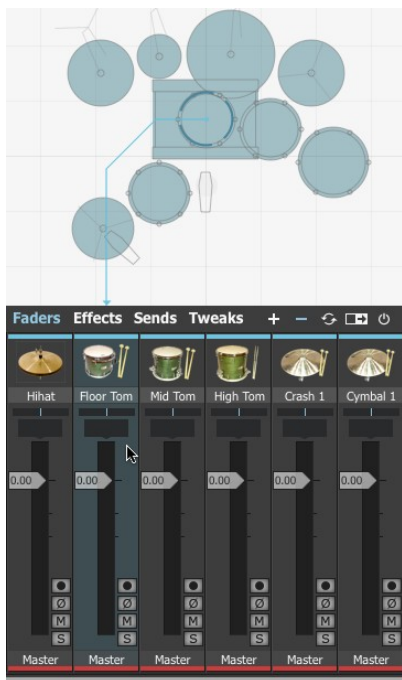
As described earlier in this chapter, this button expands or collapses the sub-mic channels within Kick, Snare and Ambient Mix channels.

Mixer Power

The **Mixer Power** button is a global power button for all effects currently loaded into the mixer. It operates in addition to the **Power** buttons on each effect slot. Therefore, after turning the **Mixer Power** off and on again, any **Power** settings that existed previously still apply.

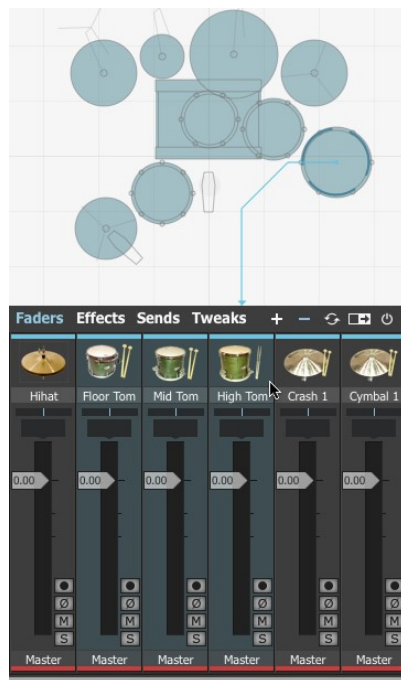
Working with the Mixer

Selecting channels



Click anywhere on a channel in order to select it. The selected channel is highlighted.

The last selected Drum channel is shown in the Drum Editor.



You can select multiple channels in order to manipulate their controls simultaneously.

All selected channels are highlighted.

Click any selected channel to select it as the current channel - this can be useful with Drum channels in order to show their settings in the Drum Editor.

To select multiple channels:

- CTRL-click on a channel (Windows)
- CMD-click on a channel (Mac)

Adds the channel to the current selection.

- SHIFT-click

Selects all channels between the SHIFT-clicked channel and the existing selection.

Manipulating multiple channels



When multiple channels are selected, their main controls can be adjusted together: the level, **Pan**, mute/solo functions, **Record enable**, **Phase flip** and **Output selector** controls can all be adjusted in this way.

- Adjusting a control on one of the selected channels results in the control being changed for all selected channels.
- Holding down ALT while adjusting a control on one of the selected channels results in the control being inversely affected on all the other selected channels. This functionality does not include the channel output routing selector.
- Holding down the ALT and SHIFT keys while setting the channel output routing results in the selected channels being set to ascending destinations of the same type (i.e. either outputs or aux channels).

Rearranging channels on the mixer



You may want to move channels around in the mixer in order to suit personal preference. In order to do this, click on a channel's selection bar and drag it left or right as desired.

Channel processing order

There is one important caveat when rearranging channels. The processing order in the mixer is defined from left to right.

- A channel's **Output selector** or Send **Destination** can only be routed to another channel to its right.
- BFD3 does not allow you to move any channel that contains a valid routing to a position in the mixer that would break this rule.

The Master channel must always be at the extreme right of the mixer, and cannot be moved to any other position.

3.3.1 Faders mode

Channel controls: Faders mode

This is the default channel mode featuring controls that are typically found in most mixing consoles or host/DAW mixing environments.



Channel colour

The coloured strip at the top of each channel is indicative of the channel type. Drum channels are light-blue, Ambience channels are green, the Ambience Mix channel is dark blue, Aux channels are orange and the Master channel is red.

Channel Image

The channel image serves as a visual indicator of the mixer channel type.

Drum channels

Drum channels display an image of the Drum loaded into them and also feature an audition function - ALT-click the channel image on any Drum channel to audition its main articulation (if the Drum slot is not empty).

Label strip and coloured tab

The label strip allows you to change the default labelling for each channel. Double-click the label strip to edit its contents, and press ENTER to finish.

It is recommended to keep names short, as only a small number of characters are visible on the strip!

Level fader

The Level fader sets the final level of the channel.

Level meter

The Level meter provides a visual guide of the channel's level. It includes momentary peak level indicators as well as red clip indicators – click these to reset their state.

Pan

For Drum channels, a Pan control exists on the main Drum channel (but not on its mic sub-channels), which allows you to set the pan position of the Drum's direct mic channels.

Drum channel Pan controls are duplicated within the Drum Editor (in the Tech page).

On stereo channels, the Pan control actually functions as a balance control.

Expand/Collapse (Kick/Snare Drum and Ambience channels only)

The **Expand/Collapse** button is only available for Kick and Snare Drum channels and Ambience channels. It toggles the visibility of the parent Mix channel's mic sub-channels.

The **Expand/Collapse All** button above the mixer can be used to fold out all Drum and Ambience mic sub-channels.



- In this example, the indicators show that Send 1 is active on the Perc channel and effects 1-3 are active on the Aux 1 channel.

Effect and Send indicators

All channels feature a set of 6 orange LEDs to represent active Effect slots on the channel.

Additionally, they also feature a set of 4 yellow LEDs to represent active Sends on the channel.

Input trim controls (only available when Simple view disabled)

The following input trim controls are not visible by default - to enable them, disable the **Simple** option within the **View Options** menu.

Bleed input trim (Drum mic channels only)

This control is available on Kick, Snare and Tom Drum mic channels and adjusts the level of all recorded bleed and simulated spill signals arriving at the channel.

This control is not available for Hihat, Cymbal and Percussion channels.

Input trim (Drum Mix channels, Ambience Mix channel, Aux channels and Master channel only)

This control adjusts the level of the channel's *main input* signal. This input can receive signals as a result of routing one or more channels' outputs to it, and/or by creating one or more sends to the channel's main input: the **Input trim** adjusts the level of the mix of all signals routed to it.

The current input signal's level is represented on the small LED meter above the control.

SideChain trim (Drum Mix channels, Ambience Mix channel, Aux channels and Master channel only)

Certain channels feature a *sidechain input*, for which the **Sidechain trim** control provides an overall level control. Sidechains can receive signals from more than one source: this control adjusts the level of the overall mix of these signals.

The current sidechain input signal's level is represented on the small LED meter above the control.

Mono/Stereo (Aux channels, Drum Mix and Ambience Mix channels only)

By default, Aux channels (and similar channels such as Drum Mix and Ambience Mix channels) are added to the mixer as stereo channels. The **Mono/Stereo** button toggles the channel between stereo and mono operation.

If any FX devices exist on an aux channel before it is changed from stereo to mono status, they are switched for mono versions automatically with their settings intact, and vice versa.



Record enable

This button is used in conjunction with BFD3's [audio export features](#). Enabling this button for a channel means that the channel is exported as a discrete audio file when performing any audio export.

Click the button to record enable a mixer channel; click it again to record disable it.

The Export panel contains several other features allowing you to record enable and disable multiple mixer channels.

Phase flip

This button allows you to invert the phase of any channel.

Please note that all BFD3's mic channels are provided in phase with each other (including for Drums which feature multiple out of phase mics, such as kicks and snares).

Mute & Solo

All channels have a mute and solo button.

The mixer features very flexible mute and solo behaviour. It features two types of mute and solo states: implied and hard.

- Engaging only the solo button on a channel results in *implied mutes* on all other channels: mutes are shown elsewhere, but the mute state of those channels is only implied. When the solo button is disengaged, the implied mutes on the other non-soloed channels are also disengaged.
- Implied solos are generated on channels contributing signals to the soloed channel, or in its subsequent signal path. They are shown in a 'half-lit' state.
- Engaging only the mute button on a channel results in only that channel being hard muted (it is in an actual muted state).
- Engaging both mute and solo buttons on a channel results in the mute overriding the solo. Both buttons are lit to show that the hard solo and mute states are engaged. While in this state, unmuting the channel results in it reverting to a hard-soloed state. If the channel is instead unsoloed, it will be left in a hard-muted state – it is not an implied mute.
- Hard-muting an 'auto-soloed' channel (in implied solo state) overrides the implied solo and the channel is muted.



Solo Isolate function

Channels can be set to solo isolate mode, which means that they are always heard when soloing any other channel.

To put a channel into solo isolate mode, click its solo button while holding down the SHIFT key. The solo button becomes 'half-lit', and is always heard along with any other soloed channel.

Rude Solo indicator

The mixer toolbar contains a **Rude Solo indicator**, as shown in the image to the left. It is always lit whenever 1 or more channels are currently soloed.

This indicator can be ALT-clicked to un-solo all channels currently in a hard solo state.

Output selector

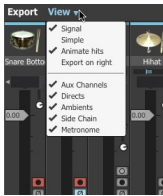


Using the **Output selector** control, each mixer channel can be routed to any available output or any available Aux channel as long as it is positioned to the right of the source channel in the mixer layout (see the 'Channel processing order' section below).

Any number of channels may be routed to the same output or Aux channel - they are summed before the output or before the input of the destination Aux channel.

The output routing selector does not exist on the master channel, as it is hardwired to the first set of BFD3 outputs.

Special channel types



There are 2 other types of channel within BFD3, which are enabled using the **View menu** in the mixer toolbar.

Metronome channel

The *Metronome channel* lets you adjust the BFD3 metronome, used when recording Grooves from MIDI input. Using the Output selector, it can be routed to a discrete output if required.



SideChain channel

BFD3 features an external SideChain input, allowing you to drive compression effects within BFD3's mixer. The *Sidechain channel* allows you to process the Sidechain input discretely.

To use the SideChain input, a suitable signal (such as a bass track) should first be routed to BFD3's external SideChain input - please set this accordingly in the standalone application's menus or consult your host/DAW's documentation for details on how to accomplish this when using BFD3 as a plugin.

The output of the SideChain channel (as specified by its **Output selector**) is always routed to its destination channel's SideChain input. See the Effects and Sends section later in this chapter for details on using the SideChain input on a channel to drive compression effects inserted on it.

3.3.2 Tweaks mode

Channel controls: Tweaks mode

The controls in this mode vary depending on the channel type.



Drum channels

For Drum channels, controls for **Tune**, **Trim** and **Damp (Damping amount)** are available. These controls are also located within the [Drum Editor](#).

Note that these controls are disabled for Drum mic sub-channels.

Ambient channels

The following controls exist for Ambient mic channels - like Aux channels, the Ambient Mix channel features **Trim** and **SC Trim** controls - see below for details of these controls.

Distance (Ambient mic channels)

The **Distance** control offers a virtual control over the distance of each set of ambient mic channels from the kit.

Effectively it puts a short delay between the ambience channels and the direct mics. It has a similar effect to the ambience as a 'pre-delay' control has over the wet signal on an artificial reverb unit.

If custom routing of ambience signals has been set up using the Drum Editor, the **Distance** control has no effect on these signals with altered routings. It is possible to achieve the same effects using the Delay FX device on the relevant destination Aux channel(s).

Width (stereo channels only)

Using the **Width** control, you can change the width of Ambient mic channels' stereo field. Settings range from mono to fully enhanced stereo.

This setting is available only for stereo ambient mic channels. It applies to ambient mic signals of the relevant type even if they have been routed to custom Aux channel destinations using the Drum Editor

Aux channels

The following controls adjust the levels of the signals entering the the Aux channel's input. If the input is clipping, it may be more convenient to decrease these controls instead of reducing the levels of all signals routed to it.

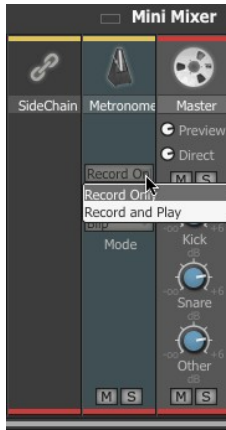
Trim

This control adjusts the level of the main input to the Aux channel.

SC Trim

This control adjusts the level of the Aux channel's SideChain input.

Metronome channel



Type

Click the **Type** setting to display a drop-down menu allowing you to select between a number of available metronome sounds.

Mode

The **Mode** setting can be switched so that the metronome is heard in either of the following transport situations: *Record only* and *Record and Play*.

Master channel

Preview (Preview level)

The **Preview Level** fader sets the level of all Drum slot and Browser audition previews.

Direct (Direct level)

This fader controls the level of all direct channels together. It is a pre-mixer control – it alters the level of all mic channels before they enter their direct channels on the mixer.

Mute & Solo

These buttons allow you to mute and solo all direct mic channels in the mixer.

Kick (Master Kick bleed level)

This control adjusts the overall level of bleed signals in the Kick mic channels, relative to the individual bleed levels set for each Drum in the Drum Editor.

Snare (Master Snare bleed level)

This control operates similarly to the Kick bleed level control except it acts on the overall level of Snare mic bleed.

Other (Other mic bleed level)

Some expansion pack libraries contain bleed in direct channels other than the kick and snare channels. For example, some BFD XFL kicks and snares possess an additional bleed signal in the hihat direct mic channel. This bleed appears in the hihat slot direct mic channel if one of these kit-pieces is used.

The Other control sets the bleed levels in all other direct mics except kicks and snares. If you are not using any such kit-pieces, this control does not have any effect.

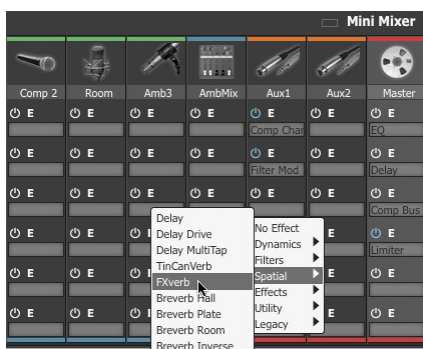
3.3.3 Effects/Sends modes

Channel controls: Effects mode

The Effects channel mode displays effect selection and power controls for each channel simultaneously, allowing an overview for multiple channels.



Full control of the effect devices loaded into each slot is only possible within the [Effects Editor](#).



Effect slot Power

Each effect slot features a **Power** button to activate or deactivate it. Deactivate the **Power** button to bypass the effect.

ALT-click any **Power** button to activate or deactivate all effect slots in the channel.

Effect device selector

Click the **Effect device selector** to display a drop-down menu of available effects.

To remove a device from the slot, select *No Effect* from the menu.

E (Edit)

Clicking the **Edit** button for any of the 6 effect slots displays the contained device's interface within the Effects Editor (this panel replaces the Kit display if it is not already visible).

Channel controls: Sends mode



This mode displays the Send controls for all channels. The controls in this mode are fully editable (see the [Effects Editor](#) section for details about the controls).

3.3.4 Other mixer controls

Mini Mixer



The Mini Mixer allows you to add any combination of often-used mixer channels to an additional panel which is always visible at the right side of the mixer when the **Mini Mixer** button at the top-right of the mixer is activated.

This can be useful for viewing certain channels regardless of the current scroll position in the mixer, or whether the required Drum or Ambient Mix channel is expanded.

Any channel(s) can be added to the Mini Mixer using the channel context menu - simply right-click on any channel and use the **Add Chan to Mini Mixer** function.

Once the required channels have been added, click the **Mini Mixer** button. Click and drag left/right on the border between the Mini Mixer and the rest of the mixer to adjust the space devoted to each.



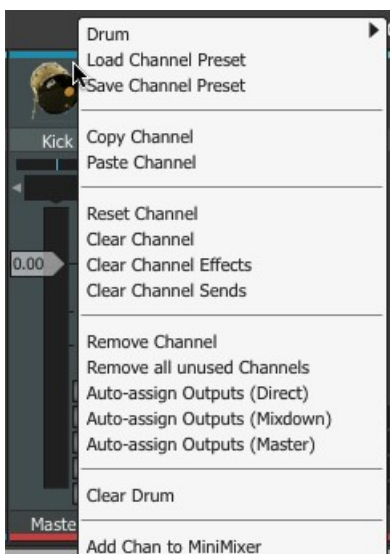
- The above example shows a Mini Mixer configuration of Overhead, Room, Amb3 and Master channels

Channel context menu

BFD3's mixer features a comprehensive system of managing channel settings, including loading and saving channel settings as presets. This is achieved by using the channel context menu.

This context menu is displayed by right-clicking anywhere on a channel (in Faders mode) or on the channel image in Effects/Sends/Tweaks modes.

Note that the channel context menu applies only to the channel on which it appears, regardless of whether multiple channels are currently selected. The exceptions are the **Remove all unused channels** and **Auto-Assign outputs** functions.



Drum sub-menu

This sub-menu, available only on Drum channels, offers the same functions as the slot context menu in the [Kit display](#).

Load channel preset

This function brings up a system file load dialog which allows you to load a previously saved channel strip preset. Any applicable settings are loaded – if the preset contains settings that are inappropriate for the destination channel, they are ignored.

Save channel preset

Using this function, you can save the contents of a channel strip to a preset for future use via a system file save dialog box.

Copy channel

This function copies the settings of the channel strip to the clipboard.

Paste channel

This function pastes the channel strip settings stored in the clipboard to the current channel. Any applicable settings are applied – if the clipboard preset contains settings that are inappropriate for the destination channel, they are ignored.

Reset channel

This function resets the channel's parameters to their initialized state (default settings), although effects and sends are not affected.

Clear channel Effects

This function removes all devices from the channel's effect slots.

Clear channel sends

This function removes any send settings on the channel. It does not appear on the master channel's context menu, as it does not possess any sends.

Remove channel

This function appears only when applicable. It allows you to remove aux channels and direct or ambience channels that are not being used by loaded kit-pieces or by bleed signals from other kit-pieces.

Remove all unused channels

Unlike the other functions on the channel context menu, **Remove all unused channels** does not apply only to the current channel. It removes all currently unused channels in the mixer – this includes direct and ambience channels that are not being used by loaded Drums or by bleed signals from other Drums, as well as aux channels that are not output or send destinations from any channels.

Auto-Assign outputs functions

These functions set the **Output selector** parameter for all channels simultaneously for 3 common routing scenarios. These functions can radically alter your mix configuration so please proceed with caution. You are prompted for confirmation before proceeding.

Auto-Assign outputs (Direct)

This function assigns the **Output selector** for all individual microphones to discrete outputs - this includes Drum mic/sub-mic channels and Ambient mic channels.

When this function is used, any existing **Output selector** assignments to Aux channels and 'parent' Mix channels (Kick/Snare/Ambient Mix channels) are lost.

This feature is designed to allow you to easily transmit all Drum and Ambient mic channels to your host/DAW for further mixing, processing or to bounce the signals as audio tracks.

Auto-Assign outputs (Mixdown)

This feature is intended to be used with Aux channel sub-mixes of Drums. It assigns the **Output selector** for all Aux channels and Mix channels (Kick/Snare/Ambient Mix channels) to discrete outputs.

This means that, for example, the default routing setup would be altered so that the Kick, Snare and Ambient Mix are set to discrete stereo outputs, with the Master channel containing all other Drums (and hard-wired to the first stereo output). The 2 Aux channels in the default mixer setup are also routed to discrete stereo outputs.

If Aux channel sub-mixes of the other Drums have been created (for example, if the Toms and Cymbals have each been mixed down to a single Aux channel), these Aux channels are also routed to discrete stereo outputs.

Auto-Assign outputs (Master)

This function assigns all channels to their default **Output selector** routing assignments, effectively sending all signals to the Master channel.

- Kick/Snare Drum sub-mics are routed to their parent Drum Mix channels
- Ambient mics are routed to the Ambient Mix channel
- Drum Mix, Ambient Mix and all other Drum and Aux channels are routed to the Master channel.

3.4 Effects and Sends



The Effects Editor allows full control over the currently selected channel's 6 insert effect slots and its 4 Sends. This panel and the Kit display cannot be viewed simultaneously. Click the **Effects** button in place of the Kit display.

Overview



The Effects rack

Effects are BFD3's built-in DSP audio processors. The Effects rack shows the contents of the 6 effect slots on the currently selected mixer channel.

Effect slots

Each of the 6 available effect slots can host any of the internal BFD3 DSP effect devices.

Effect scroller

The **Effect scroller** is a representation of the selected channel's 6 available effect slots, with the highlighted area indicating which slots are currently visible. The size of the visible area depends upon the current width setting of the BFD3 window.

To change the visible area, click and drag the highlighted area or simply click the part of the scroller representing the desired effect slots.

Sends

The Send controls represent the 4 Send routings available from the selected mixer channel, usually to destination Aux channels, allowing you to set up parallel processing routings suitable for reverbs and parallel compression: like any other mixer channel, destination Aux channels feature 6 effect slots for these purposes.



Sends can also be routed to other channels for SideChain processing purposes.

Click the **Sends** button at the top-right of the Effects Editor panel to show the Send controls if they are not currently visible. Click the **Sends** button again to hide the controls.

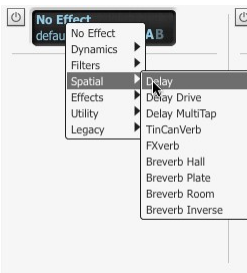
Sends are discussed later in this section.

Initializing and using Effects

Initializing an effect device within a channel's effect slot

There are 3 ways to load a device into an effect slot:

Effect slot's Effect device selector

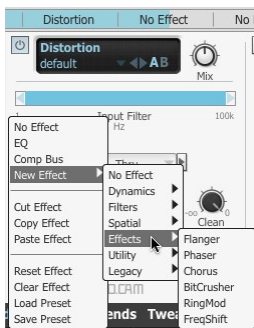


Each of the 6 effect slots for a channel features a main header section which features an **Effect device selector** drop-down menu with a number of other controls.

Firstly, select the desired channel in the mixer by clicking it. Then, display the Effects Editor by clicking the **Effects** button in BFD3's main navigation bar.

Click the part of the desired effect slot header that shows *No Effect* - if the slot is empty - or the name of the effect already loaded into the slot. This displays a menu of available effects arranged within sub-menus according to effect type. Navigate to the desired effect device and click it to load it into the slot. The previous contents of the effect slot are discarded.

Effect context menu



Display the Effects Editor for a mixer channel as described above.

Right-click on any effect slot to display the effect context menu. The **Effect device selector** menu is located within the **New Effect** sub-menu, again providing all available effects arranged within sub-menus according to effect type.

Navigate to the desired effect device and click it to load it into the slot. The previous contents of the effect slot are discarded.

Effects channel mode in the mixer

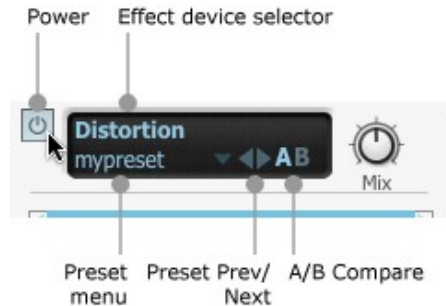


Switching the mixer to Effects channel mode (with the **Effects** channel mode switch) shows basic controls for all channels' 6 effect slots simultaneously.

The **Effect device selector** allows you to load an effect device into each slot. Each slot's **Power** button is also available, as is an **Edit** button to quickly switch to viewing the effect in the Channel Editor if it is not already visible.

Main effect slot controls

All effect slots share the following common controls on their interfaces:



Power button

The **Power** button enables or disables the effect device loaded into the slot. With the button deactivated, the device is disabled and bypassed.

This control is also available in the mixer's Effects channel mode.

You can also turn all currently loaded effect devices on and off using the main **Effect Power** button above the mixer.

Effect device selector

This drop-down menu provides a menu of available effects. Click any effect in the menu to load it into the slot and replace its previous contents.

Preset menu

The **Preset menu** features a drop-down menu showing all available presets for the effect device in the slot.

Preset Prev / Next

The **Preset Prev / Next** cycle through the effect's available presets.

A/B Compare

These buttons toggle between two distinct states for the effect, each with its own settings and preset-loading.

By default, the 'A state' is in operation and highlighted in blue. To try completely different settings without having to save the current settings as a preset first, click the **B** button - this switches to the 'B state' and all further adjustments are now made to the B state. Presets can be loaded and any effect settings can be changed as desired.

To return to the A state, click the **A** button again - the original settings reappear. Of course, any adjustments previously made to the B state are recalled should you decide to return to it by clicking the **B** button again.

Mix

The **Mix** control, which allows blending between the processed (wet) and unprocessed (dry) signals, exists on all BFD3 effect devices.

Note that this control only appears when an effect device is loaded into the slot.

By default, all effects are set to 100% wet, but this control allows you to adjust this as required.

This control is useful on compressor devices for creating parallel compression effects for a single channel without needing to set up an additional aux channel.



SideChain mode

The **SideChain mode** button is only available on certain SideChain-enabled effects when used on on Aux channels and the Master channel.

When the button is activated on the Comp Bus as in this example, the effect uses the SideChain input for driving the peak detection circuit, meaning that the amplitude characteristics of a separate signal are used to treat the amplitude of the actual signal entering the compressor's main input.

When the EQ or EQ8 devices are used, activating the SideChain mode button results in the device processing the SideChain signal before it reaches a SideChain-enabled effect further on in the channel's signal path.

This function is provided for situations when greater tonal control of the SideChain input signal is required than that offered by the **Key HP** control on the Comp Bus effect, for example.

BFD3's SideChain features are discussed in more detail later in this chapter.

Managing Effects with the Effect context menu

Right-click on an effect interface to display the effect context menu.



EQ / Comp Bus

These items represent shortcuts for loading the EQ or Bus Compressor into the effect slot, as these are likely to be the most commonly used processors in a mix.

New effect

This sub-menu performs the same function as the slot's **Effect device selector** - it provides a menu of available effects. Click any effect in the menu to load it into the slot and replace its previous contents.

Cut / Copy / Paste Effect

These functions allow you to cut/copy/paste effect devices between effect slots and mixer channels.

Reset effect

This function resets the current effect to its default settings.

Clear effect

This function removes the effect from the slot.

Load preset

Clicking this item displays a system file open dialog which allows you to load previously saved preset files for the effect.

You can also use the **Preset selector** in order to quickly browse through available presets saved in the default preset folder for the effect.

Save preset

Clicking this item brings up a system file save dialog, allowing you to save the effect's current settings as a preset - it is recommended to use the default location so that presets become available on the effect's **Preset menu**.

Swapping and copying effect devices between slots using drag and drop

Effects can be re-ordered and copied between a channel's effect slots using drag and drop. This offers a quicker way of performing these tasks compared to using the **Copy/Paste** and **Clear** functions on the effect context menu.



Swapping effects between slots

Simply click an effect device's interface, drag it to the left or right and drop it into another slot.

Any effect device already loaded within the destination is swapped into the original slot that was moved over it.

Copying an effect from one slot to another

Hold down the ALT key while performing a drag and drop operation as described above to copy the original effect onto the destination slot.

Any effect device previously in the destination slot is discarded.

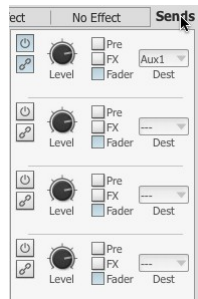
Using Sends and Sidechains

4 Sends are available per channel for parallel processing and sidechaining purposes. Sends can be routed to any available Aux channel as long as the destination channel is to the right of the source channel. They can also be routed to the Master channel and other channels such as Drum and Ambient Mix channels (these are effectively Aux channels with Drum sub-mic or Ambient mic channels' outputs routed to them) for sidechain applications.

Sends can be routed into the main input or to the sidechain input of the destination channel. Sidechaining is used for certain effects which allow you to process the main input while reacting to properties of the sidechain input signal.

Displaying Send controls

Controls for Sends can be displayed in 2 ways:



Sends panel in Effects Editor

Firstly, select the desired channel in the mixer by clicking it. Then, display the Effects Editor by clicking the Effects button in BFD3's main navigation bar.

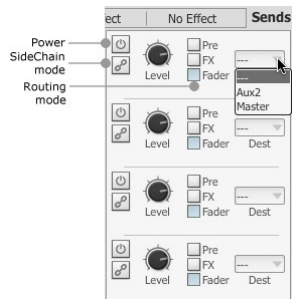
If the Sends panel is not currently displayed within the Effects Editor, click the Sends button to make it visible.

Sends channel mode in the mixer

Switching the mixer to Sends channel mode shows smaller versions of the Send controls for all channels simultaneously.

Send controls

The following controls are available for all 4 Sends from the currently selected channel, and can be accessed using the Sends panel in the Effects Editor or using the Sends channel mode in the mixer.



Power

The **Power** button activates or deactivates the Send. This button is activated automatically when the **Dest** control is used to set a Send destination.

Dest (Destination)

The Send destination is selected using the **Dest** drop-down menu.

Level

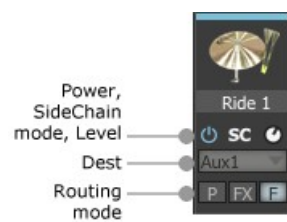
This control sets the Send level - the amount of the signal that is sent to the destination.

Routing mode

Using this set of buttons, each Send can be routed from any of 3 source points in the channel signal path:

Pre (Pre FX, pre-fader)

The Send signal is tapped before the channel's effect slots. This point is also pre-fader. Therefore, the signal reaches the Send destination without being processed by the channel's effects, and is not affected by any level adjustment via the channel's level fader.



FX (Post-FX, pre-fader)

The Send signal is tapped after the channel's effects but before the fader. Therefore, the signal reaches the Send destination after being processed by the channel's effects, but is not affected by any level adjustment via the channel's level fader.

Fader (Post-fader)

The Send signal is tapped after the channel's level fader. Therefore, the signal reaches the Send destination after being processed by the entire channel including its effect slots and level fader.

This is the default setting for the **Routing mode** parameter.

Sidechain mode

The send signal can be routed to either the *main input* for the destination channel or, with the **SideChain mode** button activated, to its *SideChain input*.

If the signal is sent to the SideChain input, the signal is not processed through the channel and its effects, but instead is used for sidechain-enabled effects with their **SideChain mode** button enabled. There is one exception - the EQ is capable of processing a channel's SideChain signal for reasons which are discussed in the 'Using sidechaining' section below.

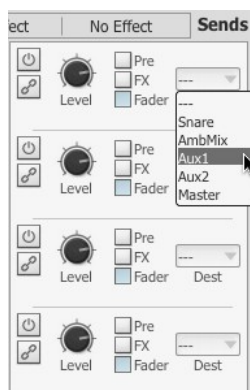
Using Sidechaining

Sidechaining is the use of one signal to control the behaviour of a processor that acts on another signal. Generally, the amplitude of the sidechained signal is used to determine the dynamic output of the processed signal and it is not directly heard in the output of the processor at all. It is a common feature in compressors, in order to compress one signal according to the amplitude of another for a variety of dynamic effects.

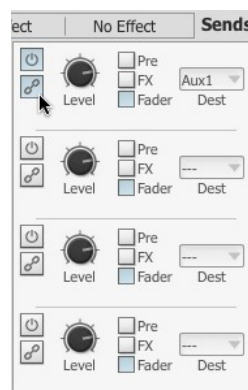
In BFD3, any mixer channel can be used as a SideChain source for a compressor or gate inserted on an Aux channel or the Master channel.

In addition, the SideChain can also be used as the FM source when the filter FM function is used in the Filter Mod device.

Setting up sidechains



To set up a channel as a SideChain source for a compressor on another channel, first set up a Send to a destination channel with the compressor, and turn up the level of the Send.



Then, click the Sidechain button for the **Send source** setting in the Sends panel.

This Send is now routed to the SideChain input of the destination channel.



Click the **SideChain mode** button on a compressor loaded into a slot on the destination channel. It now reacts to the SideChain signal with the resulting gain reduction applied to the main input signal.

EQ-ing the sidechain



A common problem when compressing is the existence of excessive low-end frequencies in a sidechain signal causing a compressor to react more than desired. BFD3's compressors include a high-pass filter to quickly filter out the low end from the signal used by the peak detection process.

However, you may need to apply a more complex EQ process to a SideChain signal in order to isolate a particular band of frequencies such as the mid 'crack' of a snare sound. In such cases, proceed as described above, but insert an EQ on the destination channel, ensuring that it is inserted *before* the compressor.

Now, click the **SC** button on the EQ's interface: the channel's SideChain input signal is processed by the EQ rather than the channel's main input signal. The processed SideChain signal is then used by the compressor as the source for its peak detection circuit (after the compressor's **SC** button has also been enabled).

3.4.1 Dynamics

Common compression parameters

The following definitions apply to most of BFD3's dynamics processors. However, please note that the DCAM EnvShaper device has a very different approach to its time-related parameters (Attack and Sustain).

Attack

The Attack control on a compressor represents the speed at which the gain is reduced when transients pass through it.

This control is often misunderstood. Always remember that the attack does NOT indicate the amount of time taken before the compressor starts to compress.

Release

The Release control on a compressor sets the speed at which the gain level returns to normal after a transient has passed.

Ratio

The ratio specifies the gain reduction applied by the compressor. The numbers in the ratio represent the change in gain before and after compression.

For example, assuming that the threshold level has been breached, then a ratio of 2:1 would mean that for every 2 dB of increased signal level coming into the compressor, the output level rises by 1dB.

Advanced features in BFD3's dynamics processors

SC

The BFD3 Comp Bus and NoiseGate feature a sidechain function. By enabling the **SideChain** button, the processor reacts to the channel's sidechain input rather than the main input, while still applying the processing to the main input. This allows you to control the dynamics of the main input signal with another signal entirely.

Parallel compression and the Mix control

Parallel compression involves mixing a compressed signal (usually fairly heavily compressed) with the original dry signal, in order to achieve the 'huge' sound of a compressed drum mix while keeping the transients of the original drums intact.

While it's unusual to see a wet/dry mix control on a compressor, the **Mix** control on BFD3's compressors is very useful for applying parallel compression to a single mono or stereo channel without creating additional aux channels. If you need to apply parallel compression to more than one channel at once, you must first create a sub-mix on an Aux channel.

Comp Chan



The CompChan (channel compressor) is derived from a classic 'feedback-based FET limiting amplifier' design.

It is also what is known as a 'fixed-threshold' design – the threshold at which compression starts is not adjustable. In practice, this means you may need to adjust the input and output levels when changing ratios.

Input & Output

This control varies the input level going into the compressor. Once the input level has reached the internal threshold, compression begins. When this happens, use the Output control to turn down the increased input. The Input control ranges from -20 to +40 dB, while the Output control ranges from -40 dB to +20 dB.

Attack

The Attack control has a range between 0.02 ms and 0.8 ms.

Release

The Release control has a range between 50ms and 1.1 seconds.

Ratio

Ratios available are 4:1 , 8:1 , 12:1, 20:1 and 'Nuke', which is an emulation of the 'all buttons in' mode on a classic limiting amplifier design. It results in a particularly brutal type of compression.

Comp Bus



This compressor is based on a classic bus compressor design from the centre section of a well-known British large-format mixing console.

It is most commonly used to add 'glue' and power to a drum bus. However, it also works very well as a channel compressor in its own right, offering a different flavour of compression compared to the Comp Chan.

Key HP (Key signal High-pass)

This control adjusts a variable high pass filter on the key signal that is used for the compressor's amplitude detection. It is applied whether the main input or the SideChain input is being used to drive the compressor. However, it is never applied to the actual signal being processed.

This control is useful when there is too much low-end in the sidechain signal, resulting in the compressor reacting too heavily.

Attack

Six attack times are available: 0.1 ms, 0.3 ms, 1 ms, 3 ms, 10 ms, 30 ms.

