



## MANUAL



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# 1. INTRODUCTION

Thank you for choosing FXpansion's *BFD!* We hope you will agree that the painstaking effort of putting it together has resulted in the most realistic acoustic drum machine ever.

## CREDITS

**Lead Programmer:** SKoT McDonald ([www.vellocet.com](http://www.vellocet.com))

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## With thanks to:

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[www.eldoradorecording.com](http://www.eldoradorecording.com)

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## **2. WHAT IS *BFD*?**

*BFD* is a high-quality acoustic drum module. It concentrates on impeccably-recorded multi-velocity acoustic drumkits, with some crucial differences to using a general-purpose sampler with sample-CDs, or using pre-recorded acoustic drum loops.

### **The *BFD* concept:**

- **Flexible mixing of multiple microphone placements**
- **Hyper-detailed kits: up to 46 velocity layers and a wide selection of hit types, all recorded simultaneously through eleven microphones**
- **Easy compilation of new kits without wrestling with time-consuming editing and combination of sampler programs, or having to load multiple whole kits**
- **A versatile automated drummer in the Groove Librarian**
- **Endlessly variable sound and feel**

All this and more is provided in an intuitive, highly integrated interface, plugged into the heart of your favourite sequencing environment, via the VSTi, DXi, RTAS, AudioUnit and ReWire interfaces. A standalone version is also supplied, which uses the ASIO and CoreAudio protocols. *BFD* supports Windows and MacOS-X operating systems. While *BFD* should work in Windows 98SE and ME environments, we only recommend and officially support its use in Windows 2000 and XP.

When designing *BFD*, we tried to make it easy to use for people who prefer to write music rather than mess with the inner workings of a plugin, while still allowing a great deal of control and flexibility for the habitual tweeker.

## Multiple microphone positions

Each drum component in *BFD* is sampled with a number of microphone placements simultaneously:

**Direct:** a clean, close-mic'd signal. A variety of microphone types were used for this, including Sennheiser MD421, Neumann KM81 and M49, ElectroVoice Re20, AKG 451 and Shure SM57. They were recorded through custom modified API preamps.

**Overhead:** a lush set of overhead mics - namely AKG C-12's (which, incidentally, cost around \$15,000 each), recorded through Summit MPC-100A tube preamps.

**Room:** a room ambience signal, recorded with Neumann U87's and Avalon preamps.

**PZM:** Crown PZM microphones placed at floor level, tracked with API preamps and an additional compression stage (Empirical Labs Distressor set at 3:1 ratio) for added body and sustain.

These signals can be mixed together as desired, so you can 'dial in' exactly the amount and type of natural ambience you need, without having to use CPU-heavy reverb plugins. The ambience in *BFD* is totally natural and the result of painstaking recording in high-quality spaces. Any reverb processor can only try to emulate such a space, while *BFD* gives you the real thing. There is additional control over the distance placement of each mic-set, and the width of its stereo field.

The ambient send levels of each kit element (such as kick, snare, toms, hats and cymbals) can be adjusted in the detailed mixer section, resulting in exceptionally-versatile control over the final drum sound. The mixer section even has controls to handle the blend between mics inside and outside the kick drum, and above and below the snare. In addition, each individual microphone bus, and even each individual dry drum component, can easily be routed to an individual output into the host sequencer's mixer for further sound processing. The mixer section has an

integrated, intuitive preset system, facilitating the ability to save your favourite mixer configurations and flick through them with ease.

## **Hyper-realistic kits**

As well as the flexibility offered by the multiple microphone positions, *BFD*'s high quality drum sample library has an unparalleled degree of realism. For each type of drum type in each kit, there are a number of different styles of 'hits': for example, the snares offer flams, drags, rims and side-sticks, while the hihats include closed and half-open tip & shank, open tip and pedal. Each of these 'hits' is sampled at up to 46 velocity layers, resulting in drum parts of unparalleled detail and expressiveness.

## **Easy compilation of new kits