Release

Five release settings are available: 0.1 ms, 0.3 ms, 0.6 ms, 1.2 ms and Auto.

Ratio

Three ratio settings are available: 2:1, 4:1 and 10:1.

Threshold

Unlike the channel compressor, the buss compressor allows you to adjust the threshold, which represents the input level at which the compressor starts to react.

Make up gain

This control allows you to increase the output gain after the compressor circuit has applied gain reduction to the input signal.

Analog limit

This button applies analog non-linearities to the input to the compressor's amplitude detection circuit (while not affecting the input signal itself). This results in a different character to the processing – the compression effect is more transparent on attacks.

Noise Gate



A noise gate is a type of dynamics processor that mutes or attenuates the input signal until its amplitude exceeds an adjustable threshold level, at which time the gate 'opens' to allow audio through at its actual level.

They are often used during drum mixing in order to isolate drums within signals containing bleed or spill from other drums. Another common use is to reduce the decay of toms and kicks. Noise gates are often referred to simply as 'gates'.

While BFD3 contains bleed in the kick and snare channels, it can easily be turned off rather than having to use gates to minimize bleed. Likewise, the decay of kit-pieces can be adjusted using the damping controls in the kit-piece inspector. However, using gates can be good for creative effects, or simply for recreating the types of techniques used in real drum mixing sessions.

BFD3's Noise gate has a sidechain function, allowing you to create triggered 'chopping' effects very easily. For example, route any channel such as a hihat or a user sample direct channel to the master channel's sidechain input and insert a noise gate in one of the master channel's effect slots. Enable the sidechain button for the gate and adjust the threshold until the sidechain input triggers the audio on the channel.

When setting very fast attack and release times, it is common to hear 'clicks' in the audio, especially with sounds predominantly comprised of low frequencies such as kicks and toms – this is totally normal and you simply need to increase these times slightly to eradicate the problem.

Attack

This controls the speed at which the gate opens once the threshold has been exceeded by the input signal's amplitude.

Hold

This parameter controls the amount of time the gate remains open after the input signal has dropped below the threshold level.

Release

This controls the speed at which the gate closes at the end of the hold time.

Threshold

This control allows you to set the level at which the gate starts to open. When the input signal amplitude exceeds the level specified by the Threshold control, the gate starts to open to allow audio through.

SC

Like the compressors, the NoiseGate features a sidechain function. By enabling the SC (Sidechain) button, the gate reacts to the channel's sidechain input rather than the main input, while still applying the gating process to the main input. This allows you to control the gating of the main input signal with another signal entirely.

Input Filter

This control provides high-pass and low-pass filters to process the input signal used to trigger the gate (whether it is the main input signal or the SideChain input signal) while leaving the actual processed signal *unfiltered*. This allows you to isolate certain frequencies in the input to improve the gating response – for example, excessive low frequencies in the input can make the gate react more sensitively than required.

To adjust this control, click and drag the light blue arrows at the left and right of the blue active frequency band the light-blue arrows represent the cutoff frequencies of the high-pass and low-pass filters.

Key Listen

Enabling the **Key Listen** button lets you hear the key input being used to trigger the NoiseGate's amplitude detection circuit instead of the processed input signal. The key signal can be either the main input or the sidechain input.

It is very useful when using the **Input Filter** and/or the SideChain input.

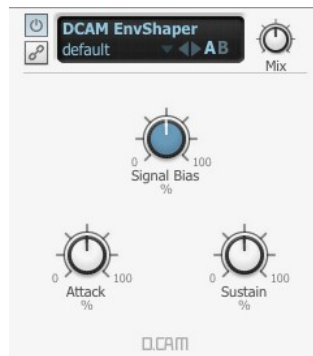
Hysteresis

Noise gates have a tendency to open and close very quickly when the input signal's amplitude remains close to the threshold level for longer periods, something that can result in 'gate chatter'.

Increasing the Hysteresis control smooths out the gate response to reduce this problem, although the gate becomes less sensitive to small changes around the threshold level.

Mix

With the Mix control at 100%, the NoiseGate mutes the signal completely when closed. If you want to let the signal through at a low level, decrease the Mix control to allow more of the dry signal through.

DCAM EnvShaper

DCAM EnvShaper offers an alternative approach to dynamics processing by allowing you to adjust the intensity of the attack and sustain portions of transients.

Attack

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

Sustain

The **Sustain** control adjusts the intensity of release portions of detected peaks in the audio signal, which 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. Negative settings can produce damping effects for drum sounds.

Signal Bias

The **Signal Bias** control adjusts the sensitivity and release characteristics of DCAM EnvShaper. At low settings it is more sensitive to short transients while at higher settings it is more sensitive to longer transients.

Distortion



The Distortion device is an updated version of BFD2's Drive processor which is now available within the Legacy sub-menu.

Mode

The **Mode** drop-down menu selects between a wide variety of distortion types.

Drive

The **Drive** control sets the amount of distortion that takes place.

Input Filter

This control provides high-pass and low-pass filters before the distortion stage to enable you to shape the tonal characteristics of the signal going into the drive circuit.

For example, you may want to distort the high end of a kick drum while leaving the deep low end unchanged.

To adjust this control, click and drag the light blue arrows at the left and right of the blue active frequency band the light-blue arrows represent the cutoff frequencies of the high-pass and low-pass filters.

These filters are crossover filters – the active frequency band is processed by the distortion circuit with its level adjustable via the **Dirty** control. The frequencies that are filtered out before the distortion stage are accessible via the **Clean** control.

Dirty & Clean

The **Dirty** control sets the amount of post-distortion signal that is heard at the output.

The **Clean** control sets the amount of the clean signal, which is comprised of the signals filtered out by **Input Filter** control.

Please note that these are not 'wet' and 'dry' controls – use the standard **Mix** control at the top of the effect interface in order to mix between the pre- and post-effect signals.

Tone

The **Tone** control is a simple -6 dB per octave low-pass filter for the processed signal after the distortion stage. It allows you to roll off unwanted high frequencies that may have been generated in the signal as part of the distortion effect.

Limiter



A limiter is effectively a compressor with a very fast attack time and a high ratio for signals that exceed the maximum level.

Input

The **Input** control adjusts the level of the signal going into the Limiter algorithm. Higher input levels lead to more pronounced and 'brutal' limiting.

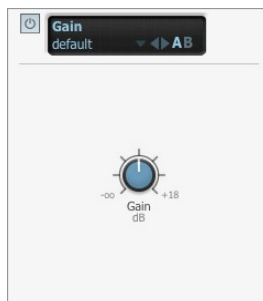
Hardness

The **Hardness** control adjusts the strength of the Limiter's 'knee'. At high settings, peaks are clipped with a 'brick-wall' limiting effect. At lower settings, gain reduction occurs more slowly (with slower attack and release settings), leading to a more natural effect with less 'pumping'.

Output

The **Output** control allows you to attenuate the processed output signal from the Limiter.

Gain



The Gain effect is a simple tool for increasing or decreasing a channel's gain.

Gain

The **Gain** control lets you increase the channel's gain up to 18 dB, or decrease it up to -inf dB.

3.4.2 Filters

EQ



BFD3's EQ provides 4 bands of EQ, including two parametric mid bands.

L (Low) and H (High) bands

The Low and High bands are switchable between a bell with a fixed **Q** of 2.5 octave (with the **Bell** button activated) and a shelving response with a fixed rolloff of 12 dB per octave (with the **Bell** button deactivated).

- Low band **Freq** range: 40 to 600hz
- Low band **Gain** range: +/- 16.5 dB
- High band **Freq** range: 600 to 14khz
- High band **Gain** range: +/- 20 dB

LM (Low Mid) and HM (High Mid) parametric bands

The Mid bands feature bell curves with adjustable **Q**.

- Low Mid Band **Freq** range: 200hz to 2Khz
- High Mid band **Freq** range: 800hz to 7khz
- **Q** range: 0.5 octave to 2.5 octave

Band power

Each band has its own Power button allowing you to save CPU by only using the bands you need.

SideChain

Enabling the EQ's SideChain button allows you to EQ the channel's sidechain input. This can be very useful to EQ a sidechain input before it enters a compressor, for example. For this function to work, the EQ must be placed before the sidechain processor in the channel's effect slots.

Frequency Display control

The EQ curve can be adjusted by clicking and dragging the graphical display in the EQ effect 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, each highlighted in a different colour corresponding to that of each band's controls on the interface.

With a band highlighted, click and drag up/down to adjust the band's **Gain**, and left/right to adjust its **Freq**. For the two Mid bands, clicking and dragging up/down while holding down the ALT key allows you to adjust the band's **Q**.

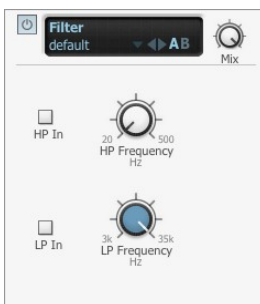
EQ8



The EQ8 device is an 8-band version of the EQ - it features the same controls but for 8 bands (numbered 1-8) instead of the 4 bands in the standard EQ device.

Bands 1 and 8 behave in the same way as the Low and High bands in the standard EQ device, while all other bands behave in the same way as the EQ's parametric Low Mid and High Mid bands.

Filter



The Filter effect provides non-resonant high-pass and low-pass filters for broad tonal shaping of signals.

It can be used to roll off the low end in Overhead and Room buses, or to remove ultra-low frequencies from kick drums, especially when low-shelving EQ is applied.

HP Frequency

The -18dB/Oct high-pass filter removes frequencies below the specified frequency which can be set within a range between 20hz and 500hz.

LP Frequency

The -12 dB/Oct low-pass filter removes frequencies above the specified frequency, which can be set within a range of 35 Hz to 3 kHz.

Power buttons

The **HP In** and **LP In** buttons are power buttons for each filter – when activated, the filter is enabled, and when deactivated, the filter is bypassed.

Filter Mod



This device features a state-variable multimode filter with a response of 12 db per octave, capable of self-oscillation and featuring input and output drive stages.

It has a built-in envelope follower to modulate the filter's cutoff frequency relative to the input. This function is modelled on an analog full-wave rectified envelope follower.

Additionally, the filter frequency can be modulated at audio rate by the input.

You can also use the channel's sidechain input as the source for the envelope follower and for the audio rate FM. For example you could use a bass drum tuned very low as a rough and ready LFO to modulate the filter.

Mode

4 filter modes are available, each offering different filtering functions relative to the cutoff frequency.

Low (Low pass)

Allows through only frequencies below the cutoff frequency.

High (High pass)

Allows through only frequencies above the cutoff frequency.

Band (Band Pass)

Allows through only a band of frequencies around the cutoff frequency.

Notch

This is the opposite of a band pass, in that it allows through all other frequencies except a band of frequencies around the cutoff frequency.

Modulating a notch filter can give phaser-like results.

In Drive

This control sets the amount of signal gain before the non-linearities of the filter. As well as increasing the gain, using more drive results in a rich and complex interaction with the filter's resonance.

Out Drive

This is an OTA-type non-linear amp function at the output, in order to boost and colour the filtered signal.

Pitch

This control adjusts the cutoff frequency of the filter. It is measured in semitones.

Resonance

This control adjusts the resonance of the filter, accentuating the frequencies around the cutoff point.

High resonance settings cause the filter to self-oscillate – please apply caution with your speaker levels when using resonant self-oscillation in the FilterMod device.

Attack

The **Attack** control changes how quickly the envelope follower section responds to transients in the input signal. Longer attack times mean that the filter takes a longer time to respond to amplitude changes.

Release

The **Release** control changes how quickly the envelope follower causes the filter to return to its original position when the input signal decreases after a transient.

Env Depth

The **Env Depth** control adjusts the amount of modulation of the filter's cutoff frequency by the built-in envelope follower.

FM Depth

The **FM Depth** control sets the amount of audio-rate modulation of the cutoff frequency by the input.

SideChain enable

Enabling the **SC** button results in the channel's SideChain input being used as the source for the envelope follower and audio-rate FM features. This means other channels can be used to modulate the filter cutoff.

This function allows you to be very creative with the filter – here's a few ideas to try out:

- for quick and dirty LFOs, try tuning a kick down really low and using it as the filter FM source, perhaps after some additional processing such as low-pass filtering
- load arbitrary sounds as user samples using BFD3's sample import functions, and use them as the filter FM source

Comb



The Comb filter device is useful for psychedelic chorus and phaser-style effects. Comb filters use technique of feeding a delayed version of the signal back into itself to create a series of harmonically related notches across the frequency spectrum reminiscent of the teeth of a comb. Changing the amount of delay affects the position of these notches, creating the effect of 'sweeping' the resultant frequency bands.

Pitch

The **Pitch** control adjusts the centre frequency of the comb filter, changing the position of the comb frequency bands.

Resonance

The **Resonance** control adjusts the amount of feedback used for the comb filter.

Mode

The **Mode** control sets the feedback polarity between positive and negative settings.

Drive

This control increases the level of the signal entering the comb filter circuit, adding non-linearities and saturation.

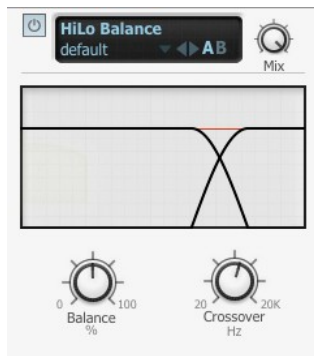
Rate

The **Rate** control adjusts the speed of the Comb device's built-in sine LFO which modulates the **Pitch**.

Depth

The **Depth** control adjusts the amount of modulation of the **Pitch** control with the internal sine LFO.

HiLo Balance



This FX device provides a 'tilt'-style EQ which proportionally cuts high frequencies when boosting low frequencies, and vice versa.

Balance

This control sets the balance between low and high frequencies. At the centre position no effect is applied to the incoming audio.

At values higher than the centre position, high frequencies are boosted while low frequencies are attenuated by the same amount.

At values lower than the centre position, low frequencies are boosted while high frequencies are attenuated by the same amount.

Crossover

This control sets the crossover frequency between the low and high portions of the frequency spectrum.

3.4.3 Spatial

Delay



The Delay effect can operate as a stereo or mono delay line, depending on whether it is used on a stereo or mono channel.

Time

The delay **Time** can be set either in absolute time values in seconds or in tempo-based values (selectable using the **Sync** control).

Sync

When the **Sync** parameter is set to *BPM*, the delay time is set in tempo-based values relative to BFD3's current tempo. Possible values range from 64th note to 2 bars, including dotted and triplet variations, the latter being especially useful for classic shuffle grooves using simple 1/4-note input. In *Seconds* mode, the delay time is set as an absolute time value, ranging from 31ms to 4 seconds.

Feedback

This control sets the amount of delay regenerations, caused by feeding the delayed signal back into the input. Higher values feed the delayed signal back in at a higher amplitude, leading to more regenerations of the input signal. Settings of 100% lead to indefinite regenerations until the value is reduced, and with good use of the built-in filtering can result in classic psychedelic, dubby analog delay effects.

Swing

The delay features 2 taps, which are played at the same time with the swing control at the centre position.

By turning down the **Swing** control, you can move the left tap before the right tap, up to a distance of half the delay time. By turning up the **Swing** control, the right tap is moved up to a distance of half the delay time before the left tap.

This control opens up a wide variety of swung delay grooves.

Feedback Filter

This control consists of a high-pass and low-pass filter allowing you to apply tonal shaping to each delay regeneration.

To adjust this control, click and drag the light blue arrows at the left and right of the blue active frequency band - the light-blue arrows represent the cutoff frequencies of the high-pass and low-pass filters.

Sum In (stereo only)

When the Delay is used on a stereo channel, activating this button sums the left and right inputs to a single mono signal and feeds one delay line instead of two.

Delay Multi Tap



The Delay MultiTap provides 4 separate delay taps, each with individual **Time**, **Gain** and **Feedback** controls.

Time

The 4 **Time** controls set the delay time for each of the 4 delay taps.

Sync

When the **Sync** parameter is set to *BPM*, the delay time is set in tempo-based values relative to BFD3's current tempo. Possible values range from 64th note to 2 bars, including dotted and triplet variations, the latter being especially useful for classic shuffle grooves using simple 1/4-note input. In *Seconds* mode, the delay time is set as an absolute time value, ranging from 31ms to 4 seconds.

Gain

The 4 **Gain** controls allow you to set the level of each of the 4 delay taps.

Feedback

The 4 **Feed** controls set the amount of feedback for each of the 4 delay taps.

Pan (Stereo only)

When the device is used on a stereo channel, each of the 4 taps can be panned within the stereo field.

Feedback Filter

This control consists of a high-pass and low-pass filter allowing you to apply tonal shaping to each delay regeneration - the same filtering settings are applied to all 4 delay taps.

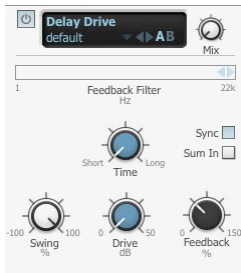
To adjust this control, click and drag the light blue arrows at the left and right of the blue active frequency band - the light-blue arrows represent the cutoff frequencies of the high-pass and low-pass filters.

Time (Master)

This control offers a master control for the delay time of all 4 delay taps. It applies an offset to the **Time** settings for all 4 taps.

Feedback (Master)

This control offers a master control for the feedback of all 4 delay taps. It applies an offset to the **Feedback** settings for all 4 taps.

Delay Drive

This device is a version of the Delay with an additional circuit-modelled overdrive stage. The **Drive** parameter adjusts the amount of overdrive.

TinCanVerb

This effect is a recreation of a cheap-sounding room reverb unit, perfect for trashy sounding drum mixes and an antidote to the lush, real ambience in BFD3's recordings. It is not intended to serve the function of a premium quality digital reverb – for this purpose, it's best to use a good quality external reverb plugin or hardware unit.

Size

The Size control lets you adjust the size of the virtual reverberation room. Smaller rooms offer subtle ambience, while large rooms result in a more 'cavernous' and reflective effect.

Decay time

This control adjusts the decay time of the reverb effect. Use smaller decay times for subtle small room effects, with larger times useful for special effects.

Damp

Increasing the Damp control results in less high frequencies in the effected signal, leading to a darker reverb sound. At least some damping is essential to avoid overly tinny and fatiguing results.

Pinch & Squeeze

These controls manipulate the shape of the virtual reverb room, leading to a variety of resulting effects. They make the reverb sound a lot more artificial and are useful for special effects.

Freeze

As the name suggests, this button 'freezes' the current reverb buffer and loops it indefinitely until the button is disabled. Automating this effect is excellent for dubby special effects.

FXverb

FXverb is a high-end algorithmic reverb device.

Input & Output

These controls adjust the level of the **Input** signal into the device and the **Output** signal from the device.

Room Size

This control adjusts the size of the virtual reverberation chamber. Increasing the Room Size leads to a more pronounced reverberation effect.

Decay

This control adjusts the decay time of the reverberation tail.

Pre delay

The Predelay control introduces a delay between the dry sound and the reverberated output, creating a sense of space and distance.

Density

This control adjusts the density of reflections in the generated reverberation.

Early

This control adjusts the level of early reflections within the reverb output signal.

Late

This control adjusts the level of late reflections within the reverb output signal.

Damping Gain

This control adjusts the amount of gain of the Damping EQ positioned before the output of the FXverb device. Increasing this control leads to attenuation at the **Damping Freq.**

Damping Freq

This control adjusts the centre frequency of the Damping EQ positioned before the output of the FXverb device.

Breverb Hall**Time (Sec)**

Sets the duration of the reverberation tail. It is also influenced by the Size parameter.

Size

Sets the rate of build-up diffusion after the initial period, which is controlled by the Diffusion parameter. It also acts as a master control for Time and Spread. Despite its name, the apparent size of the space created is actually a combination of the settings of the Size, Shape and Spread controls.

Diffusion

Controls the degree to which the initial echo density increases over time.

Shape

Works together with the Spread parameter to control the overall ambience of the reverberation created by the Breverb Room algorithm. It specifically determines the contour of the reverberation envelope. With the Shape control all the way down, reverberation builds explosively and decays very quickly. As the control is increased, reverberation builds up more slowly and sustains for the time set by the Spread parameter.

Spread

Controls the duration of the initial contour of the reverberation envelope. Low Spread settings result in a rapid onset of reverberation at the beginning of the envelope, with little or no sustain, while higher settings spread out both the build-up and sustain.

Pre delay (Sec)

Sets the amount of time that elapses between the input signal and the onset of reverberation. It can be used to create a sense of distance and volume within an acoustic space.

Low, High

The Low and High parameters can be used to tweak the frequency response of the reverb.

Low (kHz): Sets the frequency under which the reverberation is attenuated.

High (kHz): Sets the frequency over which the reverberation is attenuated.

Breverb Room**Time (Sec)**

Sets the duration of the reverberation tail. It is also influenced by the Size parameter.

Size

Sets the apparent size of the acoustic space being emulated by the algorithm. Values from minimum to half way up are typical of the ambience of a recording studio.

Diffusion

Controls the degree to which the initial echo density increases over time.

Decay

Balances between the late reverberation and the early reflections. When the Decay control is turned down fully, only the early reflections are present. When it is increased, late reverberations are gradually added.

Pre delay (Sec)

Sets the amount of time that elapses between the input signal and the onset of reverberation. It can be used to create a sense of distance and volume within an acoustic space.

Low, High

The Low and High parameters can be used to tweak the frequency response of the reverb.

Low (kHz): Sets the frequency under which the reverberation is attenuated.

High (kHz): Sets the frequency over which the reverberation is attenuated.

Breverb Plate**Time (Sec)**

Sets the duration of the reverberation tail. It is also influenced by the Size parameter.

Size

Sets the apparent size of the plate emulated by the algorithm.

Diffusion

Controls the degree to which the initial echo density increases over time.

Pre delay (Sec)

Sets the amount of time that elapses between the input signal and the onset of reverberation. It can be used to create a sense of distance and volume within an acoustic space.

Shape

Determines the contour of the reverberation envelope. With the Shape control turned all the way down, reverberation builds explosively and decays very quickly. As the control is raised, reverberation builds up more gradually and sustains longer.

Low, High

The Low and High parameters can be used to tweak the frequency response of the reverb.

Low (kHz): Sets the frequency under which the reverberation is attenuated.

High (kHz): Sets the frequency over which the reverberation is attenuated.

Breverb Inverse**Time (Sec)**

Sets the duration of the reverberation. This time, added to the Predelay time, is the time that elapses from the direct sound to the end of the reverberation process.

Diffusion

Controls the degree to which the initial echo density increases over time.

Pre delay (Sec)

Sets the amount of time that elapses between the input signal and the onset of reverberation. It can be used to create a sense of distance and volume within an acoustic space.

Low, High

The Low and High parameters can be used to tweak the frequency response of the reverb.

Low (kHz): Sets the frequency under which the reverberation is attenuated.

High (kHz): Sets the frequency over which the reverberation is attenuated.

3.4.4 Effects

Flanger



The Flanger effect is a short modulated delay line with feedback to the input. It is used for a sense of movement and for psychedelic effects from the subtle to the extreme. It features a built-in sine LFO for modulating the flanging delay line.

Rate

The **Rate** control affects the speed of modulation of the flanger delay time.

Depth

The **Depth** control adjusts the amount of modulation of the delay time.

Display

The VU-style display represents the current flanging delay time.

Pos (Position)

This control introduces an additional fixed delay time to the Flanger's delay line. It is a very short delay, ranging from 0 ms to 15 ms.

Feedback

This control adjusts the amount of the flanged signal that is fed back into the input.

Higher **Feedback** settings result in a more pronounced flanging effect. Settings over 50% lead to extreme comb filter type effects.

Spread (stereo only)

This control allows you to adjust the panning of the left and right channel processed signals.

Phase (stereo only)

The Phase control offsets the phase of the internal LFOs for the left and right channels.

Flip Phase

By default (with the **Flip Phase** button deactivated), the flanged signal is in positive phase with the input signal.

Activating the **Flip Phase** button inverts the flanged signal's phase in relation to the input signal.

A positive phase setting tends to lead to a more obvious flanging effect.

Phaser



The Phaser uses phase cancelling techniques (with the use of all-pass filtering) to create a series of peaks across the frequency spectrum. When these peaks are swept, a psychedelic sweeping effect is created.

Mode

The **Mode** control selects between a number of phaser responses. 4, 6, 8 and 12 stage phaser types are available, with positive or negative feedback. The number of stages refers to the number of all-pass filters within the algorithm.

Pitch

The **Pitch** control adjusts the centre frequency of the all-pass filters used in the Phaser algorithm.

Resonance

The **Resonance** control adjusts the amount of resonance (feedback) in the all-pass filters.

Phase

The **Phase** control adjusts the phase between the dry signal and the all-pass filtered signal.

Depth

The **Depth** control adjusts the amount of Pitch modulation from the Phaser device's internal LFO that modulates the **Pitch** parameter for classic phaser effect sounds.

Rate

The **Rate** control adjusts the speed of the internal LFO.

Sync

When the **Sync** parameter is set to *BPM*, the **Rate** control is set in tempo-based values relative to BFD3's current tempo. Possible values range from 64th note to 2 bars, including dotted and triplet variations.

In *Seconds* mode, the Rate control is set as an absolute time value, ranging from 31ms to 4 seconds.

Chorus



The Chorus effect is a modulation effect that is pitch-based. It is used for thickening up sounds.

Rate

The **Rate** control adjusts the speed of pitch modulation.

Depth

The **Depth** control adjusts the amount of modulation away from the input signal's original pitch.

Spread (stereo only)

This control varies the panning of the left and right pitch-modulated signals.

Bit Crusher



The Bitcrusher effect provides a type of digital distortion that occurs when the sample-rate and bit-depth of the audio is reduced. It allows you to simulate the sound of early samplers, useful for underground hip-hop and other 'lo-fi' styles.

Bits

This control reduces the bit depth from a maximum of 16 bits to a minimum of 1 bit, which is effectively digital noise. The digital noise generated by the bit-reduction process is referred to as quantisation noise.

Early digital drum machines and samplers tended to have 8 or 12 bit resolution.

Freq

This control adjusts the sample rate frequency of the audio processed by the effect. and ranges from a maximum of 100 kHz to a minimum of 1 Hz.

Lower sample rates result in an aliasing effect on the processed audio.

Drive

This is an OTA-type distortion stage after the crossover filters, enabling you to add gain and colour to the signal before it is processed by the bit and sample-rate reduction stages.

Input Filter

This control provides high-pass and low-pass filters for isolating a part of the signal before the sample-rate and bit-depth reduction stages.

To adjust this control, click and drag the light blue arrows at the left and right of the blue active frequency band the light-blue arrows represent the cutoff frequencies of the high-pass and low-pass filters.

These filters are crossover filters – the active frequency band is processed by the bitcrushing circuit with its level adjustable via the **Dirty** control. The frequencies that are filtered out before the bitcrushing stage are accessible via the **Clean** control.

Dirty & Clean

The **Dirty** control sets the amount of processed signal that is heard at the output.

The **Clean** control sets the amount of the clean signal, which is comprised of the signals filtered out by the **Input Filter** before processing.

Please note that these are not 'wet' and 'dry' controls – use the **Mix** control at the top of the effect interface in order to mix between the pre- and post-effect signals.

Tone

The **Tone** control provides a simple -6 dB per octave low-pass filter for the **Dirty** signal after the bitcrushing process. It allows you to roll off unwanted high frequencies that may have been generated in the signal as part of the processing.

RingMod



A ring modulator multiplies two signals together, giving you the sum and the difference between them and the output.

BFD3's RingMod device contains an internal oscillator that provides one of the signals, the other being the drum sound passing through it.

This effect is useful for radical, inharmonic timbral changes for more experimental-sounding mixes.

Mode

The **Mode** control adjusts the waveshape of the internal oscillator which is multiplied with the audio input to the effect. Sine, Triangle, Saw, Square and Parabolic oscillator shapes are available, as well as white or pink noise.

Pitch

The **Pitch** control tunes the internal oscillator within a range of an octave.

Drive

The **Drive** control introduces an adjustable amount of distortion on the input signal. Overdriving the signal in this way changes the waveshape of the input, leading to further variations in the resulting effect.

Frequency shifter



A frequency shifter changes the frequency of the sound passing through it - all frequencies in the signal are adjusted by a fixed amount. This differs from a pitch-shifter which adjusts the frequencies of fundamental frequencies and their harmonics by a proportional amount to preserve the harmonic series of the original signal. Therefore, a frequency shifter usually results in inharmonic and clangorous sounds.

Pitch

The **Pitch** control adjusts the amount of frequency shifting, and is represented in semitones. You can shift the input signal's frequencies up or down by up to 36 semitones (3 octaves).

Gain

The **Gain** control adjusts the level of the output signal.

3.4.5 Legacy

Drive



The Drive device offers 4 distortion circuit models, useful for adding colour, grit or more extreme distortion to your pristine drum sounds. This device has been superseded by the Distortion device, but the older version from BFD2 is provided as a legacy device.

Mode

The **Mode** control selects between 4 available distortion types:

Diode

Diode clip circuits are found in countless guitar pedals and other distortion units. It gradually drives the input throughout the amplitude range.

OTA (Operational Transconductance Amplifier)

This mode models the behaviour of an overdriven OTA chip.

OpAmp (Operational amplifier)

This mode models the behaviour of an overdriven OpAmp chip.

HalfRect (Half Rectifier)

This type of distortion allows through the top half of the input signal's waveform.

Drive

The **Drive** control adjusts the amount of distortion applied to the signal.

Input Filter, Dirty, Clean, Tone

These controls function in exactly the same way as those on the Distortion effect device.

Env Shaper



The Env Shaper device has been superseded by DCAM EnvShaper. It is provided in the Legacy section for compatibility with older projects.

The Env Shaper processor allows you to adjust transients and change the dynamic shape of a signal in a different way to using a compressor.

Sensitivity

This control sets the sensitivity of the Env Shaper's peak detection circuit. Detected peaks are affected by the **Attack** and **Sustain** transient processing.

Attack

The **Attack** control adjusts the intensity of the attack phase of transients in the audio.

Increase the control to intensify attack transients, to make drum sounds punch through the mix harder.

Decrease the control to soften transients. This can sound particularly good on percussion sounds and on one of two linked kit-pieces.

Sustain

The **Sustain** control adjusts the intensity of release portions of transients in the audio, which increases or decreases the apparent sustain of sounds in the signal.

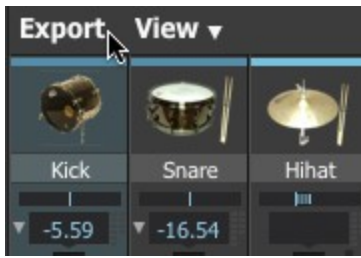
Turning up the control for more sustain is good for intensifying the natural reverb in BFD3's sounds. It is particularly suited to making room ambience sound huge.

Decrease the control for less sustain and making ambience more 'dry'. At higher settings it can produce damping effects for drum sounds.

Gain

Use this control to adjust the gain of the signal after the Env Shaper's dynamic processing.

3.5 Exporting audio from BFD3

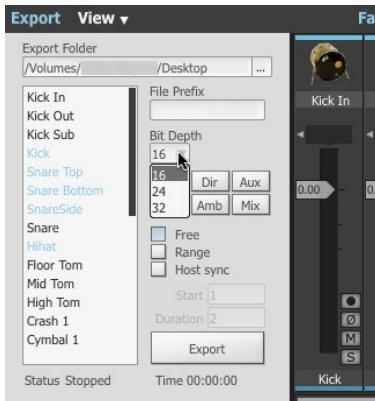


Click the **Export** button to display the Export panel if it is not currently visible. This panel allows you to export multi-channel mixdowns directly to disk from BFD3.

BFD3's export functions operate in conjunction with the mixer's **Record enable** buttons - activate the **Record enable** button for any channel that you desire to export as a discrete audio file, or use the functions for record enabling channels within the Export panel as described below.

Exporting is also possible from the Groove engine - individual Grooves or the Drum Track can be exported using BFD3's **File menu** when the Groove Editor is visible.

Groove engine export operations follow the settings specified in the Export panel where applicable.



Export folder

This control shows the path (folder location) to which to write exported audio files. Click the Browse button at the right to specify any location on your system.

It is recommended that you use a drive that is not used for BFD3's audio data, as it may not be possible to properly stream samples for playback while recording to the same drive.

File Prefix

The filename of each exported audio file contains the name of each mixer channel (editable in the label strip) enabled for export, along with the optional **File Prefix**. Resulting files are named in the following format:

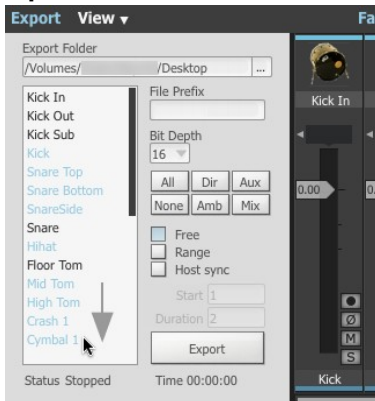
FilePrefix_MixerChannel.WAV

Bit depth

This setting dictates the resolution of the exported audio files. 16, 24 and 32 bit resolutions are available.

Functions for record enabling channels

Export channel list



All current mixer channels are displayed in the channel list at the left of the Export panel. Click any channel to toggle its **Record enable** status.

Alternatively, click any channel and drag up or down to toggle the **Record enable** status of multiple adjacent channels.

All

Click this button to activate the **Record enable** function on all mixer channels.

None

Click this button to deactivate the **Record enable** function on all mixer channels.

Dir

Click this button to activate the **Record enable** function on all Direct mic mixer channels.

Amb

Click this button to activate the **Record enable** function on all Ambient mic mixer channels.

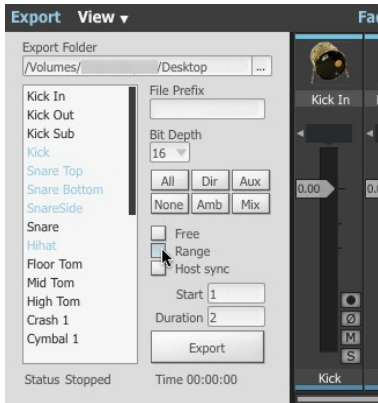
Aux

Click this button to activate the **Record enable** function on all Aux mixer channels.

Mix

Click this button to activate the **Record enable** function on the Kick/Snare/Ambient Mix channels.

Export Sync mode (Free/Range/Host sync buttons)



Free

The **Free** mode lets you manually start and stop the export by clicking the **Export** button. Audio is written in real time as BFD3 is used, until the **Export** button is clicked again.

This is the only mode that is available when using BFD3 as a standalone application, since there is no host timeline to which to synchronize.

The Groove engine's functions (in BFD3's **File menu**) can also be used when in standalone mode.

Range

This mode starts and stops exporting within a definable **Start** point and **Duration**. This mode is intended to be used when using BFD3 as a plugin in a host.

Before performing the export, you must first 'arm' the Export function by clicking the **Export** button. This mode is not available when using BFD3 as a standalone application.

Host

When Host mode is selected, the Export function commences when the host transport is started, and stops recording when the host transport is stopped.

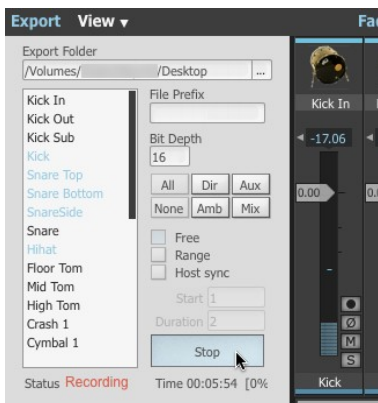
Before performing the export, you must first 'arm' the Export function by clicking the **Export** button. This mode is not available when using BFD3 as a standalone application.

Start

This value defines the start time (in bars) to commence the export when the Export Sync mode is set to **Range**. This setting is disabled when any other **Export Sync** mode is selected.

Duration

This value defines the length of the export (in bars) when the Export Sync mode is set to **Range**. This setting is disabled when any other Export Sync mode is selected.



Export button

The functionality of this button changes depending upon the state of the Export Sync mode setting.

When the Export Sync mode is set to **Range** or **Host**, clicking this button 'arms' the export function, meaning that the export commences when certain conditions are reached.

Click the Export button again to disarm the Export function.

When using the **Host sync** mode, the export commences when the host or BFD3 transport is started and stops when the host or BFD3 Transport is stopped.

In **Range** mode, exporting commences when playback in the host or the BFD3 Drum Track reaches the **Start** point, and stops when the **Duration** has been completed.

When the Export Sync mode is set to **Free**, clicking the Export button starts exporting immediately, and clicking it again stops it.

Time

During an export, this display shows the time, in minutes and seconds, that has elapsed since the export began.

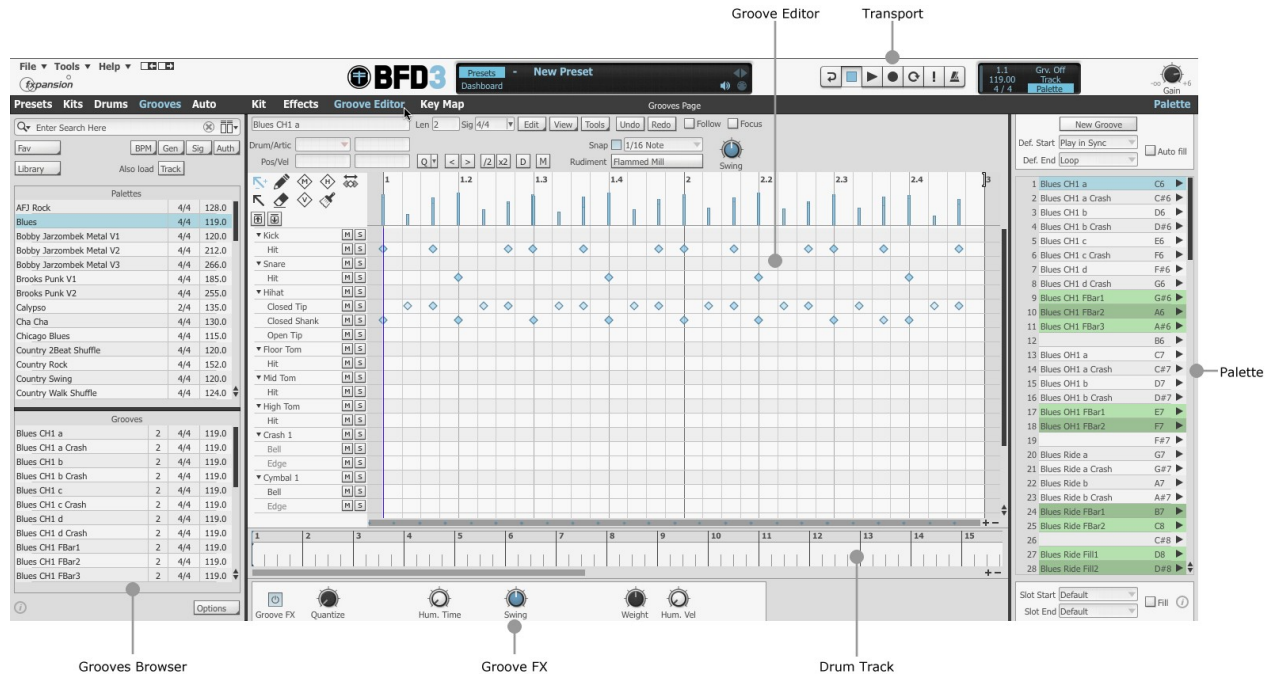
4 Using the Groove engine

Groove engine overview

The Groove engine is BFD3's sequencer or 'virtual drummer': it provides access to a large library of drum performances as well as providing the ability to edit these performances or create your own.

If you simply intend to use BFD3 as a sound module triggered by external MIDI notes, it is possible to ignore the Grooves page completely.

To use the Groove engine, click the **Groove Editor** button in BFD3's main navigation bar.



Groove Browser

BFD3's Browser, on the left side of its interface, is used to preview and load Groove and Palette files - click the **Grooves** button at the top of the Browser to switch to the [Groove Browser](#) from any other Browser tab or if the Browser is currently hidden.

Previewing is synchronized to the BFD3 transport (which is synchronized to the host/DAW when running as a plugin) so you can preview different sets of Grooves in context with your project. In fact, it is possible to jam in a live situation using Groove and Palette previewing in the Browser. However, to create controllable, flexible setups that can be recalled in future, Grooves must be loaded into the **Palette** or **Drum Track**.

Palette

At the right side of the Groove Editor panel is the Palette - click the **Palette** button to make it visible if it is not currently displayed. The Palette is a bank of 'slots' to which Grooves are loaded.

Grooves loaded into the Palette can be used in several ways:

- They can be played automatically in sync with the BFD3 transport (and that of your host/DAW when running the BFD3 plugin) using the Auto-play settings
- They can be arranged into the single-lane Drum Track, allowing you to lay out a full song's drums within BFD3
- They can be assigned to MIDI notes using the Key Map panel and triggered using external MIDI notes

The Palette is discussed in detail [later in this chapter](#).

Palette files

BFD3 also contains the concept of Palette files on disk - these represent saved states of the entire Groove engine: a set of Grooves loaded into the Palette slots along with all other Groove engine settings.

Grooves and Groove events

The basic components used in the Groove engine are **Grooves**: pattern 'clips' containing sequenced events that trigger BFD3's Drum articulations. Grooves aren't MIDI clips, but they behave in a very similar way. They are sequences of time-stamped drum hit events but they bypass MIDI note mappings, instead triggering BFD3's Drum articulations directly.

It is possible to [record events into Grooves](#) via MIDI note input and [import](#) or [export](#) Grooves as MIDI files or sequences in your host/DAW. Grooves can also be triggered with MIDI notes - each Groove 'slot' within BFD3's Palette can be assigned to a MIDI note for external triggering.

Drum Track

Grooves can be arranged on the the [Drum Track](#) - a simple, single-lane sequencer for Grooves by dragging them from the Palette or directly from the Groove Browser. The Drum Track is activated by setting the **Auto-play mode** accordingly - when active, the Drum Track is automatically synchronized to the BFD3 transport or that of your host/DAW when using the BFD3 plugin.

Groove Editor

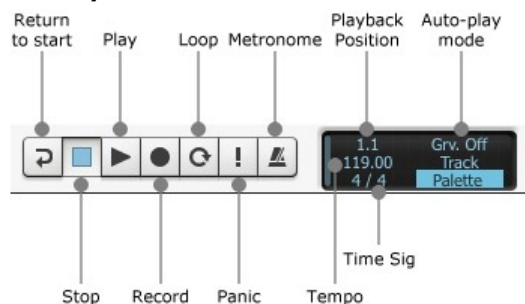
The [Groove Editor](#) provides comprehensive tools for creating and editing Groove events.

Groove FX

The [Groove FX](#) section can apply several non-destructive real-time processes to change the feel of the Groove engine's output in a number of different ways. It is possible to make Grooves sound more 'humanized' or more quantized and 'robotic' while the dynamics, complexity and amount of swing-style syncopation that is applied to Grooves can also be adjusted.

Transport and Auto-play mode

The BFD3 transport is central to most aspects of Groove engine operations. The transport is started by activating the **Play** button.



When using BFD3 as a plugin in a host/DAW, the BFD3 transport is started simultaneously with that of the host. It is also possible to start the BFD3 plugin's transport with the **Play** button while the host is stopped - however, subsequently starting the host transport results in resynchronizing BFD3 to the host.

The transport is used in conjunction with BFD3's **Auto-Play mode** which is located to its right. The Auto-play functions dictate whether to automatically start Groove playback from the Drum Track or the Palette when the transport is started.

The **Auto-play mode** setting is discussed in more detail in the [Palette](#) section later in this chapter and in the [Global controls](#) section in the opening chapter.

The **Stop** button stops the transport. This is possible even when the BFD3 plugin is playing in sync with the host - Groove playback stops while the host keeps playing. If the host is stopped and restarted, Groove playback restarts in sync with the host position. After playback has been stopped in this way when using the Drum Track, if BFD3 is restarted without host sync, playback commences from the position at which playback was previously stopped.

The **Panic** button stops playback of any Grooves that may be currently playing (it also stops any drum sounds and effect tails that may be currently playing).

The **Record**, **Loop** and **Return to start** buttons are used for certain features involved with [recording Grooves](#) and using the [Drum Track](#).

The **Tempo** and **Time signature** indicators display the current tempo and time signature. When running BFD3 as a plugin in a host/DAW that provides tempo and time signature information, these controls are not editable and BFD3 is locked to the host. In other situations, these displays can be manually adjusted: double-click and type a new value. The Tempo can also be adjusted via click/drag up/down.

The **Beat light** indicator flashes on every beat when the Groove engine is playing.

The Playback position indicator displays the current playback position in bars and beats while the transport is started. When using BFD3 in a host, this indicator shows the current song position of the host. When using the standalone application, this indicator can show any of the following:

- The current position in the current Groove when using any **Auto-Play mode** except *Track*
- The current position in the Drum Track when using the *Track Auto-play mode*
- The current position in the Groove when recording events in real time via MIDI

Undo/Redo function



Every operation performed in the Groove page can be reversed by clicking the **Undo** and **Redo** buttons. The multiple-level **Undo** function is very useful as many functions which can drastically change your work are only a click away. Clicking the **Redo** button reverses the last Undo operation.

To view the action that would be undone by clicking the **Undo** button, move the mouse over the button – the last action is shown in the context info display.

Virtually any action can be undone, even loading an entirely new Palette.

While you can set up any number of levels for the multiple-level Undo/Redo in the [Grooves Preferences](#), note that more undo levels use more RAM.

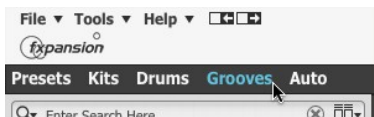
MIDI Out function

In compatible hosts, the output of the BFD3 plugin's Groove engine is available as a MIDI output stream for triggering other instruments on entirely different MIDI tracks.

The only plugin format that supports this feature is VST although not all hosts support MIDI output from plugins.

To use the MIDI output, the **Send MIDI out** setting must be activated in the [Session Preferences](#). By default, MIDI channel 1 is used for transmitted note events. This can be changed using the **MIDI Out channel** setting.

4.1 Grooves Browser



The Grooves Browser is part of the main BFD3 Browser - it is accessed by clicking the **Grooves** tab button at the top of the Browser panel.

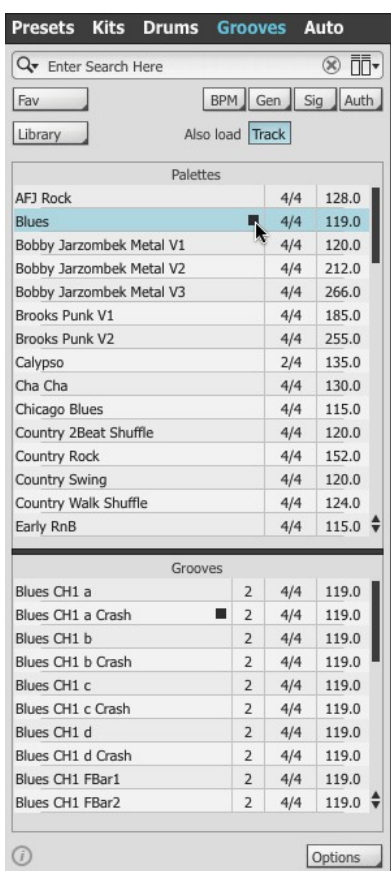
If the Palette is empty or no Groove is selected, a button is also shown in the middle of the screen which opens the Grooves Browser.

To fully utilize Grooves within BFD3, they must be loaded into [Palette](#) slots or directly to the [Drum Track](#) from the Browser.

While it is possible to preview Grooves in sync with the transport and even to export them as MIDI or audio using only the Browser, they must be loaded into the Palette to fully control them, trigger them via MIDI or arrange them within the Drum Track.

The Palette and Drum Track are shown on the same page as the Groove Editor - click the **Groove Editor** button in BFD3's navigation bar to display it. It replaces the Key Map panel or mixer/Kit display/Effects Editor/Drum Editor if they were previously visible.

Selecting and previewing Palettes and Grooves



There are 2 main areas in the Grooves Browser. The upper area displays a listing of all available Palettes. Click a Palette in the listing to display its constituent Grooves in the lower part of the Browser.

Grooves shown in the lower section can be selected in the same way as Palettes.

Information about each Palette or Groove can be seen by clicking the **Info display** button at the lower-left corner of the Grooves Browser.

Previewing Grooves

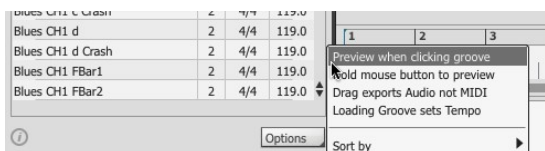
Each Palette and Groove displays an **Audition preview** button with the mouse cursor hovered above it. Click the button to start previewing the Palette or Groove; click it again to stop the preview. If any Grooves are already being previewed (or if there are Grooves already loaded and playing in the Palette), they are muted when using the **Audition preview** function.

When previewing a Palette, playback steps through each of its contained Grooves sequentially.

You can also click another Palette or Groove's **Audition preview** button to preview it instead.

Auditioned grooves play at the current tempo through the Drums currently loaded into BFD3. Note that if the previewed Groove contains events for currently empty Drum slots, they do not produce any sound. If no Drums are loaded at all, previewing the Groove results in silence.

The **Hold mouse button to preview** setting in the **Options menu** results in auditions only playing back while the mouse button is held down on the audition preview buttons.



Automatic previews on selection

Using the **Preview when clicking groove** function in the **Options menu**, Grooves are automatically previewed when selected in the Groove Browser, without having to click its **Audition preview** button.

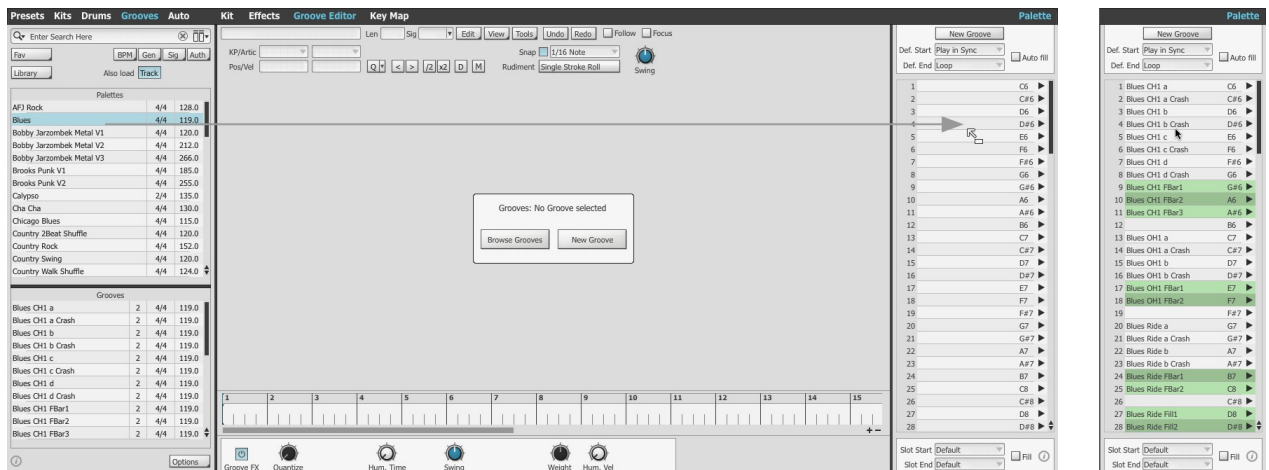
When Palettes are selected, playback steps through each of its constituent Grooves sequentially.

Previewed Grooves are looped and synchronized to your host tempo and transport.

Loading by drag & drop to the Palette

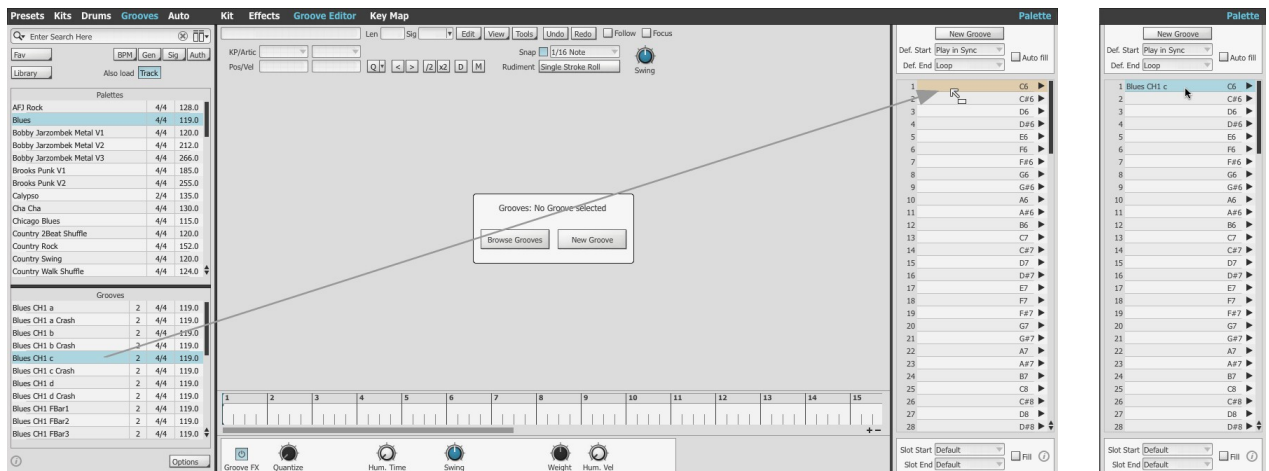
To load Palettes and Grooves into the Palette via drag & drop, the Palette panel at the right of the Groove Editor page must be visible. Click the **Palette** button at the top-right of the Groove Editor page to display it if it is currently hidden.

Palettes



To load a Palette, drag it from the Browser to the Palette at the right of the Groove Editor page. Any previous contents in the Palette and Drum Track are replaced.

Grooves



To load a single Groove, drag it to the desired slot in the Palette. This can also be achieved with multiple selections: the Grooves are assigned to sequential slots starting from the destination. Any previous contents in destination slots are replaced.

The loaded Groove

Using drag and drop to export Grooves directly from the Browser

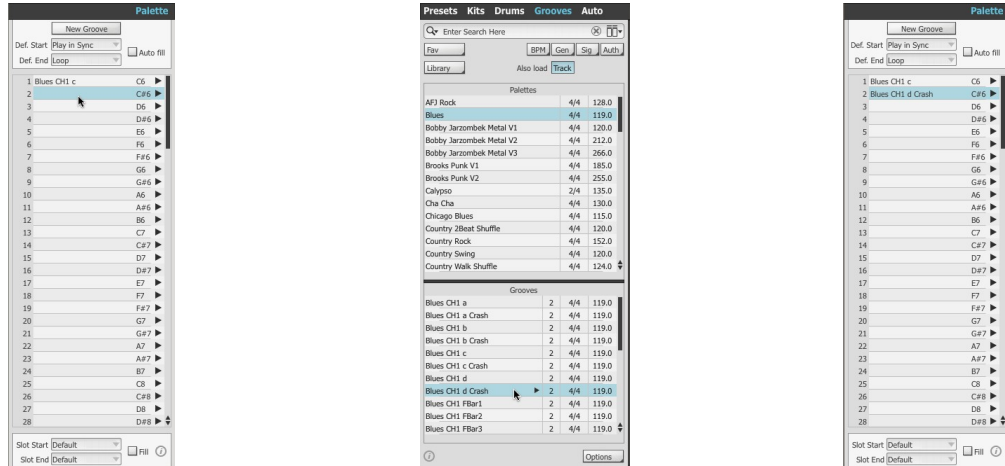
This method can be used to export Grooves or a Palette as MIDI or audio directly to your host/DAW or to an operating system file window or desktop. This function is described [later in this chapter](#).

Loading using double-click

Palettes

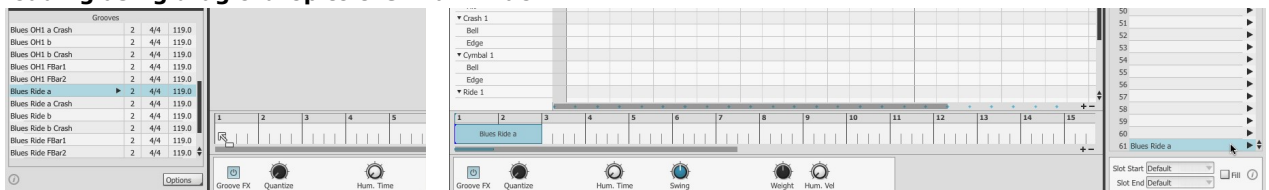
Double-click any Palette to load it (replacing all currently loaded Grooves). Any previous contents within the destination are replaced.

Grooves



- First, click the desired destination Groove slot in the Palette to select it.
- Then, double-click the required Groove in the Browser.
- The Groove is loaded to the selected slot in the Palette.

Loading using drag & drop to the Drum Track



- Grooves or Palettes can be dropped directly from the Browser onto the desired position in the [Drum Track](#).
- The Groove(s)/Palette is also loaded to the next free slot(s) starting from slot 60 in the Palette.

When dragging an entire Palette (or a multiple selection of Grooves) in this way, the Grooves within it are arranged sequentially in the Drum Track.

Loading multiple Grooves

To select multiple Grooves in the listing:

- CTRL-click on a Groove (Windows)
- COMMAND-click (Mac)

Adds the Groove to the current selection. If the Groove is already selected, it is de-selected.

- SHIFT-click

Selects all Grooves between the currently selected Groove and the lowest or highest selected Groove (a contiguous selection).

With the desired Grooves selected, click and drag the selection to the required destination slot in the Palette. The Grooves are loaded into sequential slots starting from the destination slot, overwriting any previous contents of these slots.

A warning is displayed if the end of the Palette is reached and it is not possible to load all the selected Grooves.

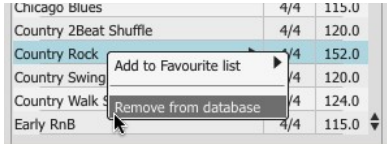
Searching and filtering the Groove library

Using the Search, Filters and Favourites functions in the Grooves Browser involves exactly the same processes as the other Browser tabs - see the [Browser Reference](#) section for a guide to using these functions.

The following Filter categories are available in the Grooves Browser:

- **Favourites:** show only specific Favourites groups
- **Library:** show BFD1, BFD2, BFD3 or other libraries
- **Genre:** filter Grooves by musical genres
- **BPM:** filter Grooves by original tempo range
- **Time signature:** filter Grooves by specific time signatures
- **Author:** filter Grooves by specific authors

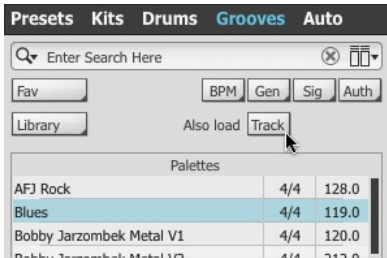
Other Groove Browser functions



Remove from database

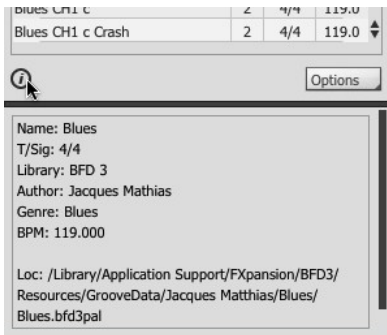
Right-click on any selection of Palettes or Grooves and use the **Remove from database** function to remove it from the Groove Browser listing. Please note that the Palette files are not deleted – these remain on disk. This function is provided to remove unwanted items until the content location which includes them is rescanned.

To remove items permanently, their files must be deleted from disk. The location of each file can be seen using the Info display panel (see below).



Also load: Associated Track

Palette files also store a Drum Track if it existed when the Palette was originally saved. If the **Also load Track** button is deactivated, when a Palette is loaded, the Drum Track is initialized to an empty state.



Info display

Click the **Info display** button at the lower-left of the Grooves Browser to show a panel displaying information about the currently selected Palette or Groove.

The fields that are shown are identical to those in the Palette panel's Info display - see the [next section](#) for details of each field.

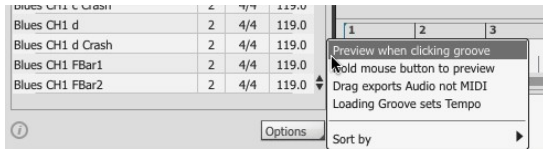
The border between the Info display and the Palette/Groove listing can be clicked and dragged up/down to adjust the visible area of each section.

The Info display panel can be hidden again by clicking the **Info display** button.

Options menu

Preview when clicking Groove

If this setting is activated, Grooves are automatically previewed when selected in the Groove Browser, without its **Audition preview** button needing to be clicked. Previewed Grooves are looped and synchronized to your host tempo and transport.



Sort by

This sub-menu offers 3 sorting options for the Groove Browser display: items can be sorted by **Name**, **BPM** (tempo) or **Time Signature**.

Hold mouse button to preview

This setting changes the behaviour of preview buttons in the Grooves Browser and Palette. With the setting activated, Groove previews play while the mouse button is held down on its preview button. When the setting is deactivated, clicking a preview button starts playing the Groove, and clicking it again stops it.

Drag exports Audio not MIDI

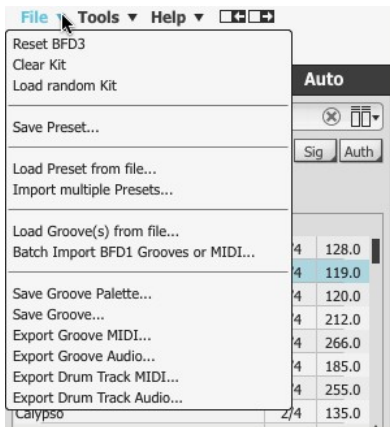
This function relates to exporting Palettes and Grooves directly from the Browser and is identical to that in the Groove Editor's **Tools menu** - see the [Saving and Exporting Grooves](#) section for more details.

Loading Groove sets Tempo

When running BFD3 in standalone mode, activate this setting to set the current tempo to that of a Groove or Palette when it is loaded.

When the setting is disabled, Grooves are always auditioned and loaded at the current tempo.

Additional Groove functions in the BFD3 File menu



Load Groove(s) from file

This function displays a system file open dialog allowing you to browse to and load Palettes or Groove(s) from any location that may not already exist in the database. This may be useful after downloading a Palette made by another user.

For the loaded Palette(s) or Groove(s) to be accessible in the Groove Browser in future, they must be saved after it is loaded into the current session.

If the file type extension is changed to *.MID in the open dialog, this function imports a MIDI file instead, as when using the Import functions described below.

Batch Import BFD1 Grooves or MIDI...

This function is used for converting MIDI files or BFD 1.x Grooves into BFD3 Grooves - see below.

Importing MIDI files and BFD 1.x Grooves

The Groove Browser displays BFD 1.x format Grooves in the Browser if they are found in the scanned content locations. There are several other ways of getting BFD 1.x format Grooves and other MIDI files into BFD3 such using the **File menu** while the Groove Browser is visible.

When they are imported, a [Key Map](#) needs to be consulted in order to determine which MIDI notes to assign to which BFD3 Drum articulations - this is specified using the **Import MIDI Key Map** setting in the Preferences (it can also be set in the MIDI Import panel which appears when using the **File menu** import functions).

See the [Importing MIDI](#) section later in this chapter for more detailed information on these functions.

4.2 Palette



The Palette is central to the Groove engine in BFD3. It represents a 'pool' of the Grooves stored in memory and is composed of 128 individual slots.

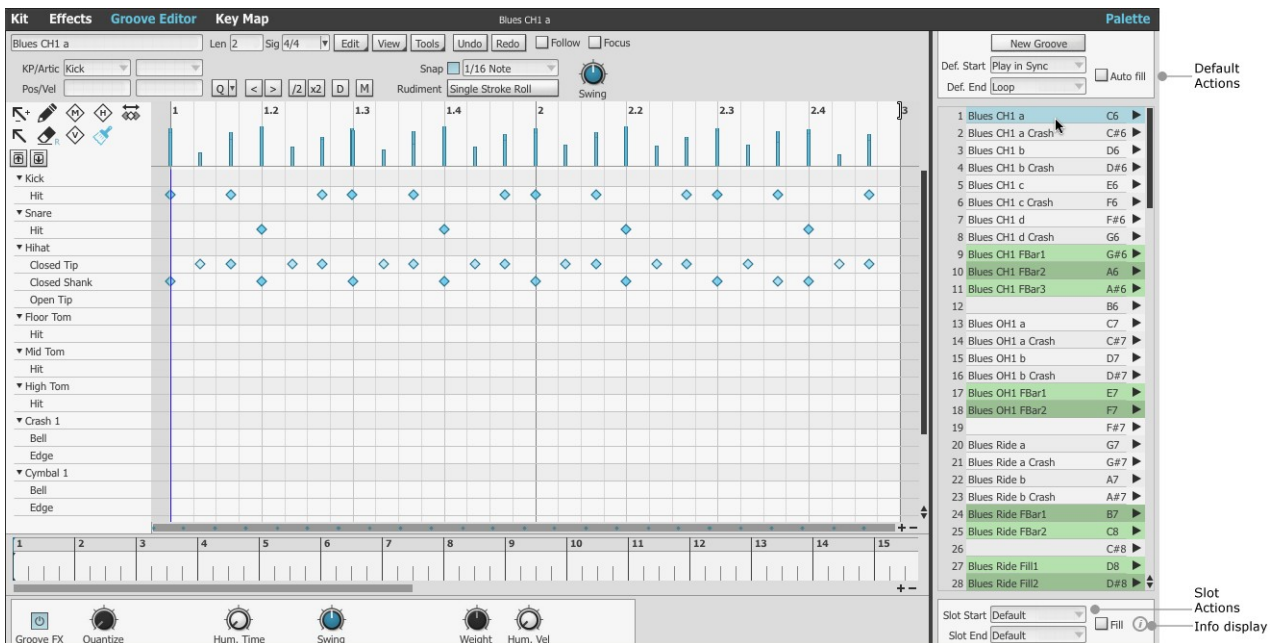
To show the Palette, the Groove Editor must be visible - click the Groove Editor button in BFD3's navigation bar.

To show the Palette if it is currently hidden, click the **Palette** button near the upper-right corner of the BFD3 interface.

Click the **Palette** button again to hide the Palette when required.

Any Groove used in BFD3 must be assigned to a slot in the Palette, regardless of which of the various playback methods are to be used.

Use the scrollbar or mousewheel to access the full range of the 128 slots in the Palette.



Selecting slots

Click a Groove slot to select it. If the slot contains a Groove, it is now shown in the Groove Editor (if visible) and its **Slot Actions** settings are shown below the Palette.

Actions and Fills



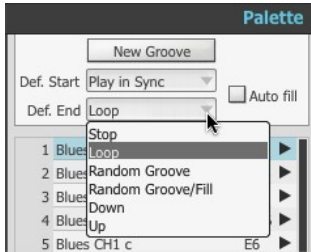
Actions

The Palette area contains 2 sets of controls above and below the list of slots, which let you define Actions, or playback characteristics.

The section above the Groove slots forms the **Default Action** controls while the section below shows the **Slot Actions** for the currently selected slot.

Unless Slot Actions are specified for individual slots, the behaviour of the Grooves in each slot follows the **Default Action** settings.

Note that Actions *do not* apply to Grooves on the [Drum Track](#). Any structuring of Groove playback over time in the Drum Track must be created in the Drum Track itself by arranging Parts within it using drag and drop.



Start Actions

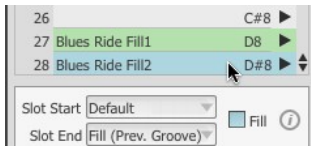
The Start Action defines how a Groove should start playing when triggered.

- *Next Beat*: the new Groove starts on the next beat.
- *Next Bar*: the new Groove starts at the beginning of the next bar.
- *End of Groove*: the new Groove starts at the end of the current Groove.
- *Play in Sync*: the new Groove starts immediately from the position within it that corresponds to the current play position.
- *Immediate*: the new Groove starts immediately from its beginning regardless of the current play position.
- *Default*: this is available for the **Slot Start** Action only and specifies that the slot follows the **Default Start** Action.

End Actions

The End Action specifies what happens after a Groove completes playback.

- *Stop*: the Groove stops (in effect, stopping Groove playback entirely).
- *Loop*: the Groove repeats.
- *Random Groove*: a random Groove in the Palette is played.
- *Random Groove/Fill*: a random Groove or Fill in the Palette is played.
- *Down*: the Groove in the next slot in the Palette is played.
- *Up*: the Groove in the previous slot in the Palette is played.
- *Default*: this is available for the **Slot End** Action only and specifies that the slot follows the **Default End** Action.

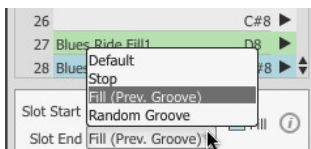


Fill slots and Actions

The Slot Actions section contains the **Fill** setting. If this button is activated, the current Groove slot is designated as a Fill slot and highlighted in green.

Designating a slot as a Fill means that it can be triggered if the *Random Groove/Fill* End Action is specified on another slot (the **Slot End** Action of the Fill slot should typically be set to *Random Groove*), or by the **Auto-Fill** button located in the **Default Actions** section.

When activated, the **Auto-Fill** function plays a Fill slot at random at a definable period (a number of bars defined in the Preferences) during Groove playback.



Fill Slot End Actions

Fill slots feature the following **Slot End** Actions:

- *Stop*: Groove playback is stopped.
- *Fill (Prev Groove)*: the Groove that was previously playing before the Fill is played again.
- *Random Groove*: a random Groove in the Palette is played.

Previewing Grooves



The playback indicators on the right of each slot in the Palette double as **Preview** buttons. Click the button to play the Groove contained within the slot.

Once playback of a Groove has been started, it then follows the behaviour defined by its **Slot Actions** settings. Click another slot's **Preview** button in order to start playing the Groove within it instead. The method of transition is dictated by the **Slot Start** Action setting.



Stopping previews

Each Groove can be stopped by clicking its respective **Preview** button again. You can also use the **Stop** or **Panic** buttons in the Transport to stop playback of all currently playing Grooves.

Preview mouse behaviour

Activating the **Hold mouse button to preview** setting in the **Editor Tools** menu results in previews being active only while the mouse button is held down on a **Preview** button. When the mouse button is released, playback stops.

Playing Grooves

Playing Grooves using Auto-play modes

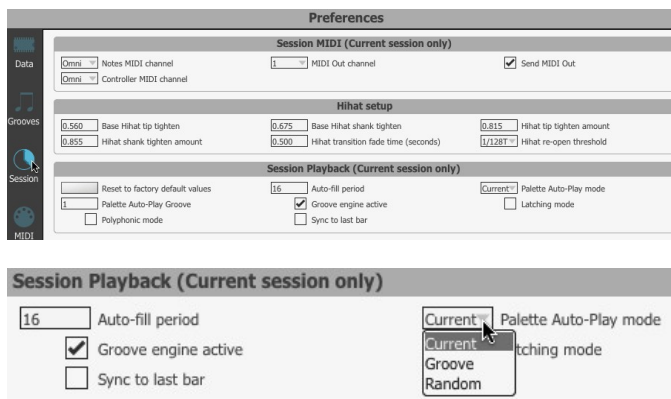
The **Auto-play mode** function is crucial in determining how the Groove engine is used. It has 3 modes:



1. Palette

By default, BFD3 is in the **Palette Auto-play mode**. In this mode, BFD3 plays back Grooves in the Palette when the transport is started.

3 sub-modes exist for this mode, configurable in the [Session Preferences](#) with the **Palette Auto-Play Mode** setting:



Current

When playback is started the currently selected Groove in the Palette is played according to the behaviour defined by Slot Actions.

This is the default sub-mode for the **Palette Auto-Play mode**.

Since the currently selected Groove is also shown in the Groove Editor, this mode is very useful when editing a Groove. Set the Groove's **Slot End** Action to **Loop** so that it keeps looping while you edit.

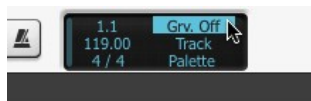
Clicking on another Palette slot that contains a Groove causes it to start playing and stops the original Groove.

Groove

In this sub-mode, you can specify a specific Groove to play when the transport is started. The desired Groove slot is specified via the **Palette Auto-Play Groove** setting in the Session Preferences.

Random

In this sub-mode, a random Groove from the Palette is played when the transport is started.



2. Grv. Off

When the **Auto-Play mode** is set to **Grv. Off**, Grooves are only heard when they are played via MIDI notes, or when the **Preview** buttons are used to start playback.

3. Track

Choosing the **Track Auto-Play mode** allows you to arrange a sequence of Grooves from the Palette within BFD3's [Drum Track](#).

Playing Grooves via MIDI

BFD3's Groove slots can also be mapped to MIDI notes so that they can be played with a keyboard or other controller that sends MIDI notes. Groove slots must be assigned to MIDI keys in BFD3's Key Map panel. The default BFD3 Key Map features MIDI assignments for the first 41 Groove slots.

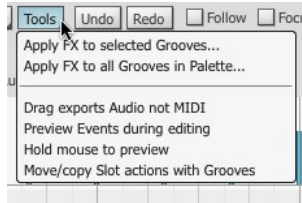
Latching mode

By default, Grooves play while the MIDI note is held down. If the **Latching mode** setting is enabled in the [Grooves Preferences](#), playback of a Groove is toggled on and off when its MIDI note is played. In other words, play a Groove's MIDI note once to start playback - playback then continues as normal according to **End** Actions. Play the same note to stop playback, or use the Stop or Panic buttons in the Transport.

Whichever mode is used, the behaviour when the Groove starts depends on its **Start** Action. In most circumstances you would typically set this to *Play in Sync, Next Bar* or *End of Groove*.

Managing Grooves in the Palette

Moving and copying Grooves



Grooves can be moved and copied around slots using drag and drop - hold down the ALT key while dragging in order to copy a Groove.

When the destination slot which already contains a Groove, the contents of both slots are swapped. When copying, any destination content is overwritten.

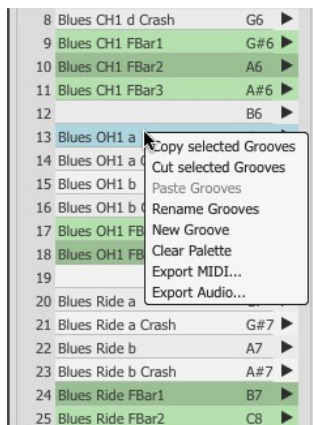
If the **Move/copy slot actions with grooves** setting is enabled in the [Groove Editor Tools menu](#), a Groove slot's **Fill** status and other **Slot Actions** settings are transferred with its contained Groove when it is swapped with or moved/copied to another Palette slot.

Multiple selections

The above processes can be conducted on multiple selections - hold down the CTRL or SHIFT keys when clicking to select slots to create arbitrary or contiguous selections.

When multiple Grooves are moved, they are placed on sequential Groove slots ascending from the slot on which they were dropped. If any other Grooves already exist within this sequence of slots, they are swapped into the original slot of the Groove which replaces it.

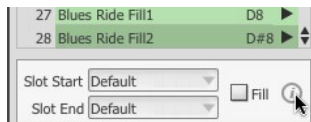
Even if an arbitrary multiple selection is moved or copied (in other words, the selected Grooves are not all in neighbouring slots to each other), the moved or copied Grooves are placed on sequential, neighbouring available slots.



Slot context menu

Right-clicking on any selected Groove slot displays the Slot context menu containing a number of further Groove-based operations. The Slot context menu features a number of functions for managing Grooves in the Palette - as well as **Cut**, **Copy** and **Paste** functions for the selected Grooves, there are functions to create a **New Groove** (if you want to write or record a Groove from scratch in the **Editor**) to clear the contents of the Palette entirely (**Clear Palette**) and to export selected Grooves as MIDI or audio (**Export MIDI.../Export Audio...**).

Info display



The Info display in the Palette allows you to view and edit additional information for Grooves and the entire current Palette.

Palette Info display visibility

Click the **Info display** button to reveal the display at the lower part of the Palette panel. Click the button again to hide it and devote all available space to the Palette.

The border between the Info display and the rest of the Palette can be clicked and dragged up/down to adjust the visible area of each section.



Info display fields

Click the **Groove** button to show the Groove Info display, and the **Palette** button to show the Palette Info display.

Any changes are stored with the Groove or Palette when it is next saved.

If you have assembled your own set of individual Grooves in the Palette (without starting from a loaded factory Palette), the Palette Info display's fields are empty.

Name

The name of the Groove/Palette is shown here and can be edited by clicking the field. If no name has been entered, the filename of the Groove or Palette is shown.

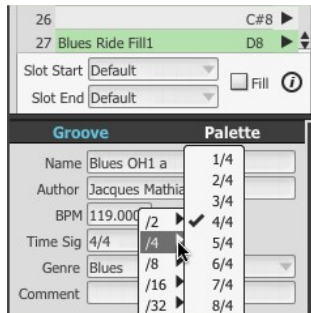
Author

The name of the Groove/Palette author is shown here and can be edited by clicking the field.

BPM

This shows the recommended tempo of the Groove in beats per minute (BPM), and can be edited by clicking the field.

Please note that Grooves are always played back at the current tempo, but this field shows what the author considers is the best tempo for the Groove.



Time Sig

This shows the time signature of the Groove and can be edited using the drop-down menu or by clicking and typing in the field.

It is possible for the current time signature to be different to that of the individual Groove itself. If this is the case part of the Groove may be looped or truncated as necessary to fit the duration of the bar.

Genre

Choose the Genre of the current Groove/Palette using the drop-down menu.

Comment

An additional text field is provided for adding your own notes to the stored information for the Groove/Palette.

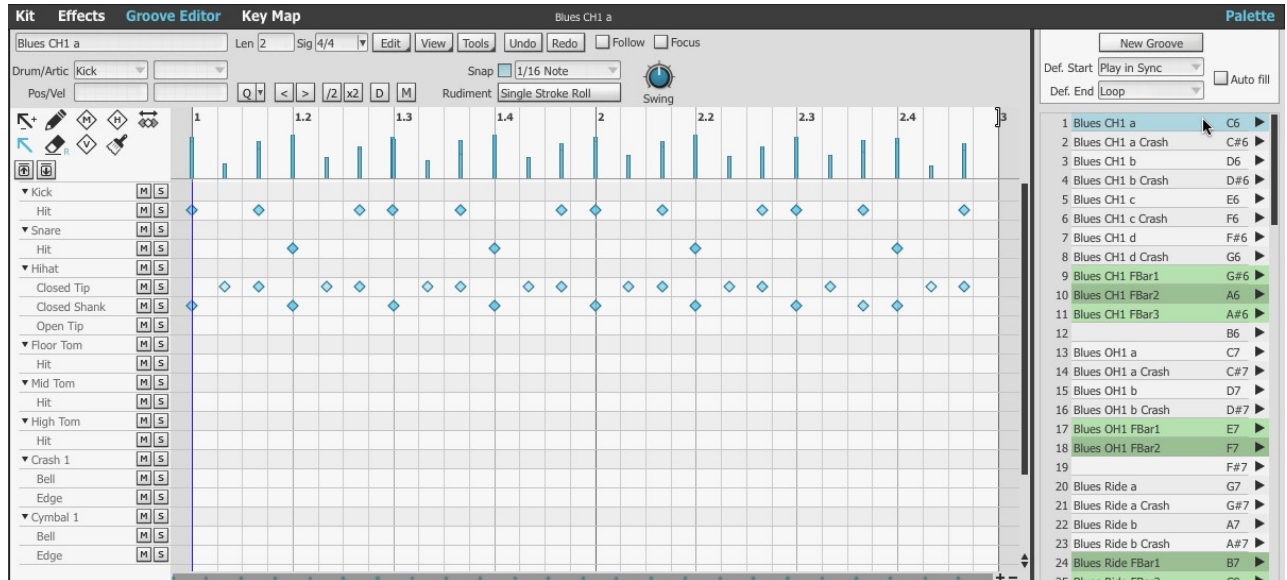
4.3 Groove Editor



Click the **Groove Editor** button in the main BFD3 navigation bar to open the Groove Editor panel. This panel replaces any other controls in BFD3 with the exception of the Browser and the Global controls.

BFD3's Groove Editor is an advanced, fully functional environment for recording, creating and editing events within Grooves. As well as the usual kinds of controls you'd expect for inserting, deleting, moving and copying events, the Editor also features specially designed tools for painting sequences of events in rhythmically meaningful ways.

Using the Editor



Click a Groove in the Palette to display its events in the Editor grid.

To start from scratch and create a new Groove, select a slot in the Palette and click the **New Groove** button, or right-click on a slot and use the **New Groove** function on the slot context menu that appears.

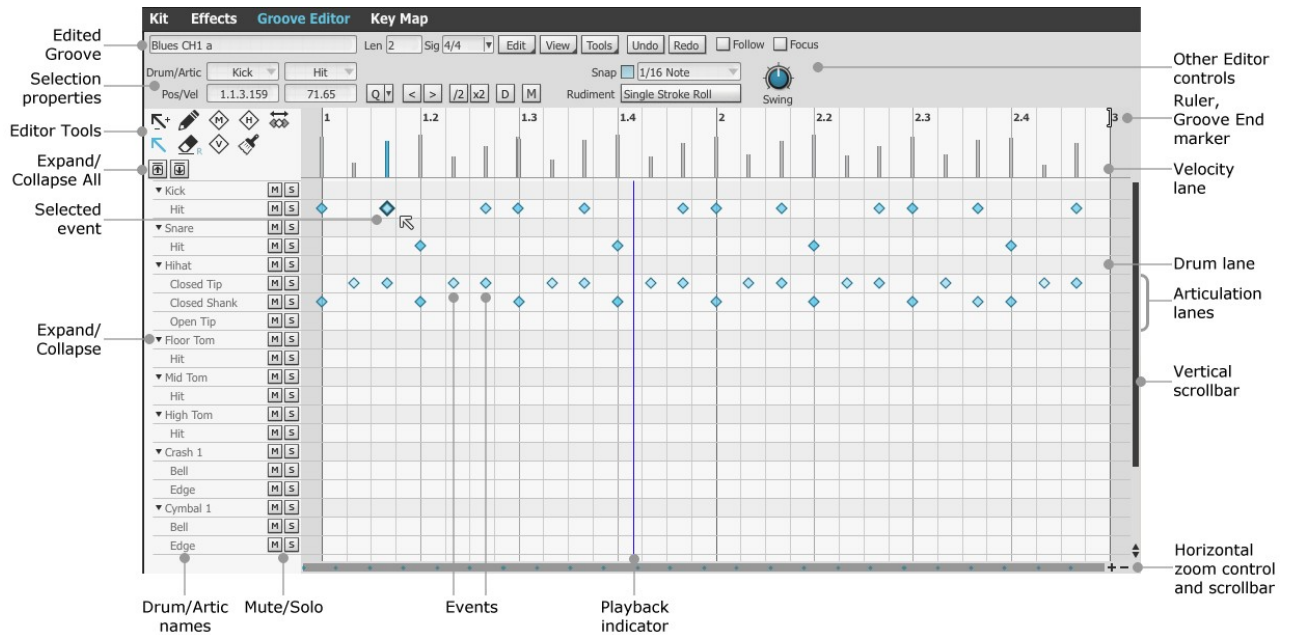
An empty 1-bar Groove is created and shown in the Editor grid.

Playing the currently edited Groove

When using the Editor, it can be useful to set the **Auto-play mode** to *Palette* (using the default *Current* sub-mode in the Preferences). This means that every time the BFD3 transport is started, the currently selected Groove, and therefore the Groove shown in the Editor, is played. To continuously repeat the Groove, set its **End Action** to *Loop*. For a guide to these settings, see the [previous section](#).

It is crucial to be aware of the End Action settings - if the current Groove's End Action is set to play another Groove when it ends, then the next Groove plays while the previous Groove remains displayed in the Editor. If the **Focus** button is activated, the next Groove is shown in the Editor when it starts playing.

Editor Grid



Edited Groove

This field displays the name of the currently edited Groove. The field can be clicked to enter a new name for the Groove.

Drum lanes

Each Drum slot features its own Drum lane in the editor. This lane shows all events for the Drum's articulations in the current Groove.

Events can be created and edited on the Drum lane, but any newly created events are inserted on the first articulation lane. To edit events with full control, you must use individual articulation lanes.

Note: Some Drum lanes may not be visible with certain **View menu** settings - see below.

Articulation lanes

To the left of the Drum lane is its **Expand/Collapse** button. Click the button to expand the kit-piece lane to show each articulation within it as a separate lane. Articulation lanes hold all events for the articulation in the current Groove. These lanes can be collapsed again by clicking the **Expand/Collapse** button.

Click the **Expand/Collapse** button to the left of the Drum lane to display a lane for each articulation within the Drum. These lanes show and allow you to edit events for each individual articulation.

The articulation lanes for a Drum can be collapsed by clicking the Drum's **Expand/Collapse** button again.

ALT-click any kit-piece's **Expand/Collapse** button to expand or collapse all kit-pieces' articulation lanes, or use the **Expand All** or **Collapse All** buttons.

Mute / Solo

Each Drum lane and all its individual articulation lanes feature **Mute** and **Solo** buttons. Mutes override Solos: if a Drum is muted, none of its articulations' events are heard, irrespective of their solo status. These buttons are not shown when using the **Paint tool** as the area of the interface is used for displaying the indicator for the secondary articulation - see the [next section](#) for details.

Events

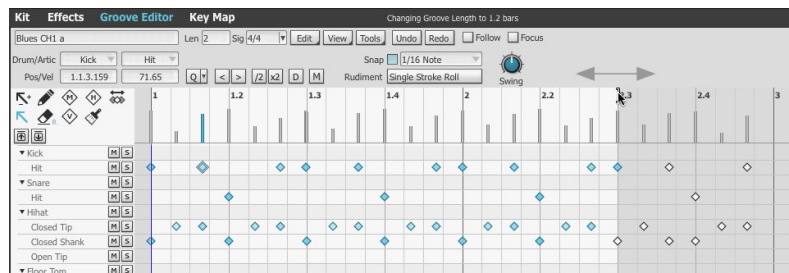
Events are shown as 'diamonds' on each articulation lane that represent one-shot triggers - in other words, they represent the beginning of each event. There is no way of controlling the duration of events – triggered sounds play until they decay naturally.

The length of each event depends upon the triggered articulation itself and any damping and choke settings that may be active. A Drum's Choke articulation also stops any other articulations for the Drum that are playing.

- High velocity events are darker in colour than low velocity events.
- Selected events are shown with an outline.
- Muted events are shown as solid white: these do not produce any sound until they are unmuted again.

Ruler and Groove length

The Ruler at the top of the Editor grid shows a timeline in bars and beats. The end of the Groove is represented by the Groove End marker.

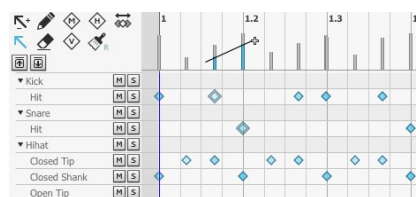


To change the length of a Groove, click and drag the **Groove End marker** left or right. The cursor changes to a horizontal arrow.

Click and drag at the right edge of the Ruler to increase the Groove length beyond the current workspace. It may be necessary to decrease the current zoom level in order to set the desired length more easily.

The **Len (Length)** parameter can also be edited directly to change the Groove's length - see below. The Ruler can also be used for zooming and scrolling - see below.

Velocity lane



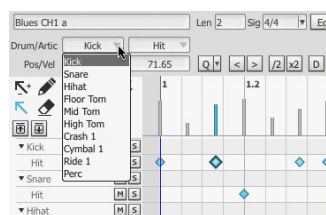
The **Velocity lane** underneath the **Ruler** shows event velocities as vertical stalks, with higher stalks denoting high velocity events, while lower velocity events are represented by shorter stalks.

Draw across the velocity lane in order to 'paint' velocity changes. Hold down the ALT key to shape a series of event velocities with a straight line.

If one or more events are selected, the velocity stalks of selected events are highlighted and using the above editing functions affects only the selection.

The **Velocity tool** can also be used for adjusting event velocities - see the [next section](#).

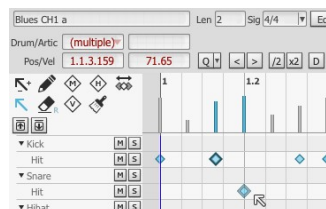
Selection properties



The **Selection properties** area displays and allows you to directly edit a number of properties for the currently selected event(s).

The **Drum/Artic** controls show the Drum and Articulation triggered by the currently selected event. Click the drop-down menus in order to move the event to any other Drum/Articulation.

The **Pos/Vel** controls show the Position and Velocity of the selected event. Click each value to type a new value.



If multiple events are selected, the **Drum** control displays (*multiple*) - the events can still be moved to a new Drum using the drop-down menu. Even if the selection involves multiple articulations from multiple Drums, all events are moved to the same Drum, with articulations matched if possible.

The **Pos/Vel** controls display values for the *primary selection* - by default, it is the first selected event, but clicking any event that is part of a multiple selection results in it becoming the primary selection.

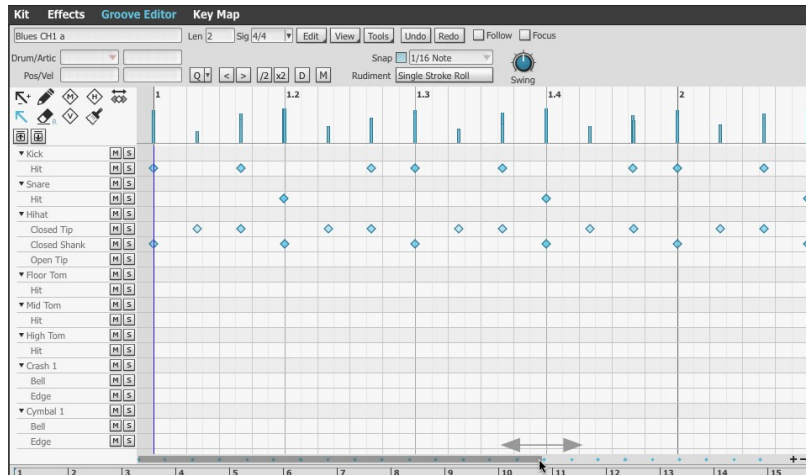
Entering a new **Pos** value adjusts the **Pos** value for all selected events relative to the primary selected event. The primary selected event is moved to the newly-specified position with all other selected events moved by the same amount.

Entering a new **Vel** value results in setting the velocity of all events to this value.

Editor Tools

This set of tools provides features for manipulating events directly on the editor grid using click and drag processes. See the [next section](#) for a full guide to using these tools.

Zoom and scrollbar controls



The **Zoom in/out** buttons at the bottom-right of the Editor grid control the horizontal zoom level.

If the Zoom level results in part of the Groove not being visible in the Editor grid, use the **Horizontal scrollbar** to change the visible area. If there are too many kit-pieces or articulations to be visible at once, use the **Vertical scrollbar** to change the visible area.

You can also use the mousewheel to scroll up and down in the Editor grid. Hold down ALT while using the mousewheel in order to zoom in and out.

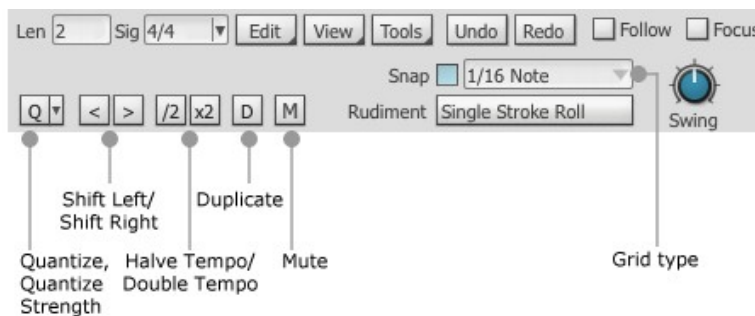
The Ruler can also be used for zooming and scrolling by clicking and dragging:

Click and drag down/up to zoom in/out.

Click and drag left/right to scroll when zoomed in.

The orientation of the zooming and scrolling can be altered in the Preferences, using the **Invert Ruler Zoom Y** and **Invert Ruler Drag X** settings.

Other Editor controls



Len (Length)

The **Len** setting specifies the length of the Groove in bars and beats of the current **Sig** (time signature). Click this value and enter a new numerical value in the form of *bars.beats* in order to change the length of the Groove.

Groove length can also be altered by clicking and dragging the **Groove End marker** in the **Ruler**.

Sig (Time Signature)

This control sets the time signature of the Groove - click the field to type a new value or use the drop-down menu.

Follow

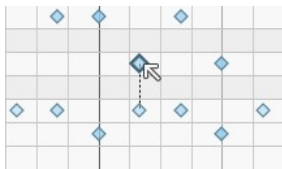
When zoomed into a Groove so that only part of it is visible, enabling the **Follow** function causes the display to scroll and follow the playback position indicator. This function also affects the [Drum Track](#).

Focus

By default, the Editor shows the currently selected Groove. With the **Focus** button enabled, the Editor always shows the currently playing Groove instead.

This means that if, for instance, a Groove's **Slot End** Action setting results in a transition to another Groove, the new Groove is shown in the Editor when the transition takes place.

With this button disabled, the Editor only ever shows the currently selected Groove.



Snap

If this function is activated, event drawing and moving operations are snapped to the currently selected grid resolution and to other events in the Groove.

With the **Show Snap hints** function activated in the **View menu**, a dotted line indicates which other event in the Groove is being used as the snap reference.

Grid Type

This drop-down menu sets the grid resolution for quantizing and snapping. Straight, triplet and dotted note grid resolutions are available.

Swing (Grid Swing)

If a straight grid type is chosen, the Swing control moves every off-beat grid division so that events can be entered at or moved/copied to swung positions when the **Snap** function is enabled or when the **Quantize** function is used.

Rudiment

This function is used in conjunction with the **Paint tool** - see the [next section](#) for details.

Quantize

Clicking this button causes every selected event to be quantized towards the nearest grid division, the extent of which is dictated by the **Quantize strength** setting. The [Groove FX](#) section allows non-destructive quantizing.

Quantize strength

This control sets the amount of **Quantize** that is applied. At 100%, events are fully quantized while at lower values, events are quantized proportionally between the original and ideal quantize position.

Shift Left

Click this button to move every selected event left (earlier in the Groove) by one grid division. Any event moved past the start of the Groove cycles round to the end.

Shift Right

Click this button to move every selected event right (later in the Groove) by one grid division. Any event moved past the end of the Groove cycles round to the start.

/2 (Halve Tempo)

x2 (Double Tempo)

With no events selected, these functions halve or double the tempo between the Groove's events (in other words, the time between them is doubled or halved). With a selection of events, this process is applied only to the selection.

If necessary, the Groove's length is increased to accommodate the new position of the affected events.

The [Groove FX](#) section features non-destructive versions of these functions.

Duplicate

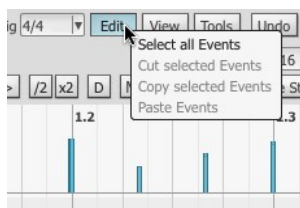
With no events selected, clicking the **Duplicate** button doubles the length of the current Groove and duplicates its contents to fill this extra period.

With a selection of events, the events are duplicated from the start of the next grid division. The length of the Groove is increased if necessary.

Mute

Activating the **Mute** button results in muting the selected event(s). This function can also be achieved using the **Mute tool**.

Edit menu

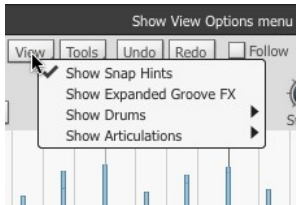


The **Edit menu** provides several selection and editing functions. It is also possible to perform these operations using keyboard shortcuts although many hosts do not allow all keyboard events to get through to BFD3.

As well as commands for **Cut**, **Copy** and **Paste** of selected events, there is also a function to **Select all events** in the current Groove.

When using the **Paste events** function with multiple events, the same rules apply as when using the **Selection properties** controls (see above).

View menu



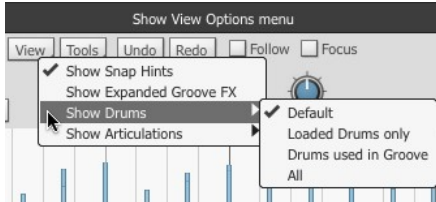
The View menu features a number of settings to customize various aspects of the Editor grid.

Show Snap Hints

As mentioned earlier in this section, the **Show Snap Hints** function, when activated, displays indicators to show when other Groove events are used as a snap reference.

Show expanded Groove FX

This function is discussed in the [Groove FX](#) section later in this chapter.



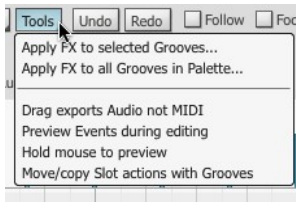
Show Drums

Show Articulations

These sub-menus allow you to customize which Drums and articulations appear as lanes in the Editor grid. The **Drums used in Groove** and **Artics used in Groove** settings result in the fewest possible lanes, although to draw events for an unused Drum or articulation requires you to change to the **Loaded Drums only** or **All** settings.

The **Default** settings for each function are a factory-specified set of lanes.

Tools menu



Apply FX to selected Grooves

Apply FX to all Grooves in Palette

These functions are related to the [Groove FX](#) section.

Drag exports Audio not MIDI

This function relates to [exporting Grooves](#).

Preview events during editing

With this setting enabled, events are heard when being edited in the Groove editor. This occurs during the following operations:

- drawing an event
- selecting an event
- moving an event to a different articulation lane
- changing an event's velocity

Hold mouse button to preview

This setting is identical to that in the Grooves Browser **Options menu** and is discussed in the [previous](#) section.

Move/copy Slot actions with Grooves

This function is discussed in the [previous](#) section.

Keyboard shortcuts

Many Groove Editor functions can be assigned to keyboard shortcuts using the [GUI Preferences](#).

4.3.1 Editor Tools

Using the Editor tools

The [Groove Editor](#) provides a number of editing tools with which to manipulate events within the Editor grid's lanes.

Multi tool



The **Multi tool** is designed to provide the main functions from several editing tools.

Specialized editing tools: Select, Draw, Erase, Mute, Velocity, Humanize, Stretch, Paint

For more detailed editing work and certain functions which are not covered by the **Multi tool**, it may be more convenient to use the other specialized tools.



Dual-button tool operation

When using these individual tools, it is possible to assign a tool to each of the left and right mouse buttons. When using a single-button mouse, [CTRL]-click can be used for right mouse button functionality.

- Left-click on a tool to use it with the left mouse button.
- Right-click on a tool to use with the right mouse button. The current right mouse button tool is highlighted by the small 'R' indicator at the lower-right of the toolbar button.

Since the **Multi tool** itself features dual-button operation, it is not possible to use it in conjunction with other tools in this way.

The currently active tool(s) are retained between sessions – when BFD3 is reinitialized, the tools in use at the end of the previous session are still active.

Hearing events during editing

With the **Preview events during editing** setting enabled in the Groove Editor's **Tools menu**, the relevant articulation is heard when entering, selecting, moving, unmuting and altering the velocity of events.

Multi tool



The **Multi tool** provides functions on the left and right mouse buttons. It combines functions of the **Select tool**, **Erase tool** and **Velocity tool**.

Left mouse button functions

- Click an event to select it.
- Hold down SHIFT while clicking on another event to add it to the current selection. SHIFT-clicking an event which is already selected deselects it.
- Drag the cursor from an empty area on the editor grid to create a selection of any notes enclosed by the resulting selection box. Hold down SHIFT during this operation to add to an existing selection. Any events which are already selected are deselected.
- Clicking an event within a multiple selection changes its status to the primary selection. This means that its position and velocity is shown in the Selection Properties section at the top-left of the Groove Editor page, and any adjustment of these values occurs relative to it (see the last section for more details of the Selection Properties controls).
- Hold down ALT while clicking in an empty part of a lane to draw an event. The position and Drum/articulation of the event can be altered by dragging the event before releasing the mouse button.

Moving selected events

Drag a selection left/right to keep it on the same articulation; drag up/down to move it to other Drum/articulation lanes.

If the **Snap** function is activated, moved events are snapped to the current Grid resolution or to other events in the Groove – at the relevant grid division and at the original position between grid divisions. When this function is disabled, selected events can be freely moved with no snapping.

When events are moved to different sets of articulations or Drums, BFD3 attempts to maintain the arrangement. If the target Drum contains fewer articulations than the original, or if the selection is dropped so that some articulations fall outside the Drum's articulation lanes, the moved events are merged onto the Drum's available lanes.

Copying selected events

Hold down the ALT key while moving a selection in order to copy it.

Right mouse button functions

- Right-click an event to select it.
- Hold down SHIFT while right-clicking on another event to add it to the current selection. SHIFT-clicking an event which is already selected deselects it.
- Right-click and drag the cursor from an empty area on the editor grid to create a selection of any notes enclosed by the resulting selection box. Hold down SHIFT during this operation to add to an existing selection. Any events which are already selected are deselected.
- Right-click and drag up/down on a selection to adjust its velocity.
- Hold down ALT while clicking an event to delete it.

Select tool



The **Select tool** operates identically to the Left mouse button functions in the **Multi tool**. It can, of course, be assigned to the right mouse button when not using the **Multi tool**.

All events in the current Groove can be selected using the **Select all Events** function in the **Edit menu** or a keyboard shortcut if it is defined in the [GUI Preferences](#).

Draw tool



- Click on the grid with the **Draw tool** to create a new event at the cursor position. The velocity of the previous edited event is used. After entering an event, it becomes the current selection.
- If the **Snap** function is enabled, the event's position is snapped to the nearest division at the current grid resolution or to other events in the Groove.
- Drag left/right right before releasing the mouse button to reposition the event in time, snapping to grid divisions and other Groove events.
- Drag up/down before releasing the mouse button to adjust the event's velocity.

Using Select tool processes while the Draw tool is active

- When using the **Draw tool**, existing events can be clicked to select them (and SHIFT-clicked to add to an existing selection).
- While holding down the ALT key, click an empty area of the Editor grid and drag to create a selection of all events enclosed by the resulting selection box.
- Selections can also be moved or copied using drag & drop in the same way as the **Select tool**.

Erase tool



- Click an event or selection of events with the **Erase tool** to erase it.
- Click an empty area of the editor grid and drag to create a selection box: any enclosed events are deleted.

Alternatively, a keyboard shortcut can be set up to erase the current selection when any Editor tool is active.

Mute tool



- Click a selection of events with the **Mute tool** to mute the events. If an event or selection is already muted, click it again to unmute it.
- Click an empty area of the editor grid and drag to create a selection box: any enclosed events are muted.
- Clicking a selection which contains both muted and unmuted events results in their state being inverted.

Velocity tool



- Click an event or selection of events and down and drag up/down to adjust their velocity: drag up to increase the velocity of the events; drag down to decrease it.

The **Velocity tool** can be used on a selection of events to increase their velocities by the same amount. However, trying to adjust values beyond the velocity range results in values being clipped at the minimum or maximum value. Event velocities can also be adjusted using the Velocity lane while any Editor tool is active - this function is described in the previous section.

Using Select tool processes while the Velocity tool is active

- When using the **Velocity tool**, events can be clicked to select them (and SHIFT-clicked to add to an existing selection).
- Click an empty area of the editor grid and drag to create a selection of any events enclosed by the resulting selection box.
- Selections can also be moved or copied using drag & drop in the same way as the **Select tool**.

Humanize tool



The **Humanize tool** creates subtle randomization which approximates the variance in striking intensity and timing that can be displayed by a human drummer.

- Click and drag up/down on an event or selection of events to humanize the velocity of events in the selection.
- Click and drag left/right to humanize the timing of the events in the selection.

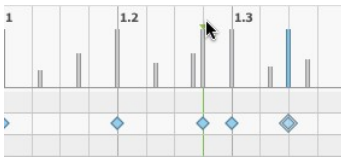
Using Select tool processes while the Humanize tool is active

- When using the **Humanize tool**, events can be clicked to select them (and SHIFT-clicked to add to/remove from an existing selection).
- Click an empty area of the editor grid and drag to create a selection of any events enclosed by the resulting selection box.

Stretch tool



The **Stretch tool** allows you to stretch a selection of events so that they are grouped more closely or further apart.



Before using the Stretch tool, it is usually necessary to click in the Ruler to create Stretch markers. These are used as anchors for the stretching process, and stretching occurs relative to them.

Then, click and drag the first or last event in the selection towards the left or right to compress or stretch the events relative to the Stretch marker(s).

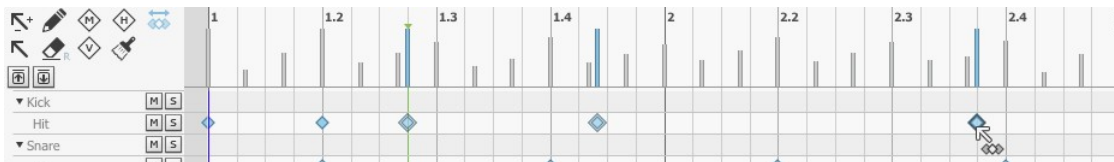
Any events that exist at the exact point of a Stretch marker are not moved during Stretch operations.

If no Stretch markers are created, all stretching occurs relative to the start of the Groove.

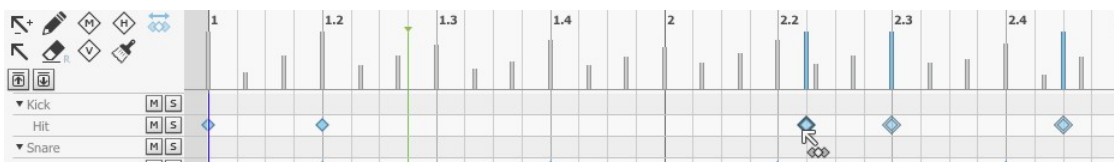
A selection of 3 events could be stretched as follows:



- Click and drag the last note in the above selection to stretch the selection out as follows:



- Click and drag the first event in the above selection to stretch the entire selection relative to the Stretch marker:



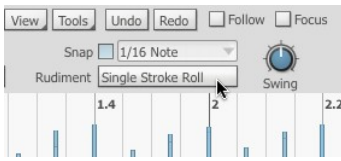
Using Select tool processes while the Stretch tool is active

- When using the **Stretch tool**, events can be clicked to select them (and SHIFT-clicked to add to/remove from an existing selection).
- Click an empty area of the editor grid and drag to create a selection of any events enclosed by the resulting selection box.

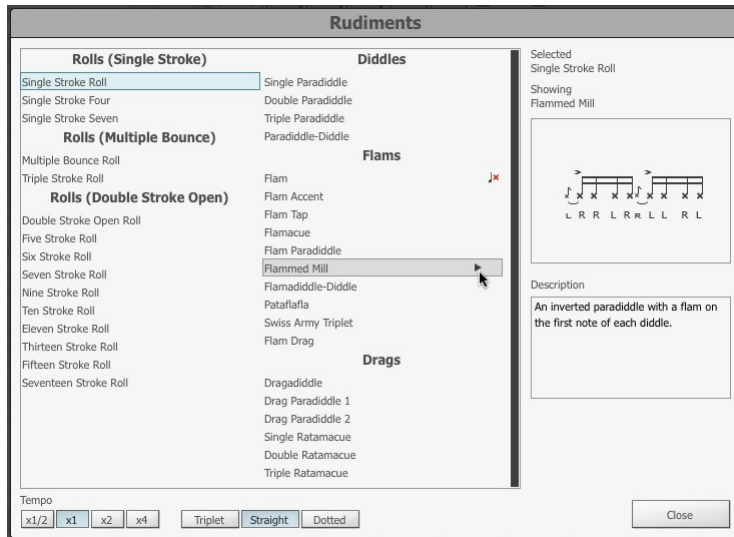
Paint tool



The **Paint tool**, in conjunction with the **Rudiments menu**, offers an easy way to create a rhythmically meaningful series of events in a single action - events are created with velocity and position data to create convincing rhythmic lines like rolls, paradiddles and more.



Click the **Rudiment** button to show the Rudiments menu. This panel allows you to browse and select between various types of drumming pattern to 'paint' onto 1 or 2 lanes in the Editor grid with the **Paint tool**.



Rudiments menu

The Rudiments menu displays a variety of drumming patterns or 'Rudiments' which can be selected to use with the **Paint tool**.

The currently selected Rudiment is highlighted in blue with its name listed under the **Selected** heading on the right side of the panel.

The cursor can be moved over any other Rudiment in order to highlight its **Description** and musical score pattern in the displays on the right, with its name listed under the **Showing** heading.

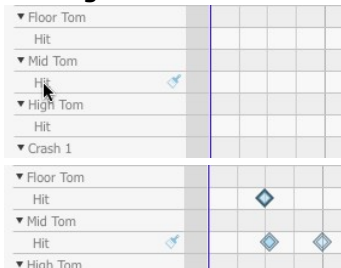
Each Rudiment displays a **Preview** button when it is under the cursor. Click the button to hear a preview of the rudiment pattern with the currently loaded Snare.

The **Tempo** section at the lower part of the Rudiments panel allows you to adjust the rudiment pattern to Half (**x1/2**), Double (**x2**) or Quadruple (**x4**) the timing of the original pattern (**x1**).

This section also selects between **Straight**, **Triplet** and **Dotted** feels.

Click any Rudiment to select it as the current Rudiment, or click the **Close** button to exit the panel without changing the currently selected Rudiment.

Painting with the selected Rudiment



To paint events onto 2 articulations, first right-click on the name of the desired secondary articulation. This allows you to recreate typical left/right hand patterns on 2 Drum articulations. The secondary articulation can be considered as the 'left' hit for a right-handed drummer, or vice-versa.

This function should not be used if you intend to paint onto a single articulation.

Then, simply paint across the lane from the desired starting point for the desired articulation. Events are painted in the selected Rudiment pattern across the articulation lane(s).

After creating the first event, drag up/down to adjust the velocity of the event - all subsequently painted events' velocities are created relative to that of the first event.

The following additional actions are available before releasing the mouse button:

- Drag up/down to increase/decrease the event velocities over the course of the painted sequence.
- Drag up/down while holding down the ALT key to increase/decrease the velocity of each secondary event within the pattern - these events would occur on the secondary articulation if one has been selected previously.

4.4 Groove FX

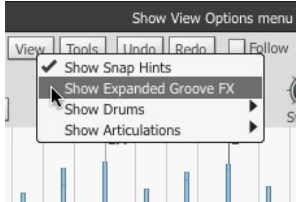
Using the Groove FX section

The **Groove FX** section can apply a number of non-destructive real-time processes to change the feel of the Groove engine's output. As well as making Grooves sound more 'humanized' or more mechanical, you can adjust the dynamics, complexity and amount of swing-style syncopation.



The **Power** button enables or disables the Groove FX section.

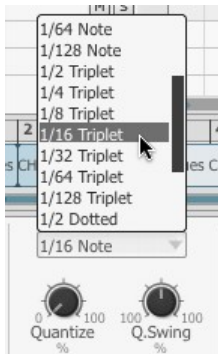
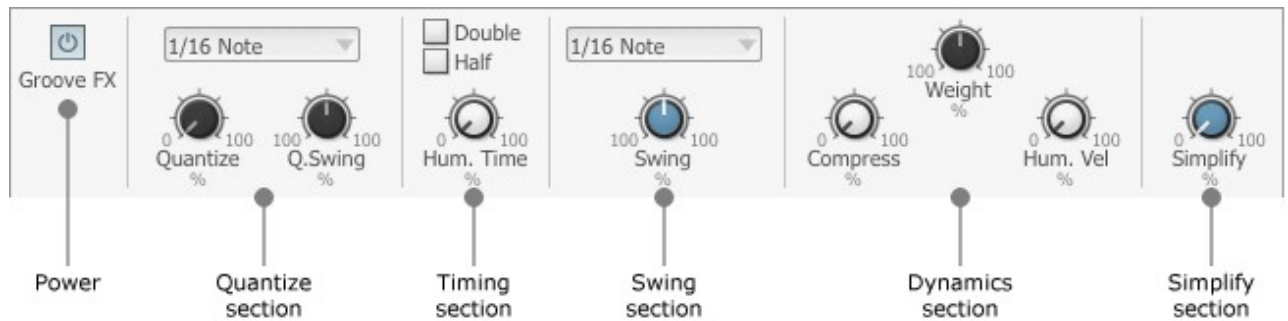
With the **Power** deactivated, Grooves are played exactly as their contents dictate.



Simple and Expanded views

By default the Groove FX section is shown with minimal controls. To display the full set of Groove FX controls, activate the Show Expanded Groove FX setting in the Groove Editor's View menu.

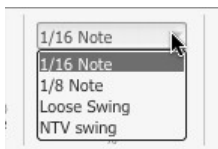
Expanded Groove FX controls



Quantize section

The Quantize section allows you to force events to a timing grid specified by the **Quantize resolution** drop-down menu. The setting of the **Quantize** control dictates how much quantization is applied. With the control turned to the maximum setting, events are fully quantized. Lower settings can tighten the timing of events while leaving some of the original feel intact.

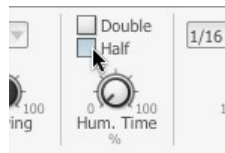
The **Q.Swing** control applies a variable amount of swing to 1/8, 1/16, 1/32, 1/64 and 1/128 settings in the **Quantize resolution** drop-down menu. This control should not be confused with the Swing section elsewhere in the Groove FX.



Swing section

The Swing controls allow you to add classic drum-machine style swing/shuffle to the output of the Groove engine. The **Swing Template** drop-down menu sets the timing grid, while the **Swing** control sets the amount of swing - values higher than the centre position result in swung events occurring later, while values lower than the centre make swung events occur earlier.

When used in conjunction with each other, the Quantize and Swing sections allow you to neutralize the feel of a variety of Grooves and apply a totally different feel to them. Because of the number of variable controls in these two effects, a huge range of different timing feels can be achieved.



Timing section

The **Double** and **Half** buttons simply change the tempo of the Groove engine to double-time or half-time. The **Hum. Time** (Humanize Time) control introduces random variations in timing which approximate the slight fluctuations in timing of a real drummer.

Dynamics section

The **Compress** control reduces the range of dynamic variation of the Groove engine output - as it is increased, the velocity of quieter events is increased. Turning it all the way to the right makes all events play at the maximum velocity, assuming that other Groove FX processes that affect event velocity are inactive. This function should not be confused with an audio compressor - it is instead an event velocity compressor, the effect of which is akin to telling a drummer to use less intense accenting or, at extreme settings, to play every hit at exactly the same intensity.

The **Weight** control allows you to scale up or down the velocity of playing Groove events - this is like asking a drummer to play more softly or harder overall. It is useful as a 'makeup velocity gain' control when used in conjunction with the **Compress** control. The **Weight** parameter works in a similar way to the **Dyn** control in the BFD3 Dashboard although it applies only to the Groove engine. Any triggering of articulations via the Key Map is unaffected.

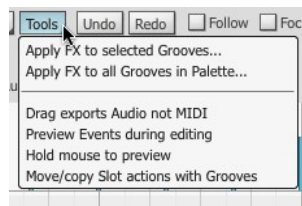
The **Hum. Vel.** (Humanize Velocity) control applies varying degrees of randomization to Groove event velocities - subtle settings recreate the effect of human variance when a real drummer plays.

Simplify section

The **Simplify** control dials in an algorithm that selectively mutes events in terms of 'importance' to the Groove. It could be described as a 'complexity gate', with the control acting as a threshold parameter. It is very useful if you find a Groove to be too 'busy' - for example, with a lot of ghost notes that intrude upon the rest of your song too much.

The function judges events based on their velocity and distance from the current Quantize grid settings. At smaller settings, low velocity events that are a substantial distance from the quantize grid division are muted. As the parameter is increased, more and more events are removed in order to further simplify the Groove.

Applying Groove FX destructively



The Groove Editor's **Tools menu** features 2 functions for applying the current Groove FX settings permanently to Grooves in the Palette.

Apply FX to selected Grooves

This function destructively applies the currently active Groove FX functions to the current selection of Grooves. After the functions have been applied, you are prompted whether the Groove FX section should be powered off. If the Groove FX processes remain active, they continue to be applied in real time to the already processed Grooves.

Any randomization-based functions are, of course, entirely random - if the end result is undesirable, use the **Undo** function and try again.

Apply FX to all Grooves in Palette

This function is similar to the above, except all the Grooves in the Palette are destructively processed with the current Groove FX settings.

4.5 Drum Track

The Drum Track is a simple single-track arrangement tool for Grooves in the Palette.

This feature is particularly useful if you use the standalone version of BFD3 as a live drum accompaniment tool – you can put together a whole song's drum arrangement with as many changes as you like, manipulating each part in the [Editor](#).

The state of the Drum Track is saved with Palettes and BFD3 Presets, making it easy to quickly load up a whole song's worth of drums in new projects.

Another useful feature of the Drum Track is the built-in offline [export functions](#) allowing you to export the entire track as a multi-channel bounce faster than real time.



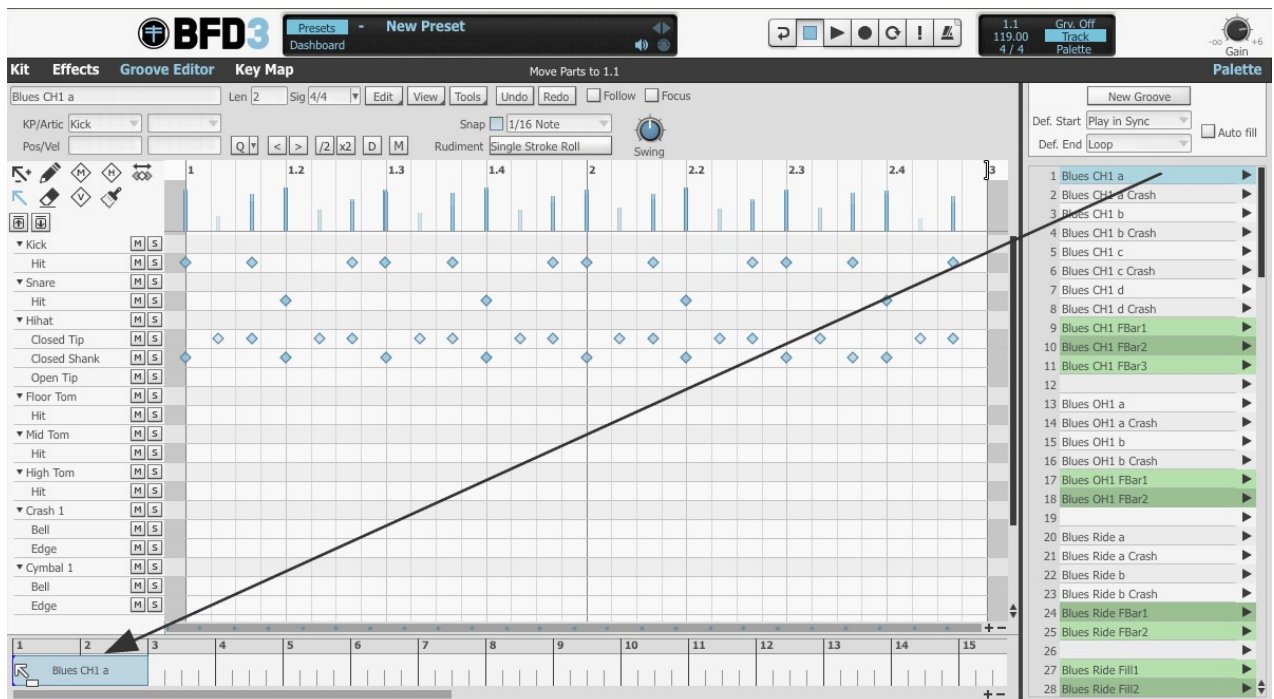
Enabling the Drum Track

To enable the Drum Track, the **Auto-play mode** must be set to **Track**.

Adding Grooves to the Drum Track

Adding Grooves to the Palette is as simple as dragging them to the desired position either from the [Palette](#) or directly from the [Groove Browser](#). When dragging Grooves from the Browser, they are added not only to the Drum Track but also to the Palette. Grooves in the Drum Track are called *Parts*.

If the **Auto-play mode** is not yet set to *Track*, it is set automatically when a Part is added.



Parts

Once a Groove has been dropped onto the Drum Track, it is referred to as a *Part*. It is important to remember several facts about Parts in the Drum Track:

- *Drum Track parts reference Palette Groove slots*

Parts on the Track are actually instructions to play a Groove from the current palette.

If you attempt to clear a Palette Groove which is used in a Drum Track Part, the Part is also cleared from the Drum Track. You are prompted for confirmation before proceeding.

- *Default and Slot Groove Actions are ignored*

Parts on the Drum Track do not follow the Default and Slot Groove Actions of their original Grooves. Any structuring of Parts over time must be explicitly created in the track itself.

- *Only one Part can be played on the Drum Track at any one time*

The Drum Track has a single 'layer' – it does not permit any type of layering of multiple Parts on top of each other. Only one Part can be playing on the Drum Track at once.

Drum Track synchronization

Playback follows the host tempo and time signature if you are running BFD3 as a plugin within a host, and synchronizes to its the host playback position when the host transport is running.

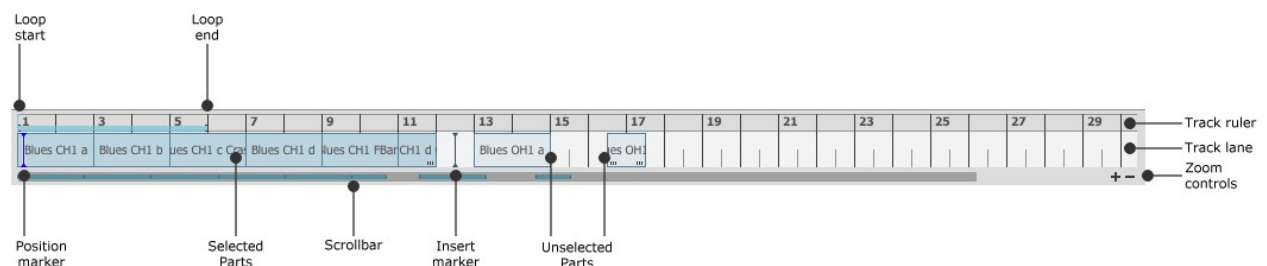
If you are using the standalone version of BFD3, or if the host transport is stopped, BFD3's internal transport can be used.

It is not possible to create tempo or time signature changes in the BFD3 Drum Track. If you need such functionality, you must use a host that is capable of this.

The Drum Track can, however, follow host tempo changes. It also tracks host time signature changes, but does not represent them graphically.

If you use tempo and time signature changes, it is recommended that you sequence BFD3's sounds entirely from a suitable DAW.

Drum Track interface



Track ruler and Track lane

The **Track ruler** represents the Drum Track timeline in bars and beats. Grooves are added as *Parts* into the **Track lane** using drag & drop from the Palette or the Groove Browser. Only one Part can play on the Track at any one time.

Markers

Position marker

The **Position marker** indicates the current playback position when the Drum Track is playing.

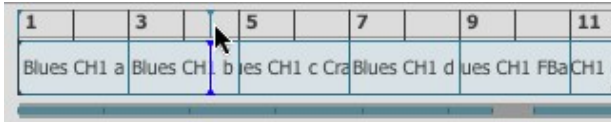
Click in the **Track ruler** (outside any loop indicator) to set the blue position marker – if the Drum Track is currently playing, the playback position immediately moves to this new position. This also results in disconnecting host sync when playing in sync with the host/DAW while running BFD3 as a plugin.

Insert marker

The **Insert marker** indicates the insertion point when adding a part to the Drum Track and when moving or copying parts within it. It also specifies the point at which part split operations occur.

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

Start marker



When in standalone mode or when the host transport is stopped, the white **Start marker** specifies the point at which playback starts. By default, the Start marker is set at the start of the Drum Track.

To set the **Start marker**, ALT-click at the desired point in the Track ruler.

If the **Position marker** has passed the **Start marker**, clicking the Return to start button causes the playback position to return to the position specified by the Start marker.

If the **Position marker** has not yet reached the **Start marker**, clicking the **Return to start** button causes the playback position to return to the start of the Drum Track.

The **Return to start** button can be used during playback - the playback position shifts immediately to the **Start marker** point with playback continuing. If this is performed while running BFD3 as a plugin in a host/DAW, the same behaviour occurs but synchronization with the host is disconnected.

Loop start and end markers (Looped playback only)

When the **Loop** button is enabled on the BFD3 Transport, the **Loop start** and **Loop end** marker appear on the Drum Track ruler. When the position marker reaches the Loop end marker, playback loops back to the position specified by the **Loop start** marker.

Click and drag the **Loop start** and **Loop end** markers by clicking and dragging them left/right along the **Track ruler**.

Both the loop start and end markers can be moved simultaneously by click-dragging the red area in the ruler between the markers.

Zoom controls and scrollbar



The **Zoom in/out** buttons at the bottom-right of the Drum Track display control the horizontal zoom level of the Drum Track ruler. If the zoom level results in part of the Drum Track not being visible, use the **Scrollbar** to change the visible area.



The right or left edge of the **Scrollbar** can also be dragged left/right to change the zoom level. An overview representation of the Drum Track's Part arrangement is shown within the **Scrollbar**.

It is also possible to use your mousewheel to change the zoom level - hold down ALT while scrolling.

Editor controls relating to the Drum Track

The following buttons are located above the [Groove Editor](#) grid and also affect aspects of the Groove Editor's behaviour.

Focus

With the **Focus** button activated, the Editor shows the Groove that is currently playing in the Drum Track. With the button deactivated, the Editor always shows the selected Groove in the Palette.

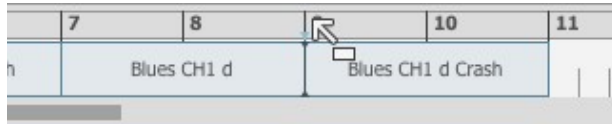
Follow

When zoomed into the Drum Track so that only part of it is visible, activating the **Follow** button causes the display to scroll, following the playback position indicator.

Working with the Drum Track

Adding Parts to the Track

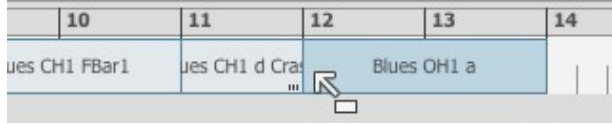
Adding a part between 2 other parts



To add a part between 2 other parts, drag and drop the part from the Palette or Browser to the Track ruler.

This technique also applies when moving or copying Parts within the Drum Track (see below).

Adding a part over another



Drag and drop a part over an existing Part to replace it.

Existing Parts are shortened if they are only partially replaced by the new Part - note the truncation indicator at the lower-right of the Part.

This behaviour also applies when moving or copying Parts within the Drum Track (see below).

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.

Any currently selected Parts are highlighted.

You can also multiple-select parts in the following ways:

- CTRL-click on a Part (Windows)
- CMD-click on a Part (Mac)

Adds the Part to the current selection. If the Part is already selected, this process de-selects it.

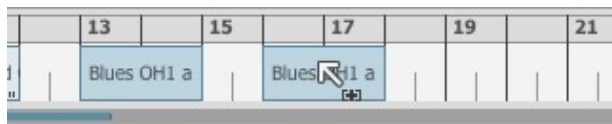
- SHIFT-click on a Part

Creates a contiguous selection between two Parts.

Moving and copying Parts



Click a Part (or selection of Parts) and drag it left/right to move it within the Track lane.



Hold down ALT during the drag & drop operation to copy the Part(s).

Parts can also be dropped between or over existing Parts in the same way as the operations described above to add Parts.

Changing the size of Parts

It is possible to change the length of a Part by clicking and dragging its left and right edges. Any truncation is reflected in the Groove Editor display - any truncated areas are greyed out on the Editor grid.

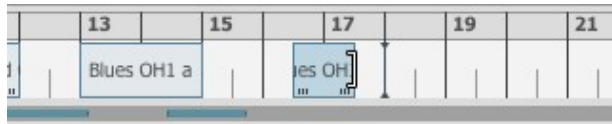
Changing the size of Parts



Click and drag its left edge to the right in order to shorten a Part, changing its start point.

Drag the edge towards the left to lengthen an existing shortened Part.

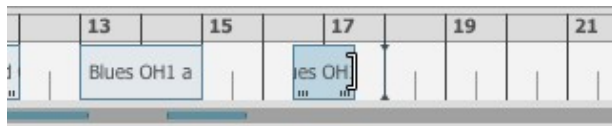
Note the truncation indicator at the lower-left of the Part.



Click and drag the right edge to the left in order to shorten a Part, changing its end point.

Drag the edge towards the right to lengthen an existing shortened Part.

Note the truncation indicator at the lower-right of the Part.



Click and drag the right edge to the left in order to shorten a Part, changing its end point.

Drag the edge towards the right to lengthen an existing shortened Part.

Note the truncation indicator at the lower-right of the Part.

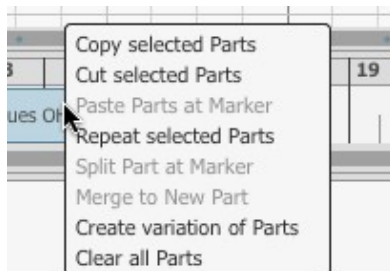


Parts can also be made longer, in which case they loop throughout the duration of the Part.

If the lengthened Part begins/ends after or before the actual start/end of the Groove, truncation indicators are shown as above.

Part context menu

Right-clicking on the Drum Track displays a menu with several additional functions for manipulating Parts. The functions available depend on whether an empty area of the track or a selection of Parts is under the cursor when invoking the menu.



Cut, Copy, Paste and Split Parts

The **Paste at marker** function inserts Parts stored in the clipboard as a result of using the **Cut Selected Parts** and **Copy Selected Parts** functions. The Parts are inserted sequentially from the **Insert marker** in their original order. Their relative positions when they were originally Cut or Copied are not retained.

If you right-click on a part, you can split the part at the position marker with the **Split Part at marker** function.

When a part is split, the first of the resulting two Parts shows an truncation indicator at its lower-right to show that it has been shortened.

The second of the resulting Parts shows a truncation indicator at its lower-left to show that its start point has been moved later than the actual start of Groove.

Clear All Parts

The **Clear All Parts** function clears the current contents of the Drum Track. The Grooves in the Palette remain unchanged. You are prompted for confirmation before proceeding.

Create variation of Parts

This function creates duplicates of Grooves in the Palette based on the currently selected Drum Track Parts, and changes the selected Parts to reference the duplicated Grooves.

The duplicated Grooves are created sequentially in the next available Palette slots higher than the original Groove.

If multiple selected Parts reference the same original Groove, only 1 duplicate Groove is created and all relevant parts are changed to reference this Groove.

This functionality is intended to make the creation of variations easier by avoiding the need to delete Parts and drag new Grooves back into the Drum Track to replace them.

After performing this operation, simply edit the duplicated Grooves as desired to create the variations you need.

Repeat selected parts

When one or more Grooves are selected, performing this operation results in inserting copies of the selected Parts immediately after the selection.

If there is an insufficient gap to accommodate the copied Parts between the last selected Part and any subsequent Parts, all Parts after the selection are moved back by the length of the Groove selection.

Saving and loading Drum Track contents

The contents of the Drum Track cannot be saved in isolation since they are dependent on Grooves in the Palette. Therefore, the Drum track can only be saved and loaded along with the Palette. It is also possible to export the contents of the Drum Track as MIDI or audio.

See the [Saving and Exporting Grooves](#) section for more details of these functions.

4.6 Recording Grooves with MIDI

BFD3 provides the ability to record Groove events into a new or existing Groove using MIDI input in real time.

All recording occurs into the currently selected Groove within the Palette. It is not possible to record directly onto the Drum Track.

MIDI Key Map assignments

While BFD3's Groove engine does not require any MIDI note mappings in order to play back events, a Key Map must be set up for Drum articulation events to be recorded into Grooves via MIDI.

Note that even if an articulation is mapped to more than one MIDI key, all its recorded events are represented on a single articulation lane.

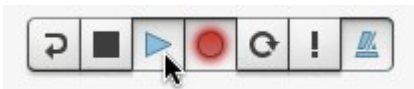
Likewise, if any MIDI notes containing multiple articulation mappings are recorded, each articulation is recorded to its specific articulation lane.

Initiating recording

- To begin the recording process, select a Groove in the Palette, or create a new Groove and set it to the desired length.



- To arm MIDI recording, click the **Record** button on the BFD3 transport. The record function is now ready to start recording when the transport is started. To hear a click, ensure the **Metronome** button is activated.



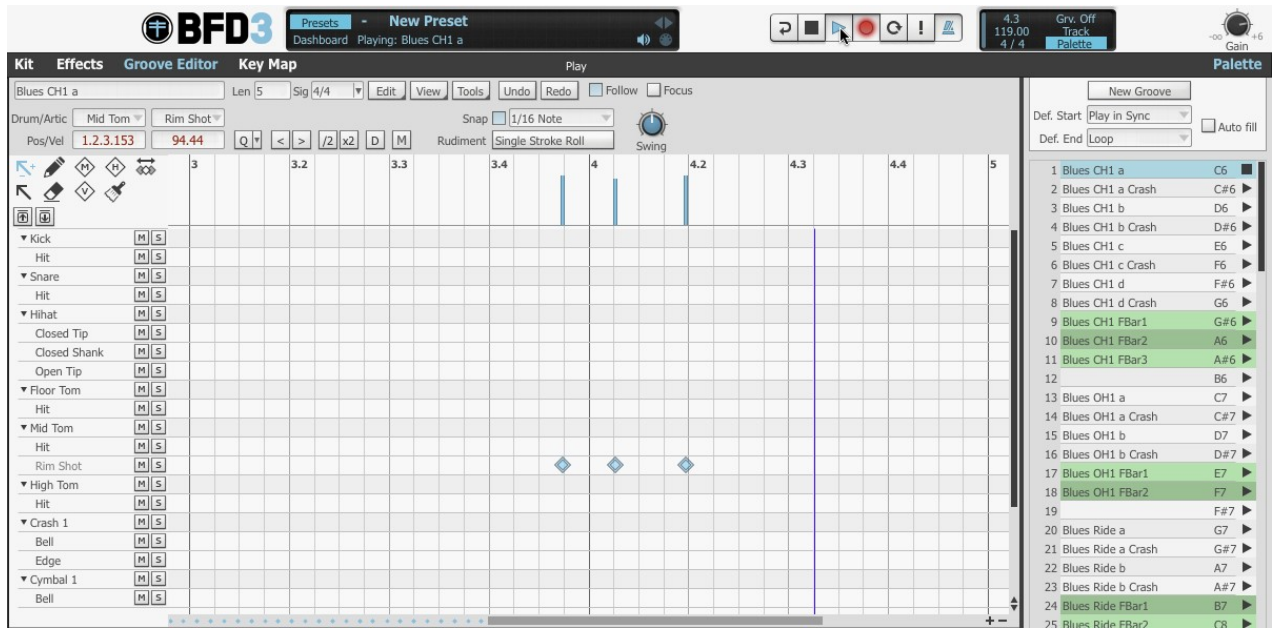
- Press the **Play** button on the BFD3 transport to start recording in standalone mode, or when running in a host/DAW if you'd like to record without the host playing in sync.
- In order to record while the host plays in sync, press play in your host – BFD3's transport starts when the host transport is started.

- Whichever of the above methods you use to start the transport when it is record-armed, the **Record** button starts flashing and enters recording mode - any MIDI notes received are recorded as events for articulations to which the notes are mapped.

Recording modes

Default recording mode

By default, when the position reaches the end of the defined Groove length, recording continues, with the length of the Groove increasing, until the **Stop** button is pressed. When recording is stopped, the Groove length is set automatically to accommodate the recorded events.



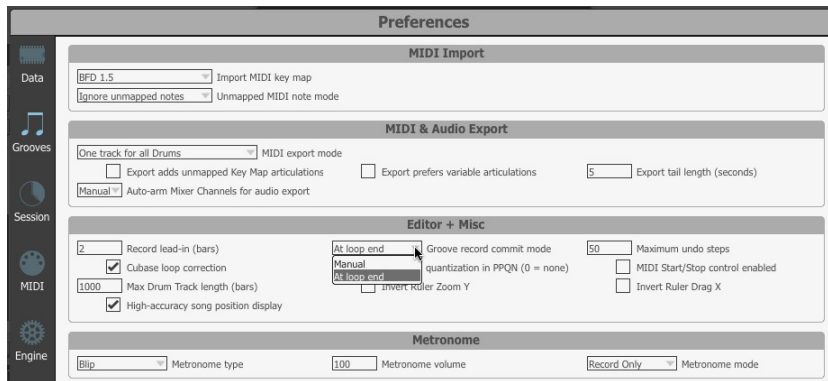
Loop record mode



Activate the **Loop** button on BFD3's transport to record in loop mode. This means that when the defined end of the Groove is reached, the record position returns to the start of the Groove. Therefore elements can be overdubbed until the transport is stopped.

Loop commit record mode

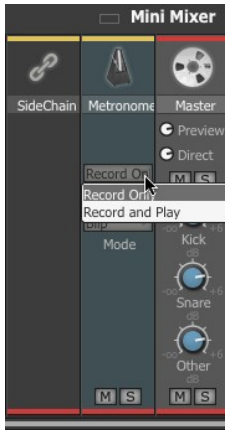
Normally, clicking **Undo** after stopping recording would undo all events recorded during that take. However, if the **Groove commit record mode** setting in the [Grooves Preferences](#) is set to *At loop end*, the events recorded on each loop cycle are stored as a separate **Undo** step.



After recording, the **Undo** button can be used repeatedly to regressively undo the events recorded during each loop cycle in the take.

The **Undo** button can even be used without leaving record mode. Try assigning the **Undo** button to a suitable MIDI note in the automation map.

Metronome button



When the **Metronome** button in the transport is activated, a click is heard on every beat when recording.

The Metronome channel in the BFD3 mixer allows you to adjust the level of the metronome. Using the [Tweaks channel mode](#) further settings for the metronome can be adjusted. These settings are also available in the [Grooves Preferences](#).

Type

Click the **Type** setting to display a drop-down menu allowing you to select between a number of available metronome sounds.

Mode

The **Mode** setting can be switched so that the metronome is heard in either of the following transport situations: *Record only* and *Record and Play*.

Record lead-in

A lead-in time, in bars, can be set for recording. The number of bars is defined with the **Record lead-in** setting the [Grooves Preferences](#) - the default setting is 2 bars.

If the **Metronome** button is enabled, it is heard during the lead-in period.

4.7 Saving and Exporting Grooves

Overview

Saving Grooves and Palettes

The currently selected Groove or the entire Palette can be saved using the **Save Groove** and **Save Groove Palette** functions in the BFD3 [File menu](#). Grooves are stored in BFD3's own format - they are not MIDI files. To create MIDI files from Grooves, it is necessary to use the Export features.

Exporting Grooves and the Drum Track

The **File menu** contains the **Export Groove MIDI**, **Export Groove audio**, **Export drum track MIDI** and **Export drum track audio** functions.

Exporting Grooves using drag & drop

Grooves can also be exported via drag & drop, either to MIDI or audio tracks in your host/DAW or to an OS file window as MIDI or audio files.

Grooves can be dragged from [Palette](#) slots, or entire Palettes and Grooves can be dragged directly from the [Grooves Browser](#).

If the **Groove drags Audio not MIDI** setting is activated (in the [Groove Editor Tools menu](#) or the [Grooves Browser Options menu](#)), all drag and drop exports occur as audio rather than MIDI.

Saving Grooves and Palettes

To save an individual Groove, use the **Save Groove...** function in BFD3's **File menu** while the desired Groove is selected or, to save the current Palette, use the **Save Palette** function.

This function opens a system file save dialog prompting for a location and filename.

It is recommended to use the default location - **<user location>/Grooves** - so that it remains accessible from the Grooves Browser after [rescanning content locations](#). Subfolders within this folder can also be used. Wherever a Groove or Palette is saved, it is added to the current BFD3 database.

The information specified in the Groove/Palette Info display is saved with Palettes. Additionally, the Library field of saved Grooves/Palettes is set to *User*.

Naming the saved Groove or Palette file

The current name of the Groove or Palette, as defined in the Groove/Palette Info display, is the default filename shown when saving. Type a different filename if required and then hit ENTER or click the **Save** button in order to save the file. If a new filename is specified, you are prompted whether the name stored in the Groove or Palette Name field should also be changed.

The Name field is used to label the Groove/Palette in BFD3's database, so setting the Name properly is important for locating the item in future.

BFD3 Groove format

When a Groove is saved in this way, it is stored in BFD3's proprietary Groove format - this is not a MIDI file. The reason for this is that Grooves contain events related directly to BFD3's articulations, meaning that accurate playback is not dependent on a corresponding MIDI Key Map.

To save a Groove as a MIDI file, the **Export Groove MIDI** function should be used.

BFD3 Palette format

When a Palette is saved, the entire state of the Groove page is saved with it. In other words, it contains the following:

- constituent Grooves
- the currently selected Groove
- settings for Default and individual Slot Groove Actions
- Groove FX settings
- settings in the Groove Editor (such as grid swing, view settings etc)
- Auto-Play settings
- the contents of the Drum Track

When reloaded, a Palette overwrites all current settings in the Groove engine.

If the Palette is intended for a certain Kit, mixer and Key Map setup, it is recommended that a BFD3 Preset is saved for easy recall - this saves the entire state of BFD3 to one file.

Exporting Grooves as MIDI

Exporting Grooves as MIDI using drag & drop

Single Grooves or multiple selections can be exported via drag and drop, either to a MIDI file or to a MIDI or audio instrument track in your host sequencer. As mentioned earlier, the **Groove drags Audio not MIDI** setting must be *deactivated* for this to occur.

To initiate a drag & drop export, select either:

- 1 or more Grooves in the Palette and drag them outside the BFD3 window
- 1 or more Grooves or Palettes from the Grooves Browser and drag them outside the BFD3 window

Then proceed as follows:

Exporting to MIDI file

If the selection is dropped onto a suitable save location – in other words, the desktop or a folder shown in a system file browser window – the Grooves are saved as individual MIDI files at the destination.

Exporting to host MIDI track

If the Groove selection is dropped onto a MIDI or audio instrument track in your host sequencer while running BFD3 as a plugin, each Groove is created as a MIDI part sequentially from the point at which they are dropped.

This functionality depends upon the host's level of support for MIDI file import via drag & drop. Some hosts may support drag & drop of single files but not multiple files, and others may not support drag & drop at all. Please consult your host's documentation or technical support services to determine how it reacts to drag & drop of MIDI files.

Exporting Grooves as MIDI using the File menu

The BFD3 **File menu** also provides the **Export Groove MIDI...** function, which displays a system file save dialog prompting for the location to which to export the current selection of Grooves as individual MIDI files.

The name of each Groove is used as the filename (along with a .mid extension).

Exporting the Drum track as MIDI

The entire [Drum Track](#) can be exported as a MIDI file using the **Export Drum Track MIDI...** function in the **File menu** menu.

A system file save dialog is displayed, prompting for a filename for the saved MIDI file (which is also saved with a .mid extension). If required, navigate to a different location before typing a filename, and then hit ENTER or click **Save**.

MIDI Export settings

The current MIDI Key Map is used for mapping Drum articulation events to MIDI notes when exporting Grooves or the Drum Track. If an articulation is mapped to more than one key, the lowest key to which it is mapped is used for its MIDI events in the exported file.

Using the **MIDI export mode** setting in the [Grooves Preferences](#), you can choose to export a MIDI file containing *One track for all Drums*, *One track per Drum* or *One track per articulation*.

Exporting Grooves and the Drum Track as Audio

Audio Export settings

The settings in the mixer's [Export panel](#) are used for the **Export Folder**, **File Prefix**, and **Bit Depth**, while the **Record-enable** buttons on each mixer channel are used to determine which channels are exported – a separate audio file is generated for each mixer channel enabled for recording. If you attempt to initiate an export before a valid **Export Folder** has been set, an error message is displayed to inform you of this fact, and the operation is cancelled.

If the **File menu** functions below are used and no channels are currently Record enabled in the mixer, BFD3's behaviour when performing the export function is dictated by the **Auto-arm Mixer Channels for audio export** setting in the [Grooves Preferences](#):

Manual

An additional panel is displayed with the Export panel settings so that it is not necessary to cancel the operation and switch to the mixer.

Master

The stereo Master channel is automatically Record enabled and the export function commences.

All

All mixer channels are automatically Record enabled and the export function commences.

Exporting Grooves as Audio using the File menu

The current selection of Grooves can be exported as audio files using the **Export Groove Audio...** function on BFD3's **File menu**. The resulting files are cut to the exact length of the Groove at the current tempo, with an optional tail that can be defined in the BFD3 preferences.

If multiple Grooves are selected, a separate set of audio files is saved in a separate folder for each selected Groove.

Exporting the Drum track as audio using the File menu

The **Export Drum Track Audio...** function in the **File menu** performs an audio export of the Grooves in the Drum Track, from the beginning to the end of the last part on the track.

Optionally, a tail can optionally be added in order to capture any lingering decays at the end of the track. The size of the tail is defined in the preferences.

Exporting Grooves using drag and drop

Single Grooves or multiple selections can be exported via drag and drop, either to an audio file or to audio tracks in your host sequencer. As mentioned earlier, the **Groove drags Audio not MIDI** setting must be *activated* for this to occur.

Grooves can be dragged from [Palette](#) slots, or entire Palettes and Grooves can be dragged directly from the [Grooves Browser](#).

When performing a drag and drop export, the Export panel settings are not shown even when the **Auto-arm Mixer Channels for audio export** setting is set to *Manual* in the Preferences - the mixer's current Export panel settings are always used. If no channels are currently Record enabled, the export automatically Record enables the stereo Master channel and the export operation commences.

To initiate a drag & drop export, select either:

- 1 or more Grooves in the Palette and drag them outside the BFD3 window
- 1 or more Grooves or Palettes from the Grooves Browser and drag them outside the BFD3 window

Then proceed as follows:

Exporting to audio file

If the selection is dropped onto a suitable save location – in other words, the desktop or a system file browser window – the Grooves are saved as individual audio files at the destination.

Exporting to host audio track

If the Groove selection is dropped onto an audio track in your host sequencer while running BFD3 as a plugin, Grooves are created as sequential audio clips from the point at which they are dropped.

If multiple channels are record enabled in the mixer, BFD3 instructs the host to create new tracks of the relevant mono/stereo types in order to import the audio. This functionality depends upon the host's level of support for audio file import via drag & drop. Please consult your host's documentation or technical support services to determine how it reacts to drag & drop of audio files.

4.8 Importing MIDI files and BFD 1.5 Grooves

Importing MIDI files into the Palette

BFD3 allows you to import a MIDI file into a slot in the Palette and, using the MIDI Import panel, optionally split the file into smaller Grooves to be placed on ascending slots beginning with the destination slot.

Initiating MIDI import

There are two ways of initiating the MIDI import process - either of the following ways invokes the MIDI Import panel:

Using drag & drop

Drag & drop the MIDI file(s) onto the destination Palette slot from a system file location such as the desktop or a folder window. When using this method, it is not possible to split the file into smaller Grooves - all controls in the MIDI Import panel are disabled except for the Import MIDI map setting for mapping MIDI notes to Drum articulations. Each file is created as an individual Groove in slots ascending from the destination slot.

Using the File menu (with the Groove Browser visible)

BFD3's File menu contains 2 functions for importing MIDI files - these functions display the MIDI Import panel with all functions accessible, allowing you to split files into smaller Grooves:

- The **Load Groove(s) from file...** function allows you to import files into the current session.
- The **Batch Import BFD1 Grooves or MIDI...** function processes multiple files to create native BFD3 versions which are imported into the database.

Import MIDI key map setting

MIDI files simply contain pitched notes - they do not contain any information about the BFD3 articulations that should be triggered. Therefore, a key map must be defined and used as a reference in order to assign a MIDI file's note events to articulations within BFD3. The **Import MIDI key map** setting in the [Grooves Preferences](#) and in the MIDI Import panel (see below) specifies the Key Map that is used for the import process. By default, it is set to the BFD 1.5 Key Map to allow loading BFD 1.x-format Grooves and Bundles (see below). It can, however, be changed to any other available key map, such as the General MIDI Key Map supplied in the factory data. Alternatively, a new Key Map can be created in the Key Map panel and used instead.

By default, BFD3 ignores any MIDI notes encountered that are not defined in the referenced keymap. The **Unmapped MIDI note mode** setting in the [Grooves Preferences](#) can be set to show a warning when this occurs instead of simply ignoring any unused notes.

MIDI Import panel

After initiating the MIDI import process using one of the two above methods, the MIDI Import panel appears.

MIDI file summary

The summary area displays an analysis of the imported MIDI file. The filename, tempo, time signature and length in bars are shown.

MIDI import map

This setting is identical to the **Import MIDI key map** setting in the [Grooves Preferences](#) - it is also provided in the MIDI Import panel for convenience. Note that when the setting is changed in the MIDI import panel, it is also changed in the Preferences.

Importing the MIDI file(s) as a single Groove

To import the entire MIDI file as a single Groove into a slot, no adjustments in the MIDI import panel are required - simply click the **Import** button.

Click the **Cancel** button or the ESC key to return to the main BFD3 interface without importing anything.

Splitting and importing a single MIDI file as multiple Grooves

The MIDI Import panel allows you to split the MIDI file into smaller Grooves of equal length, to be imported into ascending Palette slots beginning with the destination slot. The settings in the panel determine how this occurs:

Bars per Groove

This setting specifies the length of each smaller Groove in bars.

Grooves

This display shows the number of smaller Grooves that will be created with the current **Bars per Groove** setting.

Import Groove

This pair of values allows you to set up a range of the smaller Grooves created to actually import to Palette slots.

New name

This field allows you to enter a name for the Grooves to import. The named Grooves are numbered sequentially in the Palette.

Import & Cancel

Once the parameters above have been set, click the **Import** button. The MIDI file is split as specified and the desired segments are imported into the Palette as Grooves, in ascending slots starting with the destination slot. Click the **Cancel** button to return to main BFD3 interface without importing anything.

Importing BFD 1.5 Grooves

BFD3 Groove and Palette files are stored in a proprietary format which allows the software to associate events with specific articulations, and are therefore independent of MIDI mappings. The Palette can contain up to 128 Grooves, while a saved Palette file includes these and also includes the state of the entire Grooves page.

On the other hand, BFD 1.x used MIDI files as Grooves, routing notes to articulations according to the default BFD key map. Up to 12 MIDI files were referenced from a text file called a Bundle file. The MIDI files exist in a subfolder with the same name as the Bundle file.

Accessing BFD 1.x Bundles in the Groove Browser

If BFD3's scanning process discovers BFD1.x format Grooves and Bundles, they are displayed in the [Grooves Browser](#) in the same way as BFD3 Palettes and Grooves. When they are loaded, they are always loaded according to the current **Import MIDI key map** setting in the [Grooves Preferences](#) and MIDI Import panel.

Assembling Palettes from BFD1.5 bundles

Groove Bundle sets generally consist of one or two Groove Bundles and an accompanying Fill Bundle, each consisting of up to 12 MIDI files. In order to assemble these into a single BFD3 Palette, proceed as follows:

1. Load the first Groove Bundle from the Palettes section (upper half) of the [Groove Browser](#), either with a double-click or using drag and drop to the [Palette](#) area. When loading a Bundle as a Palette in this way, the Groove engine is reset and the Grooves from the Bundle are placed into ascending slots starting at slot 1.
2. Click on the second Bundle, if it exists, in the Palettes section (upper half) of the Groove Browser. Its contained Grooves are shown in the Grooves section (the lower half of the Groove Browser).
3. Select and then drag and drop the Grooves to a destination empty slot in the Palette - the Grooves are placed on sequentially ascending Groove slots starting with the destination slot.
4. Repeat steps 2 and 3 for the Fills Bundle if it exists.
5. Select the slots containing Fills in the BFD3 Palette and **Fill** button in the Slot Groove Actions area. These slots are now designated as Fills.
6. Save the assembled Palette to the BFD3 User location for future use.

Batch converting BFD 1.5 Grooves/Bundles and MIDI files to BFD3 format Grooves

If you prefer, MIDI files or BFD 1.5 format Grooves can be permanently converted and resaved in native BFD3 format files and inserted into the database. Converted files are no longer dependent on the current **Import MIDI key map** setting.

After ensuring that the Groove Browser is visible, use the **Batch Import BFD1 Grooves or MIDI...** function on BFD3's **File menu**.

This button brings up a system file open dialog allowing you to browse to and select a folder of MIDI files to convert into BFD3 Groove files.

This function can be used either for MIDI files, BFD1.x Grooves (which are MIDI files) and Bundle files (in the case of Bundles, all their referenced Grooves are imported).

5 MIDI key and automation mapping

Key Maps

A Key Map allows you to play BFD3's *Drum articulations* and *Grooves* with MIDI notes. It contains defined mappings between MIDI notes and these entities along with a number of other parameters for specialized types of control, especially with electronic drum trigger hardware.

Key Maps can be loaded and saved using the BFD3 File menu, and the Key Map panel provides a comprehensive environment with which to view, modify and create mappings for MIDI notes. Click the **Key Map** button in the main BFD3 navigation bar to display the [Key Map](#) panel.

BFD3 also features an alternative way of creating mappings - the [Kit display](#) features the **Start MIDI Learn** function on the slot context menu for accomplishing this. However, in order to set up advanced mapping functions and fine adjustment, it is necessary to use the Key Map panel.



Automation Maps

An Automation Map allows you to control BFD3 parameters with MIDI control data and with host automation parameters when using BFD3 in a suitable host/DAW application. Because BFD3 simply contains too many parameters, it would be impossible to map them all for MIDI or host automation control - there simply are not enough MIDI continuous controllers (CCs) in the MIDI spec, and there would be too many host automation parameters to manage in a DAW.

Automation Maps can be loaded and saved using the BFD3 File menu, and the [Automation panel](#) allows you to view, modify and create mappings as required. The Automation panel is shown by clicking the **Auto** button above the Browser - the Browser area is replaced by the Automation panel. Click any of the other tab buttons (Presets, Kits, Drums or Grooves) to return to the desired Browser.

Program Change Playlists

The [Program Change Playlist](#) function, available in the Automation panel, allows you to use MIDI program change messages to switch through a 'playlist' of BFD3 Presets and Kits.



Loading Maps

Key Maps

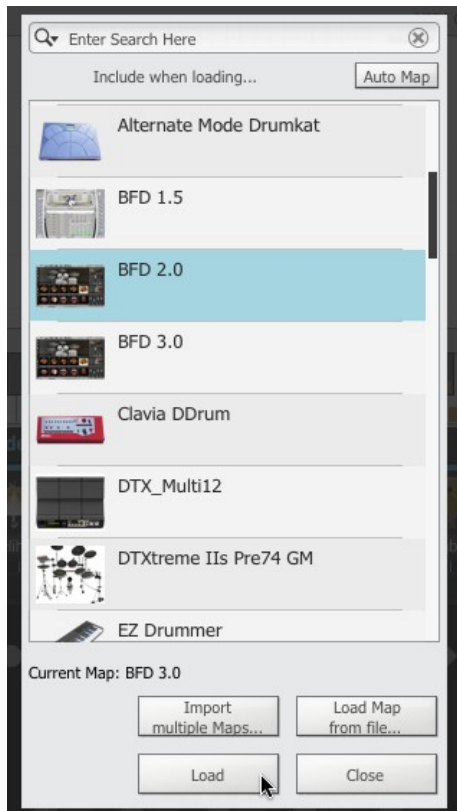
In most cases, you can simply load a suitable factory Key Map for your MIDI controller or electronic drumkit hardware using the **Load Key Map** function in the BFD3 **File menu**. In the Load Map panel that appears, scroll through the list and double-click the desired Key Map to load it. See below for a more detailed guide to the Load Map panel.

To save the current Key Map, use the **Save Key Map** function on the File menu.

Automation Maps

Automation maps are loaded in a very similar way to Key Maps - use the Load Automation Map function in the BFD3 File menu.

To save the current Automation Map, use the **Save Automation Map** function on the File menu. In the Load Map panel that appears, scroll through the list and double-click the desired Automation Map to load it. See below for a more detailed guide to the Load Map panel.



Load Key Map and Load Automation Map panels

The Load Key Map panel and Load Automation Map panels are very similar in operation.

Map listing

The listing shows maps that exist within the factory maps and the **<user location>/Maps** folder.

Search

The Search text-box allows you to type a keyword(s) with which to narrow down the listing. Click the **Recent** drop-down menu to the left of the text-box to display a list of recent searches. Click the relevant search term to perform the search again.

Current Map indicator

The currently loaded map is shown by this indicator. If no map has been loaded, the factory default map is indicated.

If any modifications have been made to the current map since it was loaded, an asterisk is shown next to this indicator.

Import multiple Maps

The **Import multiple Key Maps** and **Import multiple Automation Maps** functions create BFD3-format map files within the database (saved into the user location) from one or more key map files which are currently not within BFD3's content locations. It may be useful to do this after downloading files created by another user.

The Import multiple Key Maps function can import maps from BFD 1.5 or BFD2 - their contents are recreated for BFD3 as closely as possible.

Load Map from file

The **Load Key Map from file** and **Load Automation Map from file** functions load a map file into the current session from locations in your system which are not within BFD3's content locations. It may be useful to do this after downloading a file created by another user. When loading the file, you are prompted whether the file should be saved in to the BFD3 database for future use.

This function can load maps from BFD 1.5 or BFD2 - their contents are recreated for BFD3 as closely as possible.

Include when loading

This button varies depending on whether you are using the Load Key Map or Load Automation Map panel.

In the Load Key Map panel, activate the **Automation Map** button - this loads any associated Automation Map with the same name along with the new Key Map.

In the Load Automation Map panel, activate the **Key Map** button - this loads any associated Key Map with the same name along with the new Automation Map.

The corresponding map file must exist within the **<user location>/Maps** folder. If no corresponding map exists, the settings in question remain unchanged.

Load / Close buttons

To load the currently selected key map, click the **Load** button. You can also load any key map in the listing by double-clicking it.

To return to the BFD3 interface without loading a new Key Map, click the **Close** button.

Maps loaded when BFD3 is launched

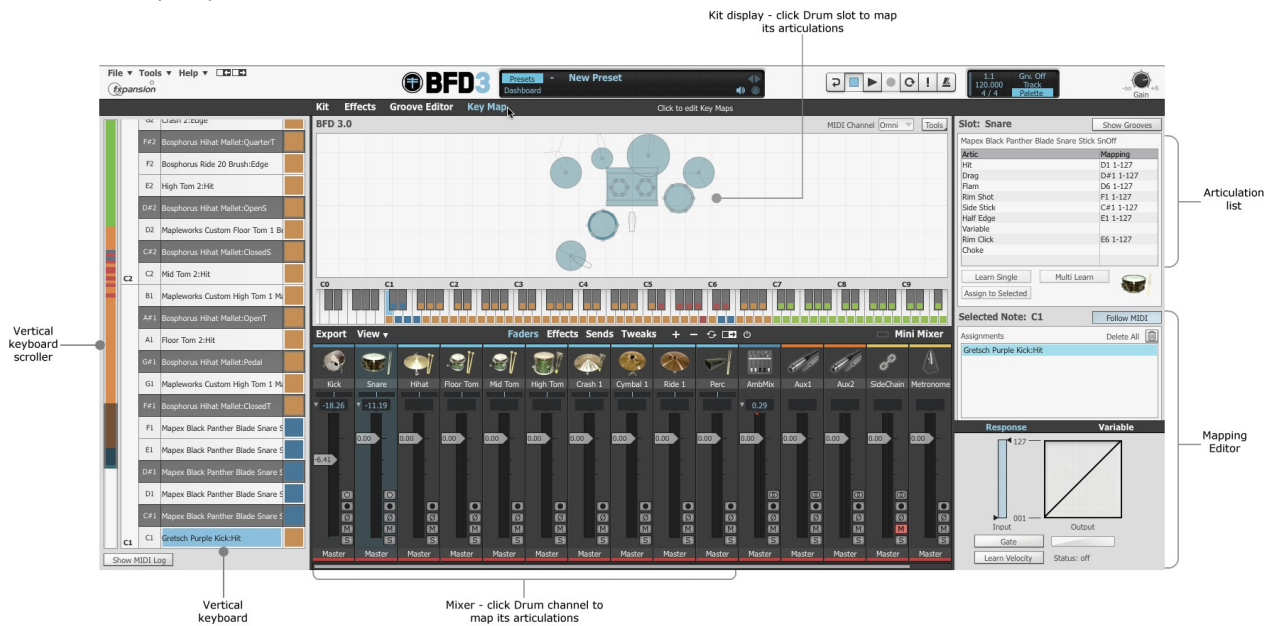
When an instance of BFD3 is launched, it reloads the last Key Map and Automation Map files that were loaded. If a load operation has never taken place, the BFD3 factory defaults are loaded.

However, if you have specified a startup preset in the Preferences, the mapping settings contained within it override the above.

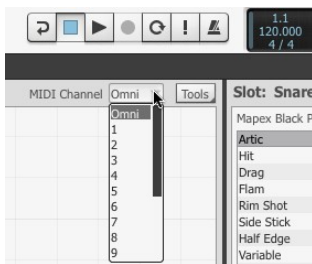
If you create any of your own mappings, you must save your changes! See the guide to saving maps in each of the sections in this chapter.

5.1 MIDI Key Maps

Click the **Key Map** button in the main BFD3 navigation bar to display the Key Map panel. This panel provides functions for mapping Drum articulations and Grooves to MIDI notes so that they can be played using MIDI note input. It is possible to modify and fine-tune existing Key Maps, add further assignments for additional Drums or create new Key Maps from scratch.



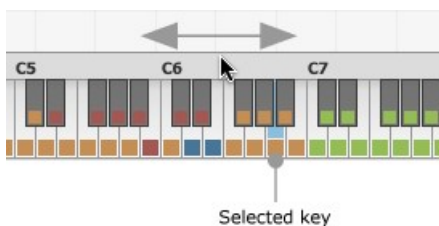
Mapping page layout and MIDI keyboard displays



MIDI channel

Key Map assignments can be created on any MIDI channel. By default, BFD3 responds in *Omni* mode - in other words, on any MIDI channel. This can be changed to a specific channel using the **MIDI Channel** drop-down menu. Alternatively, double-click the field and type a number between 0 and 16 (0 = *Omni*).

Vertical and Horizontal keyboard layouts



The Key Map panel features 2 representations of the MIDI keyboard range - horizontal and vertical. These essentially function identically to each other, although the horizontal keyboard lacks individual note and name labels.

Click and drag the keyboard scroller to the left of the **Vertical Keyboard** to adjust its visible area, or use your mousewheel.

Click and drag above the keys on the **Horizontal Keyboard** to adjust its visible area (depending on the current width of the BFD3 window, the entire keyboard may already be visible).

Key colouring (both keyboards)

Keys feature colour-coding to represent various states.

Orange	One or more articulation mappings exist on the key
Green	A Groove note exists on the key
Red	A slot choke note exists on the key
Dark Blue	Keys mapped to the currently selected Drum
Light Blue shading	Currently selected key
Purple shading	Destination slot during a mapping operation

Key labelling (vertical keyboard only)

Keys with an articulation are labelled with the current Drum loaded into the relevant slot along with the articulation name. If the slot is empty, the default slot name is shown.

If multiple articulations exist on a key, *multiple* is shown.

Keys with Grooves always show the relevant Groove slot number.

Previews

Whenever a key on the keyboard is selected, it is previewed in the same way as it would be heard when being played via MIDI. Previews are velocity sensitive depending on the click position on the key:

- On the horizontal keyboard, the loudest velocity is heard towards the lower part of the keys.
- On the vertical keyboard, the loudest velocity is heard towards the right of the keys.

To select a key without hearing a preview, click it while holding down the ALT key.

Follow MIDI

Activating the **Follow MIDI** button results in an incoming note selecting the relevant key in the keyboard layout.

The last state of this button is used when launching a new instance of BFD3.

Articulations list

The Articulations list shows the available articulations for the *currently selected Drum slot*.

This list is only visible if the **Show Grooves** button is deactivated.

After one or more mappings have been created, the mapped MIDI note is shown under the **Mapping** column for each **Artic** (Articulation) in the Articulations list.

The numbers shown after the MIDI note represent the velocity **Input Range** for the assignment. When multiple articulations are mapped to a key, velocity split ranges can be set up using the **Input Range** control in the Mapping Response panel - see below. This velocity readout is not available if the articulation has been mapped to more than 1 key.

Mapping Editor

The Mapping Editor provides a number of functions for the articulations on the *currently selected Key*. It features an **Assignments** list displaying the current assignments on the key, as well as the Mapping Response panel which provides advanced fine-tuning functions for mappings.

Show Grooves

Activating the **Show Grooves** button displays a list of the Groove Palette's 128 Groove slots in place of the Articulation list. This mode is used in order to assign Grooves to MIDI keys.

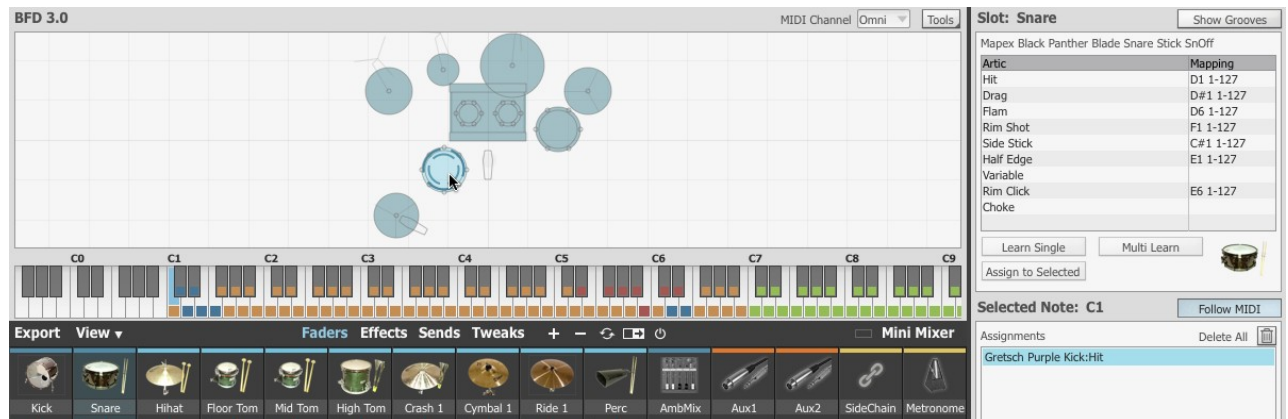
Show MIDI Log

Activating this button displays the MIDI Log at the lower-left part of the interface. The MIDI Log provides an overview of incoming MIDI messages, useful for troubleshooting mapping operations. Click the **Show MIDI Log** button again to hide the panel.

Mapping Drum articulations to keys

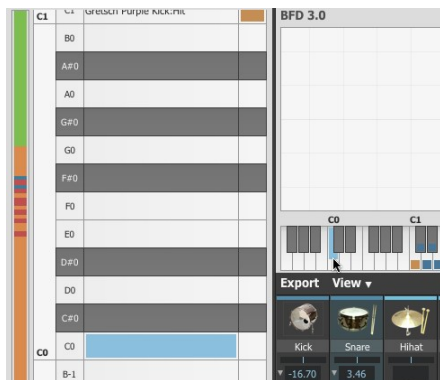
Note that it is not necessary to load a Drum into a slot in order to map the slot's articulations: the default choices of articulations for the slot's intended purpose are assignable. However, it is highly recommended to do so in order to be able to test and hear the results of assignments.

Using the Assign to Selected button

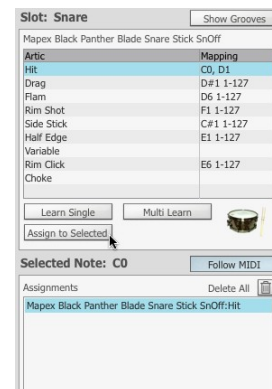


1. Select a Drum such as the Snare in this example, either in the Kit Display or in the Mixer. The Drum's articulations are shown in the **Articulations** list.

Note that the selected key in this example is still a key assigned to the Kick.

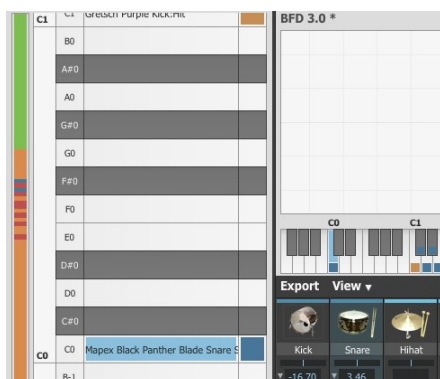


2. Select the key to which you wish to assign a Snare articulation.

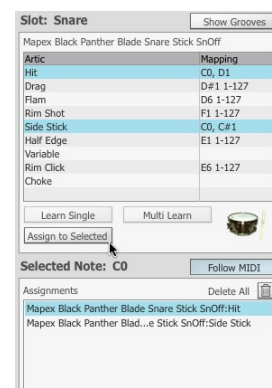


3. Select an Articulation - the Hit articulation in this example, and then click the **Assign to Selected** button to make the assignment.

The selected key, showing the mapping that has just been created, is shown in the Mapping Editor below the Articulation list for the selected slot.

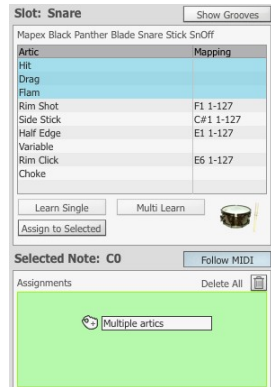
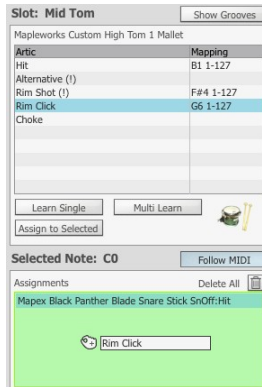
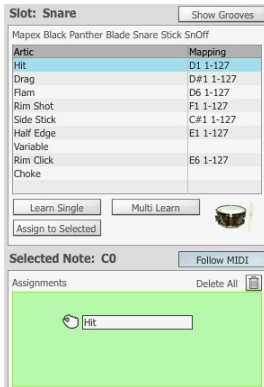


The mapping is also represented on both keyboards.



Select multiple articulations using SHIFT and CMD/CTRL before clicking the **Assign to Selected** button to stack them all on the key.

Drag and drop to the Mapping Editor for the selected key



With a key selected, drag and drop the desired articulation to the Mapping Editor Assignments list. Any previous assignments on the key are replaced.

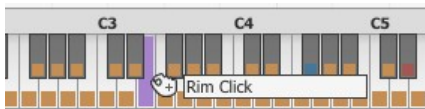
To stack another articulation to the key, drag and drop an articulation (select a different Drum slot first if required) onto the list while holding down the ALT key.

Multiple articulations from the same Drum can be dragged simultaneously to the same key's Assignments list to stack them.

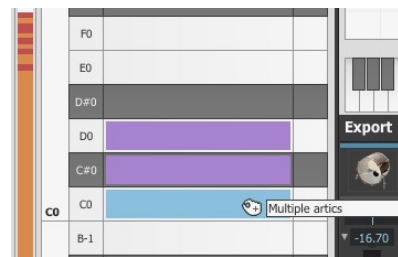
Drag and drop directly to any key(s)

Articulations can also be dragged to keys in the horizontal or vertical keyboards.

If the key already contains any assignments, they are replaced.



Hold down ALT to stack another articulation onto a key with existing assignment(s).



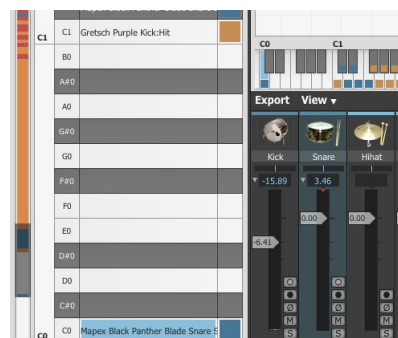
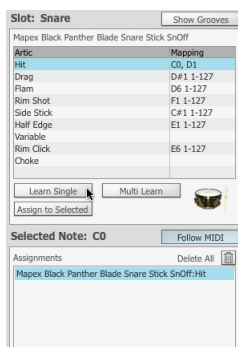
Drag multiple assignments to either keyboard to assign them to sequential keys ascending from the destination key.

Use the Learn Single function



The **Learn Single** function is designed to allow you play a MIDI key to which to assign the currently selected articulation.

To map an articulation to a key, first select the desired Drum and articulation within it. Then, click the **Learn Single** button.



Now play a note - in the above example, C0 has been played (and selected as the **Follow MIDI** button is activated). The new mapping is shown in the **Assignments** list.

The mapping is also represented on both keyboards.

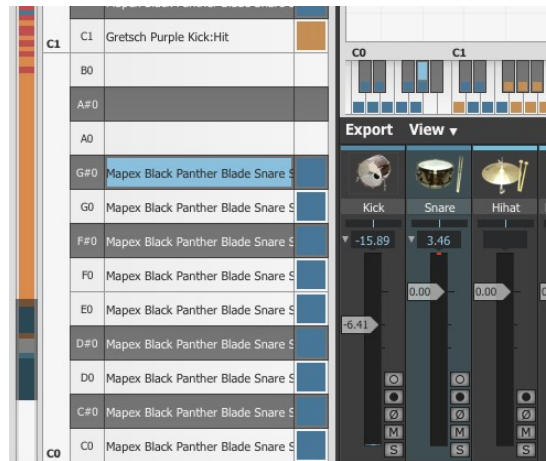
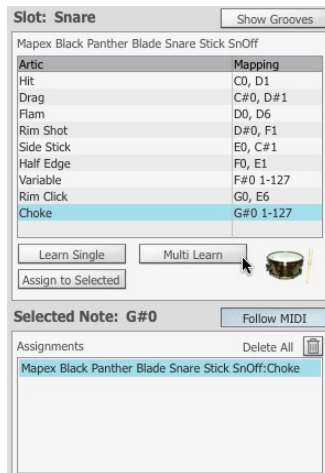
Use the Multi Learn function



The **Multi Learn** function lets you play multiple MIDI keys to map multiple articulations from the currently selected Drum.

Select an articulation and then click the **Multi Learn** button - this function waits for multiple MIDI notes, assigning them to each of the subsequent articulations in the Drum.

The process ends after the last articulation in the list, or when the **Multi Learn** button is clicked again.



The additional MIDI note that has just been mapped to each articulation is shown in the Articulations list along with the original mappings. Due to limited space, the active velocity range cannot be shown if an articulation has been mapped to multiple keys.

The mappings are also represented on both keyboard displays.

Stacking multiple articulations on a single key

As described above, articulations can be stacked, or layered, onto a single key. This offers more advanced Drum layering than the simple Drum **Link** function in the Kit display but is intended only for using MIDI notes rather than the Groove engine to play BFD3's sounds.

When articulations are stacked on a key, they simply play at the same time at the relevant velocity whenever the key is played.

It is also possible to create 'velocity splits' with layered articulations using the Mapping Response panel - see below.

Please note that Choke articulations cannot be stacked with other articulations. Attempting to assign a Choke articulation results in it overwriting any previous contents on the key. Likewise, attempting to stack any articulation onto a key already containing a Choke, the existing Choke is overwritten.

Special articulations

Choke

Any playing articulation for a Drum can be choked by playing the slot's Choke articulation. This stops the decay of any Drum articulation according to its Choke Response settings (default settings exist in the BFD3 Preferences, while settings for loaded Drums exist in the Drum Editor)

Chokes can be stacked on the same key with other articulations - when triggering an articulation, it may be useful to choke 1 or more other Drums which may be playing.

BFD3 can also choke cymbal slots with polyphonic aftertouch signals from electronic drumkits - see the next section.

Variable tip (hihat slot only)

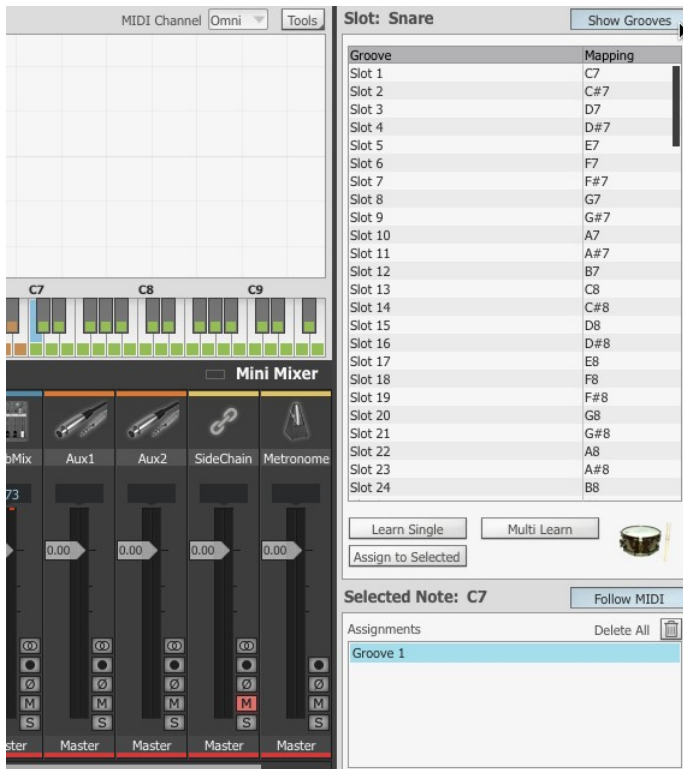
Variable shank (hihat slot only)

These articulations appear for the Hihat slot only and are intended for use with electronic drumkits - see the next section.

Variable snare (snare only)

This articulation appears for Snare slots only and is intended for use with electronic drumkits - see the next section.

Mapping Grooves



Click the **Show Grooves** button in order to map Groove slots in the Palette to MIDI keys. The view on the right side of the Key Map panel changes to show a list of all 128 Groove slots.

Groove listing

Under the **Groove** column, The list of Groove slots shows the name of the Groove currently in each slot if it exists alongside the slot number.

The **Mapping** column displays the current MIDI note mapping for the Groove if it exists.

Creating mappings

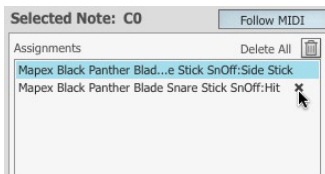
Grooves are mapped to keys in exactly the same ways as Drum articulations:

- Drag and drop from the list of slots to a key or to the Mapping Editor list for the currently selected key
- Select a key, select a Groove slot and then click the **Assign to Selected** button
- Use the **Learn Single** or **Learn Multi** functions

Mapping Editor

The Mapping Editor panel displays information and additional parameters for the mappings that exist on the currently selected key.

Assignments list



Each articulation that has been mapped to the key is shown in the articulation list. Click any articulation to select it and edit its parameters.

Delete mapping

When the cursor is hovered above a mapping in the list whether it is a Groove or Drum articulation, a Delete mapping button ('X') is shown at the right. Click the button to delete the mapping.

Delete All

Click this button to delete all mappings on the currently selected key.

Mapping Response panel

The Mapping Response panel cannot be visible at the same time as the Hihat or Snare Response panels - click the **Response** button to display the Mapping Response panel if it is not already visible.

Note that the Snare panel is only visible if a Variable Snare articulation exists on the currently selected key. The Hihat and Snare Response panels are described in the [next section](#).

The Mapping Response panel features a number of functions for adjusting the way that incoming MIDI note velocity is mapped to articulations.

This panel is only concerned with articulation mappings - its controls are not available if a Groove key is currently selected.

Input (Input Range)

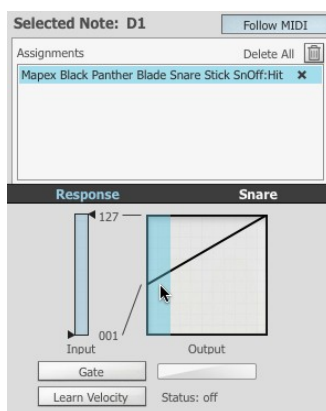
This control defines the MIDI note velocity range to which the selected articulation responds. The primary use for this control is for creating velocity-based splits for keys with multiple articulations, so that different velocity ranges can trigger different articulations.

Output (Output Curve)

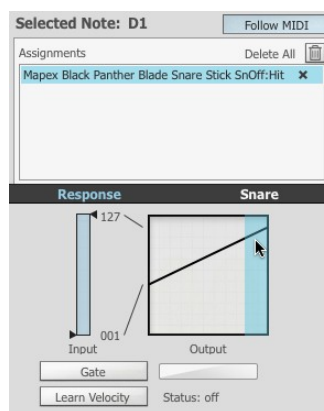
This control adjusts how input velocities are translated to the range of the articulation's velocity layer samples.

By default, a linear 1:1 mapping is used - the active range of MIDI input velocity (defined by the Input control) is distributed proportionally across all available velocity layers for the articulation.

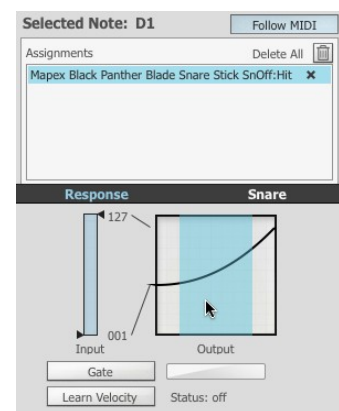
The graph allows you to change the lowest and highest velocity layer that is accessed by the velocity range of the input range, as well as vary the curve response from linear to exponential (drag down) or inverse-exponential (drag up).



Click and drag up/down at the left side of the graph to set the lowest velocity layer for the mapping.



Click and drag up/down at the right side of the graph to set the highest velocity layer for the mapping.

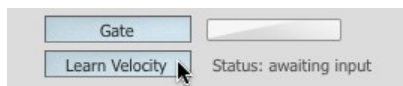


Click and drag up/down in the centre of the graph to set the response curve of the range.

Gate

With the **Gate** setting activated, any incoming MIDI notes with velocities outside the input range are ignored for the articulation mapping. This behaviour can be very useful when creating velocity splits or for eliminating crosstalk-related issues when playing BFD3 from an electronic drumkit.

With the **Gate** button deactivated, such notes trigger the articulation, with velocity values that are forced to the **Input Range** boundaries. For example, if the Input Range is set from 25 to 90 and an incoming note's velocity is 10, it is treated as a velocity of 25. If an incoming note's velocity is 100, it is treated as a velocity of 90.



Learn Velocity

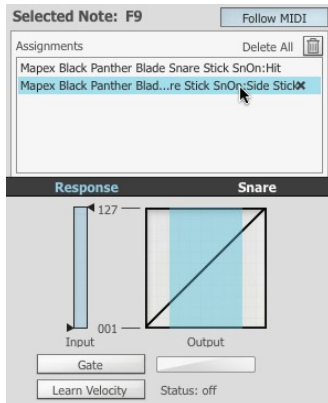
This function is designed to analyze incoming MIDI note input and set the **Input Range** accordingly. Activate the button and play a series of low-velocity and high-velocity notes within the velocity range you intend to use with the articulation mapping.

The detected notes are analysed and the **Input Range** is set.

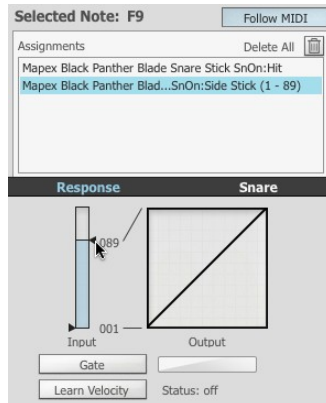
Setting up velocity splits

The Mapping Response panel functions can be used for setting up velocity splits for keys containing stacked articulations.

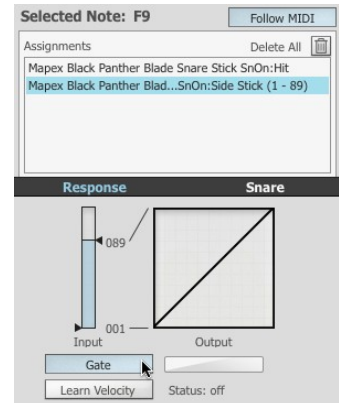
The following examples demonstrates how to create a velocity split setup for a key mapped to Snare Hit and SideStick articulations.



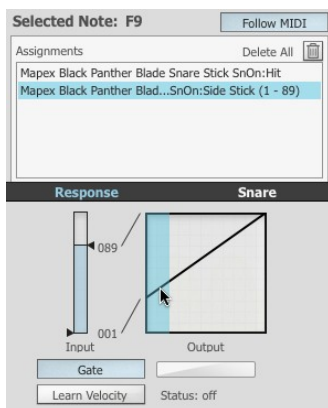
1. Select the SideStick articulation in the **Assignments** list..



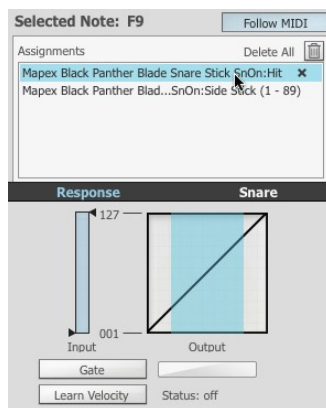
2. Set the upper limit for the Input Range control - this will be the highest velocity that triggers the SideStick.



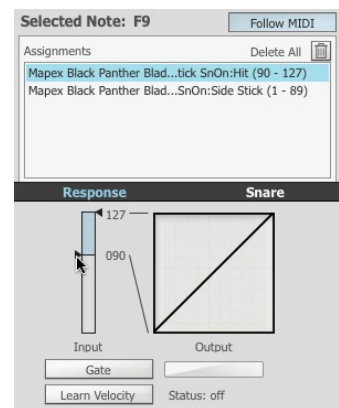
3. Activate the Gate button to ignore velocities above the upper limit.



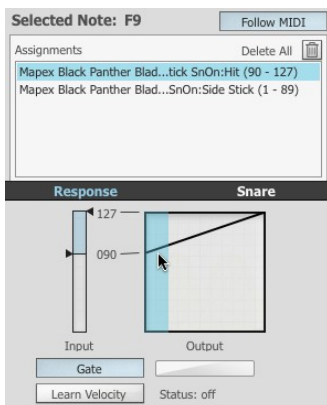
4. Optionally, fine-tune the velocity layer graph to set the lowest and highest velocity layers that will be triggered.



5. Select the Hit articulation in the **Assignments** list.



6. Set the lower limit for the Input Range control to a value 1 higher than the upper limit for the SideStick.



7. Optionally, fine-tune the velocity layer graph to set the lowest velocity layer that will be triggered. In this example, the snare sound triggered by MIDI notes with velocities of or above 90 is from the upper part of the velocity layer range, meaning that it is struck with high intensity.

Velocity splits can overlap each other if the Input Ranges are set up to do so, with both articulations being heard within the overlap areas.

Additional controls

Tools menu



Clear all keys

This function clears all current key mappings, allowing you to build a Key Map entirely from scratch.

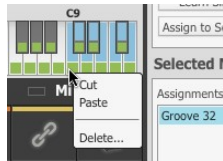
Allow multiple keys for an Articulation/Groove

With this setting deactivated, any articulation or Groove can be mapped only to a single key. If an articulation or Groove is mapped again, the old assignment is lost.

Choke on Aftertouch

This function is intended to be used with electronic drumkits - see the [next section](#).

Key context menu



Right-click on the horizontal or vertical keyboards to display the key context menu.

The menu allows you to **Cut** and **Paste** mappings between keys - use the SHIFT key to select multiple sequential keys. Any assignments that already exist on keys affected by a **Paste** operation are lost.

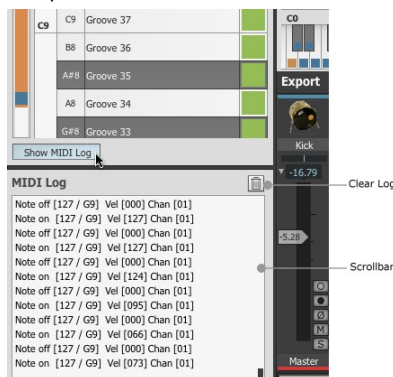
The **Delete...** function removes the mappings on the selected keys. You are prompted for confirmation before proceeding.

MIDI event log

Click the **Show MIDI Log** button to display the MIDI Event Log panel. This panel displays a list of all MIDI events received by BFD3's MIDI input and can be very useful for troubleshooting during mapping tasks.

Click the **Show MIDI Log** button again to hide the panel.

Note that this log is also provided as an auxiliary window: use the **Show MIDI Log** function in BFD3's **Tools menu** to open the external window.



The log displays incoming MIDI data in the following format:

MIDI Notes

Channel [1-16] Note On [C0 - G10] Velocity [1-127]

MIDI Continuous Controllers (CCs)

Channel [1-16] CC [0-127] Value [0-127]

Other MIDI messages (e.g. Pitchbend etc.)

Channel [1-16] Message [value]

Use the scrollbar to display earlier events in the log buffer and the **Clear Log** button to clear the buffer.

Saving in the Key Map panel

All the following functions can be found in BFD3's **File menu**.

Save Key Map

This function opens a system file save dialog prompting for a location and filename to save the current Key Map.

It is recommended to save the Key Map to the default location - **<user location>/Maps** - so that it is accessible from the Load Key Map panel without further adding and scanning of data locations.

Save Key + Automation maps

This function saves the current Key Map and Automation Map with the same name (although the two resulting map files have different file extensions - .bfd3map and .bfd3auto).

Save MIDI Event Log

This function saves the contents of the MIDI Log for diagnostic and troubleshooting reasons. Logs are saved with the .log file extension.

5.2 Using Electronic Drumkits

BFD3 supports the use of electronic drumkits for triggering sounds, with pre-made maps provided for most kits. The Key Map panel provides a number of tools to customize mappings or response characteristics.

Most triggers/pads on electronic kits are fairly straightforward to map to BFD3's Drum articulations. Certain types of triggers which use more advanced control techniques may require some customization for your playing style, such as hihat and positional snare triggers when using kits capable of sending out MIDI CCs in order to control articulation switching. BFD3 provides 'variable' hihat and snare articulations to use with these types of controllers.

This section assumes that you are familiar with using the Key Map panel, explained in the previous section.

How electronic drumkits work

Electronic drumkits, or 'e-drums' usually consist of a number of pads which transmit trigger signals as control voltage over an audio connection. Additionally, a pedal mechanism that transmits the variable state of the pedal between open and closed, again using a control voltage over an audio connection.

The audio signals are routed to a converter box, commonly referred to as a 'drum brain', which translates audio signals received from pads into MIDI messages. The brain often also has onboard sounds, which tend to be rather limited due to memory constraints.

Common e-drum systems include D-Drums (formerly made by Clavia), Roland V-Drums, the Yamaha DT series and Alternate Mode Drumkat. Note that some budget e-drum systems such as the Ion kit do not support variable hihat pedals, instead using a switch pedal that simply changes between open and closed states. You cannot utilize variable hihat control with such kits.

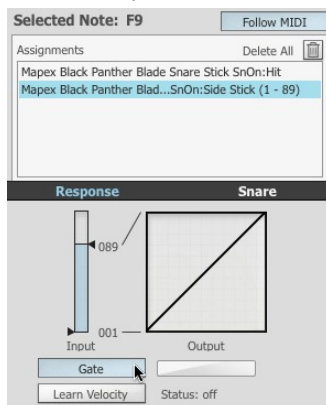
Cross-talk between triggers and zones

It is very common to experience cross-talk symptoms when using e-drum systems – when a pad is struck, the resulting vibrations are picked up by other pads' trigger sensors.

This crosstalk problem is often compounded by the fact that most e-drum systems are supplied with a single-frame mounting system, resulting in little isolation for each pad. In addition to cross-talk between individual pads, substantial cross-talk also occurs between zones on multi-zone pads.

In practice, this is often not a major problem, as it reflects what would happen with real drumkit to some extent. However, when using BFD3, it can cause the following issues:

- Excess disk streaming due to more voices being triggered at once
- Problems when using MIDI learn for note assignments due to multiple notes being transmitted when striking a pad or zone on a pad.



It can be more effective to manually assign notes in the Key Map page rather than using Learn-based functions.

In order to do this, you will need documentation regarding the notes transmitted by each pad on your electronic kit. Alternatively, the brain itself may provide setup pages which provide this information.

There may be situations, however, when you may have to examine the MIDI output from your drum brain: BFD3's MIDI Event Log allows you to do this.

The **Input Range** and **Gate** functions in BFD3's Mapping Response panel can be used to overcome the problems associated with crosstalk - see the [previous section](#) for details on using these functions.

Double-triggering: setting the Retrigger threshold

Another similar problem is 'double-triggering' and unwanted choking of sounds, especially when using dual-zone triggers. Most drum brains feature configuration parameters for overcoming cross-talk and double-triggering problems.

The **Retrigger threshold** setting in the [Engine Preferences](#) adjusts for double-triggers in real time - it defines a length of time after each received note during which all further notes are ignored.

Note that it is usually preferable to eradicate these problems at the source. Please consult your e-drum system documentation for information on how to minimize the effects of cross-talk and double-triggering with your kit.

Latency

An inherent problem with computer-based digital audio systems is the concept of latency, meaning that BFD3 may not respond as quickly as any onboard sounds in the drum brain.

It is important to remember that latency is NOT caused by BFD3. Any sources of latency issues lie elsewhere in your system:

- Possible additional processing time required in the brain to create the MIDI output, as opposed to triggering the internal sounds.
- Any inherent latency and timing inaccuracies involved with connecting the brain's MIDI output to the computer's MIDI interface.
- Any latency involved in getting the data from the MIDI interface to BFD3. This varies with the quality of the hardware and drivers of the MIDI interface.
- Audio interface latency/buffer size - smaller buffer sizes result in lower latencies. However, they also require more CPU power and well-engineered audio interface hardware and drivers.

Bus traffic problems

You may find it particularly difficult to achieve low latencies on laptops and smaller machines with limited expansion potential – no ability to install dedicated internal drives or audio interfaces. This means you may need to chain devices on the same firewire or USB bus for example. This often leads to dropouts at lower latencies.

It is highly recommended to run the hard drive containing BFD3's sounds from a separate bus to the audio interface.

Recommended systems for low latency

- A high quality audio interface capable of reliably operation at 64 or 32 sample latency (1.5ms or 0.75ms at 44.1 kHz) - a PCI, PCI-Express, Thunderbolt, CardBus or ExpressCard interface tends to achieve the best results
- A reliable PCI, USB2 or USB3 MIDI interface
- An internal SATA-connected 7200 RPM drive or SSD for the sounds is preferable – if this is not possible, use an external USB2 or USB3 drive on its own bus
- A fast CPU, well set-up drivers and 8GB or more of RAM

If it is not possible to assemble a system capable of stable low latency operation, it may be best to record your performance while monitoring the sounds in your drum brain, and subsequently route the recorded MIDI to BFD3's sounds.

Simple hihat control

The easiest way to control hihats in BFD3 with an electronic kit is by ignoring the MIDI CC transmitted by the brain according to the hihat pedal position and instead simply using the open, closed and pedal hihat notes transmitted by the brain.

The drum brain calculates whether to send out an open or closed hihat note depending on the state of the hihat pedal. Some brains that support multi-zone triggers are capable of sending out different open and closed notes for tip (also known as bow) and shank (edge) triggers. A pedal note is usually transmitted when the hihat pedal controller is fully depressed.

Example: Roland TD-20

The following table shows how to map the notes transmitted by a Roland TD-20 to achieve non-variable hihat control.

Roland note	MIDI note* (note no.)	BFD3 mapping
Open Bow	A#1 (46)	open tip
Closed Bow	F#1 (42)	closed tip
Open Edge	D0 (26)	open shank
Closed Edge	A#-1 (22)	closed shank
Pedal	G#1 (44)	pedal

* MIDI note octaves are specified using -2 octave numbering (lowest note is C-2)

It is highly recommended to remap A#1 and D0 to 1/2-open tip and 1/2-open shank, as these represent the most common type of open hat sound. The Open tip articulation in particular is more like a hihat bell sound, or a small ride cymbal.

Advantages and disadvantages of non-variable hihat control

While it may be argued that using this method is less expressive than using the variable hihat control method described below, the resulting MIDI data is much easier to edit in a MIDI sequencer or DAW.

When using a MIDI CC for the hihat pedal position, recorded CC values must be moved along with any notes when editing, which may be cumbersome.

With the simple hihat control method, any editing and quantizing required is much more straightforward as only notes are involved. The open notes can be moved to other hihat articulations after recording in order to make parts more expressive.

BFD3's internal [Groove recording](#) function automatically converts any variable note/CC input that is received to discrete articulations.

Variable hihat control

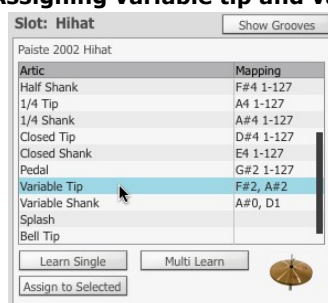
Overview

Electronic drumkits often use a hihat pedal controller which sends out MIDI continuous controller messages to represent its position within open and closed states. BFD3 is capable of analyzing this controller data while a hihat trigger is received to determine which hihat articulation to play from those available: closed, 1/4-open, 1/2-open, 3/4-open or fully open. For this to occur, hihat MIDI notes must be mapped to special 'Variable' hihat articulations.

Important note

BFD3 allows variable hihat control only for the Hihat slot. You may load additional hihats in other slots and trigger their articulations directly with MIDI notes, but variable hihat control is restricted to the Hihat slot only.

Assigning variable tip and variable shank articulations



Any hihat note transmitted by your electronic drumkit brain should be assigned to either a *Variable tip* or *Variable shank* articulation, with one important exception. Almost all brains send out a 'pedal', or 'foot-chick', sound when the hihat control pedal is depressed fully: this note should always be mapped to BFD3's *Pedal* articulation.

The Variable tip is used for the main surface or 'bow' of the hihat, which should be used if you only have a single-zone hihat trigger pad. 'Tip' refers to the fact that the surface of the hihat is struck with the tip of the stick.

The Variable shank is used for the edge of the hihat - this should be used in addition to the variable tip if your hihat pad has a dual-zone trigger. 'Shank' refers to the fact that the edge of the hat is struck with the shank, or body, of the stick.

Example: Roland TD-20

A good example is the Roland V-Drums range of kits. Most Roland drum brain models send out the same set of notes for the hihat. The following table illustrates which notes to map to which articulation.

Roland note	MIDI note (note no.)	BFD3 mapping
Open Bow	A#1 (46)	Variable tip
Closed Bow	F#1 (42)	Variable tip
Open Edge	D0 (26)	Variable shank
Closed Edge	A#-1 (22)	Variable shank
Pedal**	G#1 (44)	Pedal

* MIDI note octaves are specified using -2 octave numbering (lowest note is C-2)

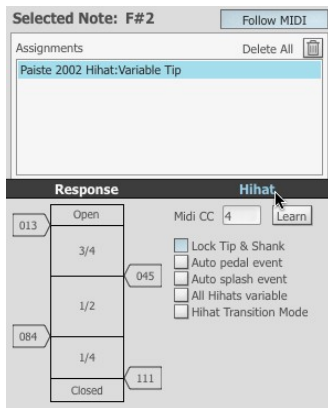
** The hihat pedal controller signal is transmitted via MIDI CC #4.

The Roland brain decides whether to send the 'open' or 'closed' note depending on the pedal controller value and a setting on the brain dictating the transition point between open and closed.

This distinction is unimportant to BFD3 because it contains additional 1/4-open, 1/2-open and 3/4-open sounds. Therefore the open and closed sounds should be mapped to the same Variable articulation. BFD3 makes its own decisions about which actual hihat articulation to play, depending on the value of the pedal controller and the settings in the Hihat response panel in the Key Map page.

The pedal note, meanwhile, chokes any playing open sound and plays the hihat pedal articulation (the 'foot-chick' sound).

Assigning the hihat pedal MIDI CC and adjusting its response



Hihat pedals in most electronic kits transmit a MIDI continuous controller (CC) in order to represent the position of the pedal between open and closed. A value of 0 means that the pedal is open (fully up). As the pedal is moved down, the value of the MIDI CC increases. The maximum possible value is 127.

Usually, MIDI CC #4 is used for this purpose, and this is the default setting for the Hihat MIDI CC in BFD3. The Hihat Response panel can be used to change this to a different MIDI CC#, and to customize the response of BFD3 to received pedal controller values.

Hihat Response panel

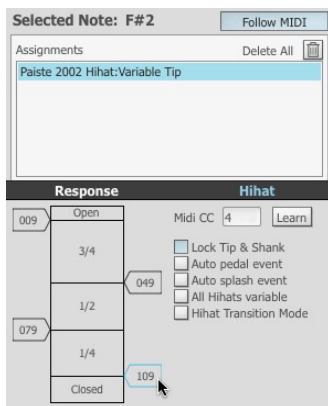
In order to view the Hihat Response panel, a key containing a Variable tip or Variable shank hihat articulation must first be selected using the keyboard displays in the [Key Map](#) panel.

The controls in this panel allow you to define a number of settings for variable hihat control:

MIDI CC

This setting specifies the MIDI CC# to use for the hihat pedal. The setting used here depends on the value transmitted by your drum brain. To set the value, you can either:

- Click the value, type a new number between 1 and 127 and hit ENTER.
- Click the **Learn** button to the right of the setting and move your hihat pedal to detect the pedal CC. You may need to strike your hihat pad shortly before moving the pedal for the value to be transmitted.



Pedal transitions

The **Pedal transitions** control specifies the articulation transition points over the range of hihat height MIDI CC values.

This control features 4 adjustable points on a vertical slider, with each point representing the transitions between the hihat articulations over the pedal range. These transition points form 5 'zones' for closed, 1/4-open, 1/2-open, 3/4-open and fully open articulations.

Each of the transition points displays a value from 0 to 127, which corresponds to the hihat pedal MIDI CC value at which the transition occurs. Click and drag the transition points up and down to adjust them.

When a Variable tip is triggered, the concurrent value of the hihat pedal MIDI CC is analyzed. The appropriate articulation is played depending in which 'zone' of values the MIDI CC falls.

For example, let's say that the points for the Variable tip articulation are set to values of 10, 50, 80, and 110. This means that the 'zones' of MIDI CC values translate to hihat articulations as follows:

0-9	open
10-49	3/4-open
50-79	1/2-open
80-109	1/4-open
110-127	closed

* MIDI note octaves are specified using -2 octave numbering (lowest note is C-2)

** The hihat pedal controller signal is transmitted via MIDI CC #4.

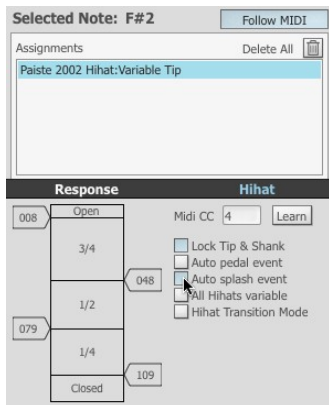
Therefore, if the CC value is 30 and the Variable tip articulation is triggered, a 3/4-open tip articulation is played. If it is 110, a closed tip is played, and so on.

Variable tip and Variable shank articulations have distinct **Pedal transitions** settings, although by default they are linked with the **Lock Tip & Shank** setting.

When using a hihat with less than the maximum number of articulations, BFD3 intelligently remaps triggers to closest appropriate articulation that does exist. This occurs if any articulations are unloaded in the Kit display, or when using hihats from other BFD3-compatible libraries which do not feature a full set of articulations.

The **Pedal transitions** settings can be used to overcome the common problem of hihat controller pedals not sending out the maximum possible range of MIDI CC values. For example, its maximum value (when fully closed) may be 90 instead of 127. If this is the case, adjust the transition point between closed and 1/4-open so that its value is 90 or less - 80 would be a good starting point to try - and move the other sliders to appropriate points over the rest of the available range.

The MIDI Event Log can be very useful in examining the data transmitted by your controller pedal and drum brain.



Lock Tip and Shank

If you don't need to separately adjust the Variable tip and Variable shank **Pedal transitions** response, you can activate the **Lock Tip and Shank** button. This locks the settings of both Variable articulations together, so that the **Pedal transitions** slider values are exactly the same for both articulations. This setting is activated in the default BFD3 Key Map.

Auto pedal event

This setting is to be used when using variable hihat control with electronic drum brains which do not send out a pedal (foot-chick) note automatically when the hihat pedal is full depressed.

When the setting is activated, a pedal note is generated whenever the hihat pedal MIDI CC reaches the first value within the 'closed zone' defined with the Pedal transitions control in the Hihat Response panel.

If your drum brain sends out a pedal note when the hihat pedal is fully depressed (Clavia D-Drum and Roland V-Drum brains fall into this category), then you should deactivate this setting if it is enabled.

Auto splash event

When using an electronic drumkit with variable hihat controller pedal, activating this setting results in an open hihat sound being generated if the hihat pedal is opened soon after a closed tip, closed shank or Pedal articulation. The length of time within which this function operates is defined by the Hihat Reopen Threshold setting in the Preferences.

It is highly recommended to enable this setting when using some Roland drum brains such as the TD-20.

All Hihats variable

This setting represents a quick way of changing a set of regular hihat articulations into a variable hihat setup. It works by changing all hihat articulation mappings (with the exception of the pedal articulation) to variable equivalents.

To illustrate this using the Roland TD-20 example:

Roland note	MIDI note* (note no.)	BFD3 mapping	All Hihats variable enabled
Open Bow	A#1 (46)	open tip	Variable tip
Closed Bow	F#1 (42)	closed tip	Variable tip
Open Edge	D0 (26)	open shank	Variable shank
Closed Edge	A#-1 (22)	closed shank	Variable shank
Pedal**	G#1 (44)	pedal	Pedal

* MIDI note octaves are specified using -2 octave numbering (lowest note is C-2)

** The hihat pedal controller signal is transmitted via MIDI CC #4.

In the table above, the column to the extreme right shows the effective mappings with the setting enabled. The original mappings are not changed - you can return to normal by disabling the preference.

While the preference is enabled, hihat articulations display the relevant variable hihat controls in the Advanced mapping settings display instead of the standard settings, so you can customize hihat response as you would when dealing with variable tip and variable shank articulations.

Hihat Transition Mode

Activating this setting enables smooth transition modelling between hihat positions.

Preference settings related to hihat control

Retrigger threshold (Engine Preferences/Synth Engine section)

As mentioned earlier, the **Retrig Threshold** setting in the [Engine Preferences](#) exists to combat double-triggering problems. Dual-zone hihats can be especially prone to this. Increasing this setting may help in overcoming such problems.

Hihat choke fade settings (Engine Preferences/Fades section)

The hihat has more [choke fade](#) settings than other Drum types because of its more complex nature. The default Hihat choke fade settings should be adequate for most purposes, using both e-drums and more conventional input means.

The default values are as follows:

Hihat choke fade (base)	0.500
Hihat choke fade (range)	0.500
Hihat closed tip choke fade	0.050
Hihat pedal choke fade	0.050

These settings result in a fast choke on a hihat articulation that is currently playing if a pedal note (usually G#1) is received (it also performs a fast choke on closed tip articulations – see later). Most drum brains send out a pedal note when the hihat pedal is fully depressed, in addition to the MIDI controller messages for pedal movement.

All other articulations are choked more slowly, allowing more natural cymbal-style choking for open hihat sounds. This also means that that open hats will not be choked when drum brains send out spurious MIDI notes due to cross-talk between zones etc.

Additionally, there is a separate choke fade setting for Closed Tip sounds. This is provided for keyboard drummers and programmers who are accustomed to choking open hats with a closed hat due to unfamiliarity with physical hihat behaviour.

You may find that your e-drum system is demonstrating a lot of cross-talk between hihat zones and perhaps sending out undesired Closed Tip notes. If this is the case, try increasing the **Hihat closed tip choke fade** setting to a larger value.

Please note that since the Closed Shank articulation is quite a splashy sound, not unlike a 1/4-open tip, it is treated as an 'open' articulation - it chokes open articulations with the standard **Hihat choke fade** times.

Hihat reopen threshold (Session Preferences/Hihat setup section)

[This setting](#) defines the length of time after a Closed or Pedal hihat articulation within which the Auto Pedal Splash function, set in the Hihat Response panel, is active.

This setting is defined in musical notes, as the time required for this function typically varies according to the tempo. It is set at 1/64-note by default, which is optimal for most situations. However, if you need to adjust this response, it can be set to between 1/128-note and 1/16-note.

Hihat transition fade time (Session Preferences/Hihat setup section)

[This setting](#) adjusts the amount of time for the transmuting processes associated with the **Hihat Transition Mode** and the **Auto Pedal Splash** settings.

Positional snare control

BFD3's snares, and those of many other compatible expansion packs, feature a Half Edge snare articulation, with the head of the snare struck halfway between the centre and the edge. The regular Hit articulation, on the other hand, is a result of the snare head being struck in the centre.

The *Variable snare* articulation allows you to access the Hit and Half Edge articulations using the positional sensing of snares in electronic drumkits such as those by Roland.

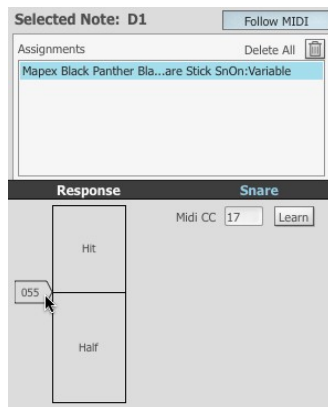
Positional sensing works by the drum brain sending out a MIDI CC representing the distance from the centre (where the value is 0) and the edge (value 127).

Using positional snares in BFD3

In order to utilize this functionality, a variable snare articulation must be mapped in the Key Map page. Typically, you should assign it to the key normally assigned to the Hit articulation, usually D2. Please ensure that it is the only articulation on the key – delete any articulations that may have originally existed.

Snare Response panel

After a Variable snare articulation has been mapped, select the key on which the mapping exists using the keyboards in the Key Map panel and then click the Snare button in the Mapping Editor to show the Snare Response panel.



MIDI CC

This setting specifies the MIDI CC# to use for the snare position. The setting used here depends on the value transmitted by your drum brain. On Roland kits, this MIDI CC is usually CC #17. To set the value, you can either:

- Click the value, type a new number between 1 and 127 and hit ENTER.
- Click the **Learn** button to the right of the setting and strike your snare - if it transmits a CC for the position information, it is detected.

Snare transition

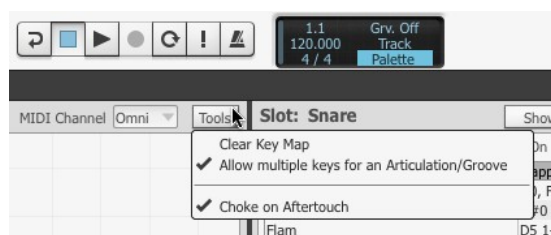
The **Snare transition** control is very similar in concept to the Pedal transitions control in the Hihat Response panel. It specifies the articulation transition point between Hit and Half Edge articulations over the range of the snare position MIDI CC.

This control features an adjustable point on a vertical slider, with the point representing the transition between the 2 articulation 'zones'. The transition point displays a value from 0 to 127, which corresponds to the snare position MIDI CC value at which the transition occurs. Click and drag the point up and down to adjust it.

If the point is set at 55, this means that the two resulting zones are set as follows:

Hit	0-54
Half-edge	55-127

Controlling cymbals



Many electronic drumkits feature manual choking of cymbals by 'grabbing' the cymbal trigger pad. Such cymbal pads usually involve a pressure controller that transmits polyphonic aftertouch (poly pressure) messages associated with the cymbal MIDI notes.

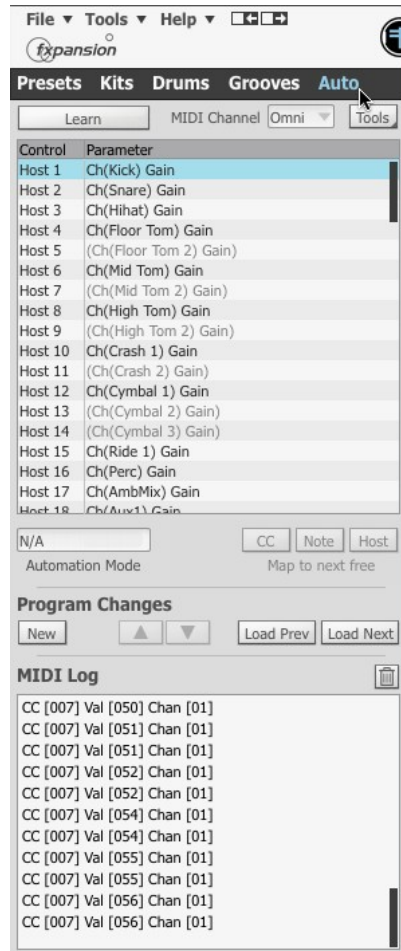
This feature can be used in BFD3 by enabling the **Choke with aftertouch** setting in the [Key Map](#) panel's **Tools** menu. Please note that aftertouch choking only works on Cymbal slots.

5.3 Automation Maps

The Automation panel allows you to view, create and modify MIDI and host automation assignments to BFD3 parameters.

It also provides access to the Program Change Playlist - see the [next section](#) for details of this function.

The Automation panel is not visible at the same time as BFD3's Browser - to make it visible, click the **Auto** button above the Browser.



To exit the Automation panel, click the **Auto** button again to hide it or click any other Browser tab button to display it instead.

MIDI automation and host automation

MIDI and host automation both have their own advantages and disadvantages:

Hardware MIDI controllers tend to be cheap and widely available while host automation controllers can tend to be less plentiful and more expensive. Despite this, it is usually possible to simply draw automation data in terms of lines and curves directly in your host instead of using hardware to create this data. It is also usually possible to draw MIDI CC automation in a similar way. Please check your host's documentation for more details on its support for MIDI CCs and host automation.

Host automation tends to offer greater resolution (although this varies wildly depending on your particular DAW's implementation) while MIDI CCs are limited to 7-bit resolution (128 steps), which can lead to smoother automation.

In the case of MIDI, BFD3 is capable of using both MIDI continuous controllers (CCs) and MIDI notes. The latter are particularly useful for automating button-type controls.

Automation panel layout

MIDI channel

Automation Map assignments can be created on any MIDI channel. By default, BFD3 responds in Omni mode - in other words, on any MIDI channel. This can be changed to a specific channel from 1-16 using the **MIDI Channel** drop-down menu.

Automation assignments can exist on a separate MIDI channel to that used for the Key Map - its MIDI channel setting is entirely distinct. Setting a different MIDI channel to that used for the Key Map is useful when using significant numbers of MIDI note mappings.

The current **MIDI Channel** setting applies to all current automation assignments, regardless of the MIDI channel used when it was created.

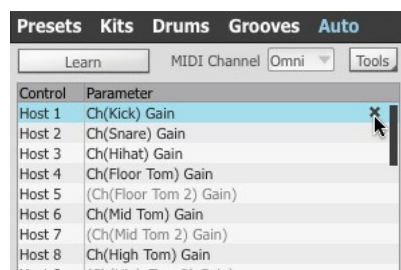
Learn button

Activate this button to enter Learn mode, used for the process of mapping BFD3 parameters to automation control sources. See the guide below for details of how to use this button.

Map to next free

These 3 buttons are also used in the mapping process - see the guide below for details.

Mapped parameters list



This list displays current automation mappings as well as program changes for the program change playlist. Program changes are always displayed underneath automation mappings. The Program Change playlist is discussed in the next section.

Each mapped **Parameter** is shown to the right of the **Control** source to which it is assigned.

Delete mapping

When the cursor is hovered above a mapping in the list, a **Delete mapping** button ('X') is shown at the right. Click the button to delete the mapping.

Automation Mode

This setting is used to adjust the behaviour of the selected mapping in the Mapped parameter list. See below for a guide to using this setting.

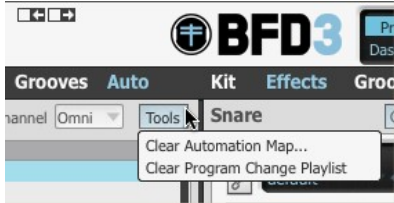
Program Changes

This part of the panel is discussed in the [next section](#).

MIDI Log

The MIDI Log provides an overview of incoming MIDI messages, useful for troubleshooting mapping operations.

Tools menu



Clear Automation Map

This function clears all current automation assignments of all types. You are prompted for confirmation before this function is applied.

Clear Program Change Playlist

This function clears the Program Change Playlist, discussed in the [next section](#).

Creating an automation assignment



1. First, display the Automation panel if it is not currently visible, using the **Auto** button above the Browser.

2. Then click the **Learn** button in the Automation Panel.

The BFD3 interface changes to highlight any controls that can be automated. Any existing automation mappings are labelled on the control.

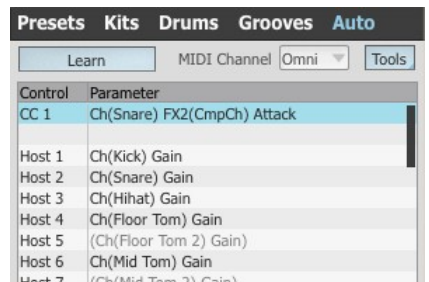
In this state, you can use the interface to display the desired control if it is not currently visible.

3. The assignment is then created in any of the following ways:

Learn an incoming message



- Click the parameter within the BFD3 interface you wish to assign to an automation control source.
- Move/adjust the hardware knob/fader/key to which you wish to map the BFD3 parameter.
- Alternatively, suitable data can be drawn/painted within a track in your host/DAW and played into the BFD3 plugin. Usually, values are sent as they are drawn - please consult your host's documentation for details on sending values for MIDI CCs, host automation parameters and MIDI notes.
- The BFD3 parameter is now labelled with the learned automation source to confirm that it is now mapped.



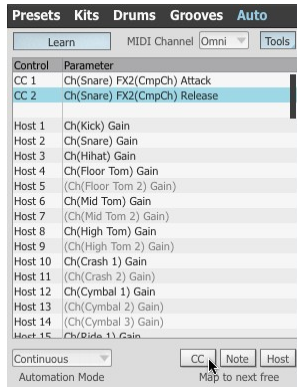
The mapping is also shown in the **Mapped parameters** list in the Automation panel.

MIDI assignments are shown above host automation assignments.

Use the Map to next free function



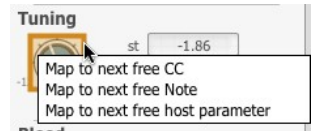
- Click the parameter within the BFD3 interface you wish to assign to an automation control source.



- Click one of the **Map to next free** buttons in the Automation panel to map the BFD3 parameter to the next unmapped **CC**, **Note** or **Host** automation source.

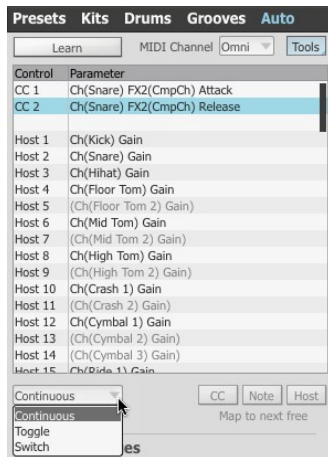
The mapping is now shown on the BFD3 parameter and in the **Mapped parameters** list in the Automation panel.

- Alternatively, right-click on the desired BFD3 parameter and use the **Map to next free** functions on the menu that appears.



Adjusting automation behaviour for a mapping

The **Automation mode** setting changes the behaviour of the selected mapping in the Mapped parameter list. Click the button to display a drop-down menu of the 3 following settings:



Continuous (default for MIDI CCs)

This is the default mode and the most typically useful way to control a fader or knob – the fader or knob's value follows the MIDI CC values continuously.

Switch

This mode is intended to be used when controlling button parameters with MIDI CCs. The MIDI CC range is divided in two, with values of 0-64 triggering an 'Off' state and values of 65-127 triggering an 'On' state.

This mode can also be used with MIDI notes - notes with a velocity between 0-64 switch the BFD3 parameter to an 'Off' state, while notes with a velocity between 65-127 switch the BFD3 parameter to an 'On' state.

Toggle

This mode is available for MIDI note assignments and sets the assignment to 'latching'-style behaviour – play the note once and release it to trigger an 'On' state, and play/release the note again to return it to its 'Off' state.

This mode is recommended when assigning the **Record/Loop** transport buttons to MIDI notes.

Momentary

This mode is available only for MIDI *note* assignments - the assigned BFD3 parameter is set to an 'On' state while the MIDI note is held down (when it sends a MIDI note on message).

Upon release of the MIDI note (when a MIDI note off message is received) the control returns to its 'Off' state.

This mode is recommended when assigning the **Play/Stop/Return to Start** transport controls.

Saving the Automation Map

All the following functions can be found in BFD3's **File menu**.

Save Automation Map

This function opens a system file save dialog prompting for a location and filename to save the current Automation Map.

It is recommended to save the Automation Map to the default location - **<user location>/Maps** - so that it is accessible from the Load Automation Map panel without further adding and scanning of data locations.

Save Key + Automation maps

Save MIDI Event Log

See the [MIDI Key Maps](#) section for details on these functions.

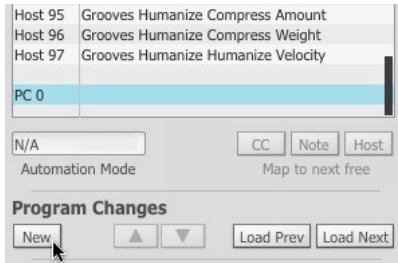
5.4 Program Change playlist

The Program Change Playlist manages mappings between MIDI program change messages and BFD3 Presets. No mappings are set up by default but they can be created and saved in the Automation panel's Program Change Playlist section.

The Automation Map panel is not visible at the same time as BFD3's Browser - to make it visible, click the **Auto** button above the Browser.

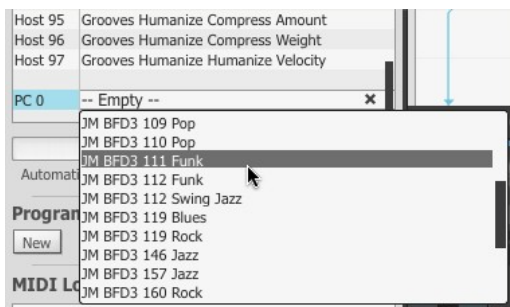
To exit the Automation panel, click any other Browser tab button - either the **Presets**, **Kits**, **Drums** or **Grooves** buttons.

Creating program change entries in the playlist



Create a New playlist entry

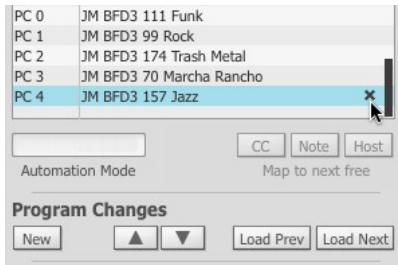
Click the New button to create a new entry in the Program Change Playlist. A new entry appears named 'PC 0' under the **Control** column of the Automation panel's Mapped parameter list, unless any entries already exist, in which case its name is PC *n*, where *n* is 1 higher than the last program change in the list.



Assign the playlist entry to a BFD3 Preset

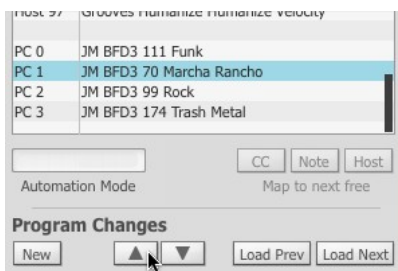
Click a program change entry that has been newly created using the New button, under the **Parameter** column. A drop-down menu of the available Presets in the BFD3 database is shown. Simply scroll down to and click the required Preset to make the assignment.

Managing program change playlists



Removing entries in the playlist

When the cursor is hovered above program change entry, a **Delete mapping** button ('X') is shown at the right. Click the button to delete the mapping.



Re-ordering entries in the playlist

The **Move Up / Move Down** buttons allow you to re-order the program change playlist by moving the selected playlist entry up or down in the list. Click the playlist entry under the **Control** column in order to select it without displaying the drop-down menu of Presets.

Using the playlist with MIDI or the Load Prev / Load Next buttons

To switch between the different playlist entries, you will need a MIDI controller capable of transmitting program change messages. A good solution is a footswitch board – these are quite easy to source and are commonly used to send program change messages. Other possibilities include the preset inc/dec buttons on many keyboards, which often transmit program change messages from the MIDI output.

Alternatively you can use the **Load Prev / Load Next** buttons - these can be mapped to a MIDI or host automation source in order to cycle through program changes remotely.

Loading and Saving Program Change Playlists

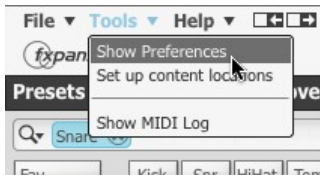
It is important to note that Program Change Playlist is *not* saved with a BFD3 Preset - this part of BFD3 lies outside the scope of the Preset since it switches between Presets.

The BFD3 **File menu** features the **Load Program Change Playlist** and **Save Program Change Playlist** functions - Both of these functions display a system file dialog for specifying a filename to load or save. It defaults to the **<user location>/Playlists** folder.

The **Default Program Change Playlist** setting in the [Preferences](#) allows you to define a Program Change Playlist to load whenever BFD3 is launched.

6 BFD3 Preferences

Preferences panel



The Preferences panel is displayed with the Show Preferences function in BFD3's Tools menu.

It features a number of functions to customize various aspects of BFD3's performance, resource usage, control behaviour and interface.



The panel features a number of pages:

Data Preferences: settings related to BFD3's content locations and various startup loading options

Grooves Preferences: settings related to the Groove engine

Session Preferences: settings which are loaded and saved with Presets and host/DAW sessions when running the BFD3 plugin

MIDI Preferences: settings related to MIDI input

Engine Preferences: settings related to BFD3's core engine, modelling and streaming functions

GUI Preferences: settings related to BFD3's graphical user interface

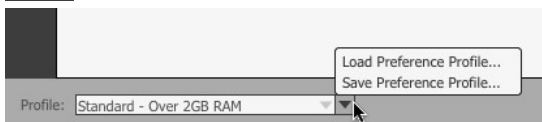
Health Preferences: settings which are designed for troubleshooting purposes when you require support - please ignore this page unless instructed to use it by our technical support team

Profiles

The Preferences panel features a Profile system which loads/saves settings for all settings in the Engine Preferences page with the exception of the Simulation settings.

These profiles allow you to define different profiles for different situations - for example, low quality/detail level settings for composition work, and high-detail settings for mixdowns and exports.

Click the **Load/Save** button to display the **Load Preference Profile...** and **Save Preference Profile...** functions - use the latter function to save the current settings as a profile. Use the former function to load a profile from any location on disk, or use the main drop-down menu to choose from the available profiles currently in the database.



The profile is also set using the BFD3 Setup Wizard, launched when using BFD3 for the first time or available at any time in BFD3's **Help menu**.

6.1 Data Preferences

Program Bank section

Default Program Change Playlist

This setting specifies a default Program Change Playlist to load when BFD3 is launched. Click the **Browse** button to specify the desired file.

Preference and Database management section

RESET ALL PREFERENCES

Clicking this button, and agreeing to the subsequent confirmation dialog, results in all your preference settings being trashed, reverting to factory default settings.

Data Paths section

Launch Content Paths Manager

This button opens the [Content Locations](#) panel, which can also be opened using the **Set up content locations** function in BFD3's **Tools menu**.

Prompt for missing Data Paths

With this setting activated, BFD3 prompts for any missing content locations when it is launched. Typically, these may include external USB2/USB3 drives which are not yet connected and mounted.

Startup section

Startup Preset

Any Preset currently in the database can be used as the Startup Preset - this is loaded whenever BFD3 is launched. When this is set to *Don't load anything*, BFD3 is launched in its factory default state.

6.2 Grooves Preferences

MIDI Import section

Import MIDI key map Unmapped MIDI note mode

These settings are described in the [Importing MIDI files](#) section.

MIDI & Audio Export section

MIDI export Mode

This setting specifies the track structure of exported MIDI files. It can be set to *One track for all Drums*, *One track per Drum* or *One track per articulation*.

Export adds unmapped Key Map articulations

If this setting is activated, exporting a MIDI file from the Groove engine adds mappings to any unmapped articulations automatically, so that the MIDI file sounds the same when played back with BFD3's sounds. It is advisable to subsequently save a BFD3 Preset or a Key Map with the mappings in place if you intend to use the MIDI file in future.

Export prefers variable articulations

If this setting is activated, hihat events are converted to variable articulations along with accompanying hihat pedal controller MIDI CC data when Grooves are exported as MIDI. Variable articulation mappings and a hihat pedal MIDI CC must be specified in the Key Map used for the export.

With the setting deactivated, specific hihat articulations are exported.

Export tail length (seconds)

This setting specifies the size of the tail retained at the end of an audio export. The length of the tail is set in seconds. Retaining a tail at the end of exports makes sure that any lingering decays are captured.

When creating audio files that are an exact number of bars long (for example, when creating 'loops' with the **Export Groove Audio** function), set this preference to 0.

Auto-arm Mixer Channels for audio export

This function is described in the [Saving and Exporting Grooves](#) section.

Editor Preferences

Record lead-in (bars) Groove record commit mode

These functions are described in the [Recording Grooves with MIDI](#) section.

Maximum undo steps

This setting specifies the maximum number of undo steps in the Groove Editor's multi-stage **Undo** function. More steps use more RAM!

Cubase loop correction

This preference should be activated to achieve correct timing when using Cubase's loop function.

MIDI rec. quantization in PPQN (0 = none)

This setting adjusts the resolution of quantization when recording Groove events via MIDI, with the default setting providing 960 PPQN resolution. With a setting of 0, no quantization is applied.

MIDI Start/Stop control enabled

With this setting activated, BFD3's transport responds to external MIDI start/stop commands.

Max Drum Track length (bars)

This setting specifies the maximum possible length of the Drum Track, in bars. The default is *1000* - if you require longer drum tracks, increase this value.

Invert Ruler Zoom Y**Invert Ruler Zoom X**

These functions invert the orientation of the zoom/scroll functions when clicking and dragging in the **Ruler** in the [Groove Editor](#).

High-accuracy song position display

This setting is enabled by default and results in a highly accurate position marker in the Groove Editor grid. This can cause more CPU usage on some systems so if you find you are experiencing audio artifacts when using the Groove Editor, try deactivating this setting.

Metronome section**Metronome volume**

This setting allows you to specify a volume level for the metronome, and ranges between a maximum of 100 and a minimum of 1. The level of the metronome can also be set using the Metronome channel in the mixer - it must be enabled with the View menu if it is currently hidden.

Metronome type**Metronome mode**

These settings are discussed in the [Recording Grooves with MIDI](#) section.

6.3 Session Preferences

Session preferences are settings that are useful to save on a session-by-session basis.

To use custom Session preference settings on all new projects, a suitable **Startup preset** should be created and saved in BFD3 and then specified in the Data preferences.

Session MIDI section

Notes MIDI channel Controller MIDI channel

These settings specify the MIDI channels on which BFD3 receives MIDI data for the following purposes:

- triggering articulations with MIDI notes
- automating BFD3 controls with MIDI CCs and MIDI notes

By default, both settings are specified as *Omni*, which means that the Key Map and MIDI automation functions respond on all MIDI channels.

Send MIDI Out MIDI Out channel

These settings relate to BFD3's MIDI Out function, which outputs events from the Groove engine for use with other MIDI-compatible instruments. Your host/DAW and plugin format must support this feature for it to operate.

Hihat setup section

Hihat transition fade time Hihat reopen threshold

These functions are related to playing the Hihat with an [electronic drumkit](#).

Hihat tip tighten Hihat tip tighten (amount) Hihat shank tighten Hihat shank tighten (amount)

These settings are related mostly to controlling hihats from electronic drum systems when using the Tighten controls in the [Drum Editor](#) for the current Hihat.

The **Hihat tip tighten** sets the amount of tightening for the start of the closed zone, with the **Hihat tip tighten (amount)** setting the amount of tightening for the highest value in the closed zone (i.e. fully closed). The same applies to **Hihat shank tighten** and **Hihat shank tighten (amount)**.

However, even if you are not using an electronic drum system, the **Hihat tip tighten** and **Hihat shank tighten** values set the maximum amount of tightening applied by the controls in the Drum Editor's Hihat Tighten section.

Note that for these controls to have any effect, the Tighten controls for the loaded Hihat must be activated and increased from their minimum settings in the Drum Editor.

Session Playback preferences

Revert to factory defaults

Click this button to revert to the factory defaults for the settings in the Session Playback section.

Auto-fill period

This setting specifies the number of bars between fills when using the **Auto-fill** function in the Groove Palette's Default Actions section.

Palette Auto-Play mode Palette Auto-Play Groove

These settings are described in the [Palette](#) section.

Groove engine active

Deactivating this setting disables the Groove engine entirely if it not required (if you are only triggering BFD3 with external MIDI notes).

Latching mode

When this setting is activated, Grooves are started and stopped with a MIDI note on message, instead of the usual behaviour (MIDI note on to start a Groove, MIDI note off to stop it).

Each Groove's Start/End Actions still apply.

Polyphonic mode

By default, BFD3 does not allow more than 1 Groove to play simultaneously. However, this can be changed by activating the **Polyphonic mode** setting. In this mode, a newly-triggered Groove does not stop any other Grooves that are already playing. This is useful for layering Grooves.

6.4 MIDI Preferences

MIDI display section

Octave numbering scheme

Some sequencers and MIDI controller devices use an octave numbering system which begins at C-2, rather than C0, while others use C-1 as the lowest key.

This setting allows you to set the note numbering convention according to your own preference. This setting can be specified using the **Main Host Application** item in the BFD3 Setup Wizard.

Use MIDI numbers rather than notes

With this setting activated, MIDI note numbers between 0 and 127 are used instead of note/octave naming in the form of C-2, C-1, C0, C1 etc.

Program Change index starts at 0

With this setting activated, the Program Change Playlist's numbering starts from 0 rather than from 1.

Show low keys at keyboard bottom

This setting applies only to the vertical keyboard representation in the Key Map panel - with the setting deactivated, the keyboard is inverted - the highest note is at the bottom rather than the top.

Key Mapping section

Prompt for Choke note overwrite

With this setting activated, attempting to map a slot Choke articulation to a key already containing other articulations results in a warning and request for confirmation.

MIDI Learn Note Wizard preferences

These settings control the behaviour of the MIDI Learn wizard in the Kit display.

MIDI learn wait mode default

This setting determines whether **Wait mode** is activated by default.

Only learn 1 note per articulation

When this setting is enabled, the MIDI note learn wizard does not allow the same key to be mapped to more than 1 articulation. If this is attempted, the previous mapping is removed.

MIDI learn next slot mode default

This setting specifies whether **Next slot mode** is activated by default.

MIDI learn accept time (sec)

This setting defines the amount of time that is allowed after a Learn mapping has been created for an alternative note to be played, in case the original note was played in error. The value of this setting is 5 seconds by default.

MIDI learn skip time (sec)

When **Wait mode** is deactivated in the wizard, this setting specifies the time delay before the wizard moves onto learning the next articulation (or the next Drum, if the current articulation is the last in the current Drum and **Next slot mode** is activated). The default value of this setting is 15 seconds.

6.5 Engine Preferences

Streaming Engine section

RAM buffer

This value, in sample frames, is the size of the portion of each sound held in RAM to enable low latency playback, circumventing the inherent latency involved with disk seek times. The portion held in RAM plays while the streaming engine cues up the rest of the data from the hard disk. A larger value gives the hard drive longer to deliver the data, but is more demanding on RAM. If the setting is too low for your system, you are likely to suffer from dropouts and other audio artifacts.

This value determines the length of each sound played when the Preview RAM audio only option is enabled.

Settings of 4096, 8192, 16384, 32768 and 65536 samples are possible, selectable via a drop-down menu. A setting of 16384 or 32768 is fine for most systems, while fast newer machines may be able to run with settings of 4096 or 8192.

Stream buffer

This is the size, in sample frames, of the buffers of data being streamed into RAM from the hard disk for each voice. Generally, hard drives are more efficient at reading fewer large chunks of data than many smaller chunks. However, a larger Stream buffer uses more RAM, and may be inefficient if not all the data is used, such as when notes are choked.

Settings of 4096, 8192, 16384, 32768 and 65536 samples are possible, selectable via a drop-down menu. Settings of 8192, 16384 or 32768 are fine for most systems.

Load all to RAM

With this setting activated, the entire kit is loaded to RAM and no data is streamed from the disk during playback.

Please ensure you have enough RAM before using this option, and that you are running BFD3 within a suitable environment with the other engine preferences set to suitable values. Unless your system is fully 64-bit (64-bit plugin within a 64-bit host in a 64-bit OS) with a high amount of RAM, it is unlikely that you will be able to load full detail kits with **Load all to RAM** activated. In 32-bit environments, **16-bit mode** should be activated and the **Max velocity layers** setting reduced to a much smaller value.

16 bit mode

In this mode, sample data is loaded into RAM and streamed from disk at 16 bit instead of 24 bit. Because 24 bit data is stored in memory as 32 bit floats, using 16 bit mode effectively halves the memory footprint required by BFD3.

Max voices

The **Max voices** setting dictates the maximum number of voices the BFD3 engine can play simultaneously. If the voice limit is exceeded, an intelligent voice-stealing system is applied, based on the oldest voice which is still playing.

The number of voices required for a performance can be much larger than anticipated. For example, decaying cymbals and toms can raise polyphony requirements very significantly. 64 is a safe number to use for this setting - voices do not consume a large amount of RAM when unused.

Max velocity layers

This setting limits the number of velocity layers used for each Drum articulation, thereby reducing the strain on the hard disk and RAM but at the expense of detail.

If a Drum is loaded that has more layers than the number specified with this setting, only selected velocity layers at proportional intervals over the range are loaded. The Drum's natural timbral variations are still heard but with less 'resolution' over the velocity range.

Smaller values can be useful as an efficient preview mode while composing, especially with other RAM-intensive plugins and instruments in your host/DAW project.

Simply increase the value and restart the engine before performing a final mixdown with full quality.

To change the setting, click the field and enter a new value between 1 and 256.

Note that the Detail section in the Engine Preferences allows further Detail settings for each Drum class - these operate as proportional reductions of the **Max velocity layers** setting.

Max cache buffers

This setting represents the maximum number of disk streaming buffers cached in RAM. If the same velocity layer is triggered repeatedly, it is possible to avoid reading from the disk by reusing the disk streaming buffers with the same data. This parameter determines how much RAM to devote to storing layers to play again.

With any kind of dynamics in a performance or when using the Anti-MachineGun functions, layers do not tend to be reused very often so this setting can be reduced if you wish. Each voice does still require 1 cache buffer.

Preview RAM audio only

This setting forces the engine to play only the initial part of the sounds which are held in RAM without streaming the remaining parts from disk.

This mode may be useful while composing in order to avoid disk usage, and reactivated during mixdown. The actual amount of each sound stored in RAM is determined by the **RAM Buffer** setting.

Mixer in own thread

Activating this setting offloads the BFD3 mixing engine to another core of your CPU. Please note that this mode increases latency by one host buffer (usually this is defined by the buffer size setting for your audio card). This is for technical reasons and is unavoidable.

Restart engine

If any of the following settings are changed, it is necessary to use the **Restart engine** button in order to make them active:

- Load all to RAM
- 16 bit mode
- RAM buffer
- Stream buffer
- Max cache buffers
- Max velocity layers

If any Drums are currently loaded when this function is used, they are automatically reloaded after the engine is reinitialized with the new settings.

Enable BFD3 extended channels

When this setting is deactivated, only the OH, Room and Amb3 ambient channels are active - extra Mono and Comp channels are ignored, meaning that kits use much less RAM.

When the setting is activated, all channels possessed by a Drum are loaded.

Synth Engine section

Drummer perspective

This preference provides the default setting for the **Audience/Drummer** switch in the [Kit display](#).

Disable SideStick tuning

With this setting activated, the SideStick articulation is not affected by any tuning changes for the Snare. This results in behaviour that more closely resembles how a real snare works.

Anti-MachineGun mode

This preference provides the default setting for the AMG button in the [BFD3 Dashboard](#).

Retrigger threshold

This setting defines a period of time after each received MIDI note within which further received notes are ignored. This setting is useful for trigger systems such as electronic kits that are prone to double triggering.

The value is set in seconds. The default value is 0.050 (50 milliseconds).

Fades section

A choke fade, or fade, occurs if an articulation in a Drum is triggered before an older articulation from the same Drum has finished decaying.

For example, when playing a high tom twice rapidly in succession, the first is faded out when the second is triggered. The fade settings allow you to adjust the duration of these fades that occur when using choking.

Fade times for each Drum slot are available within the Choke Response section of the [Drum Editor](#) (on the **Model** page).

The fade settings in the Preferences represent default settings to use in an empty launch state. Hihat, Tom and Cymbal slots possess their own fade defaults in this section - the **Default choke fade (base)** and **Default choke fade (range)** settings apply to all other Drum types.

How fades work

There are two components to choke fade times: **fade (base)** is the minimum fade time, while **fade (range)** is the maximum additional time added to the (base) value, according to BFD3's 'dominant excitation preservation' algorithm. This algorithm allows longer fade times for louder events (higher velocities) when choked by quieter events (lower velocities) and reduces the fade time when a low velocity event is choked by a subsequent higher velocity articulation. A quiet event choked by a loud event has a fade time of **fade (base)**, whereas a loud event choked by a quiet event has a fade time of **fade (base) + fade (range)**. This approach achieves realistic results while reducing the disk streaming load when possible.

Please note that adjusting fade settings to extreme values can achieve results which may sound unrealistic. Subtle use is advised if realistic results are desired. Extreme settings are, however, allowed as an aid to experimentation.

Additional hihat fades

Hihats feature 2 additional fade times: **Hihat closed tip choke fade** and **Hihat pedal choke fade**.

The pedal is the only thing that chokes an open hihat when playing a drumkit. When playing BFD3's sounds from an electronic drumkit, the pedal note transmitted when the pedal is moved down fully is used to choke any playing open hihat articulation. It has also become conventional for sample-based drumkits to choke open hats with a closed hat note.

Both of these settings should be set to low values, with the other fade times for the Hihat (which cover all open positions and the Closed Shank articulation) set to higher values.

Additional snare fade

Snares feature an additional choke articulation and associated fade time for choking Drag articulations, allowing you to shorten drag roll articulations. The fade time for this type of choke is set with the **Snare drag choke fade** setting. This setting is also available in the Drum Editor via the **Special** setting in the Choke Response section.

Detail section

The Detail settings specify the level of velocity layer detail for each Drum Class: Kicks, Snares, Hihats, Toms, Cymbals and Percussion.

These settings operate relative to the **Max velocity layers** setting, with proportional layer selection throughout the maximum range occurring in the same way.

Four detail level options are available for each Drum class:

Minimal

A single velocity layer is loaded for each articulation in the Drum class.

Small

Approximately 25% of the number of layers specified by the **Max velocity layers** setting are loaded.

Medium

Approximately 50% of the number of layers specified by the **Max velocity layers** setting are loaded.

Large

The maximum possible number of layers as specified by the **Max velocity layers** setting are loaded.

Simulation section

Kick to Tom Spill

Snare to Tom Spill

Kick to Tom Resonance

Snare to Tom Resonance

These settings provide overall gain scaling levels for the Drum Editor's Res Trim and Spill Trim settings for the Kick and Tom slots.

6.6 GUI Preferences

Mixer GUI section

Default mixer direct channel gain

Default mixer OH channel gain

Default mixer ambient channel gain

These settings provide default levels for direct Drum channels, the OH (OverHead) and other Ambient mic channels.

Create mixdown busses

With this setting deactivated, Kick, Snare and Ambient channels appear in the mixer without parent Kick/Snare/Ambient Mix channels. Note that this setting applies only to mixes created from default settings in future - existing presets still retain whatever mixer configuration with which they were saved.

Show Drum linking

With this setting activated, Drum linking setups are shown overlaid on Drum mixer channel images in addition to within the Kit display.

Show mixer signal routing

Show Export panel

Export on right

Show ambient channels

Show aux channels

Show direct channels

Show metronome channel

Show side chain input channel

Simple channel view

Show mini mixer

Animate mixer hits

These preferences provide default settings for the corresponding functions in the mixer.

Animate mixer meters

Animate FX meters

These settings allow you to disable metering on mixer channels and in FX interfaces. While these settings are enabled by default, they are provided in case the metering graphics cause excess CPU usage on your system.

Show output names as numbers

With this setting activated, all outputs are shown as names rather than numbers in the mixer's Output selectors and Export panel.

Control behaviour section

Startup Screen

This setting dictates which part of the BFD3 interface should be shown by default on launch. It can be set to show the *Kit* display, *Effects* Editor or *Groove* Editor. Alternatively, the last panel in use (*last used*) can be specified instead.

Startup Browser

This setting determines which Browser tab should be shown by default on launch. Alternatively, the last used tab (*last used*) can be specified instead.

Restore panel on load

If this setting is activated, the currently viewed panels remain in focus rather than being changed to those stored in Presets when they are loaded.

If the setting is deactivated, the panels in focus when a Preset was originally saved is recalled when it is loaded.

Circular knob motion

When this setting is activated, circular mouse movement is required to rotary knobs in BFD3's interface. When the setting is deactivated, circular knobs are controlled by vertical mouse movement (drag up to increase, and drag down to decrease).

The setting is deactivated by default.

Left-right velocity-scaled preview support

With this setting activated, the following preview hotspots feature low to high velocity previews from left to right (or from the top down in the case of the horizontal keyboard in the Key Map page):

- Clicking Drum slots in the Kit display
- ALT-clicking Drum mixer channel images
- Clicking items in the Drums Browser
- Clicking keys in the Key Map page's vertical and horizontal keyboards

If the setting is disabled, clicking anywhere in these preview hotspots results in fixed velocity previews.

Display tool-tips

Enabling this setting results in a tool-tip – a short piece of context-sensitive help – appearing when the mouse cursor hovers over a part of the user interface for a certain amount of time.

Tool-tip appear time

The amount of time required to hover over a control or other part of the interface can be defined with this setting.

Tool-tip appear time

This setting specifies the time required to hover over a control or part of the user interface for a tool-tip to appear. The time is defined in animation frames. A setting of 23 is roughly equivalent to 1 second.

Kit page section

Select triggers preview

When this setting is activated, a preview is heard when clicking a Drum slot in the Kit display with the Select tool active.

Animate hits

When this setting is activated, Drum slots in the Kit display are animated to represent incoming event triggers (from MIDI or from the Groove engine).

Keyboard Shortcuts section

This section allows you to set up keyboard shortcuts for various functions within BFD3. Please note that many hosts/DAWs 'steal' keyboard input from any plugins - in such cases, it is not possible to use keyboard shortcuts with BFD3.

To ensure that no problems occur with hosts that do not handle plugin key commands well, all key commands are disabled by default and must be set up manually.

If keyboard shortcuts are set up and you experience problems when working in any hosts, deactivate the **Enable keyboard support** setting.

Assigning shortcuts with the Learn and Learn Multi buttons

Shortcuts are assigned to functions by clicking the function in the list, and then clicking the **Learn** button above the list. Now press the desired key or key/modifier combination to assign it to the function. CTRL, SHIFT and ALT modifiers are accepted.

Use the **Learn Multi** button to keep assigning keyboard shortcuts to the subsequent entries in the list, either until the end of the list is reached or until the **Learn Multi** button is deactivated.

Clearing shortcut assignments

To remove an assignment, select a function and click the **Clear** button.

Click the Clear All button to remove all current assignments.

7 Using the BFD3 standalone application

The standalone version of BFD3 is a minimal host application that loads the BFD3 plugin. On Mac OSX, the standalone version of BFD3 can be found in your **Applications** folder. On Windows, it is located in your **Program Files\FXpansion\BFD3** folder.

The standalone application allows you to change the **Tempo** and **Time Signature** settings.

Important

The following functions are available via the main operating system menus for the application - *not* the main menus on the BFD3 interface itself.

Audio preferences

On Mac, click the **BFD3** menu item at the top of your screen (next to the 'Apple' menu), and choose **Open Audio Preferences** from the Preferences sub-menu.

On Windows, click the **Options** menu on the BFD3 application's menu bar, and choose **Open Audio Preferences**.

To close the Audio preferences window, click the **Finished** button.

Audio settings

Samplerate

This setting dictates the samplerate of the BFD3 session. If your audio interface allows you to set the samplerate within its own control panel, this preference is set to the same samplerate.

Buffer size

The buffer size is set to the same value as that specified in your audio interface control panel. Note that some audio interfaces' drivers will only permit you to change the buffer size in their own control panel - in these cases, the BFD3 buffer size setting is not accessible.

Higher buffer sizes are less stressful for the CPU, but the latency is also higher as a result.

Output device (Mac OSX)

ASIO device / Open ASIO panel (Windows)

On Mac OSX, simply select an Output device from the drop-down menu containing all available CoreAudio devices detected in your system.

On Windows, select the appropriate ASIO device driver from the drop-down menu. Click the Open ASIO panel button to open the selected ASIO device's control panel.

Inputs/Outputs

All outputs provided by the selected Output device or ASIO device are shown in these sections. Click a set of inputs/outputs to activate it. To enable multi-output operation (if your audio interface has more than a single stereo output), activate *All outputs*.

MIDI preferences

On Mac, click the **BFD3** menu item at the top of your screen (next to the 'Apple' menu), and choose **Open MIDI Preferences** from the Preferences sub-menu.

On Windows, click the **Options** menu on the BFD3 application's menu bar, and choose **Open MIDI Preferences**.

To close the MIDI preferences window, click the **Finished** button.

Input devices

This section shows all MIDI input devices detected on your system - click the **Refresh** button to redetect devices. At least 1 device must be enabled in order to route MIDI signals into BFD3.

- Activate the checkbox on the right to route MIDI signals from the input into BFD3.
- Activate the checkbox on the left to route MIDI clock signals into BFD3.

Click any activated checkbox again to deactivate it.

Output devices

This section shows all MIDI output devices detected on your system. A device must be activated in order to use the MIDI output feature from BFD3. Click an output device to activate or deactivate it.

Sync to MIDI clock

When this setting is activated, the BFD3 standalone application is synchronized to an external MIDI clock. The MIDI input device which carries the MIDI clock signal must be specified as described above.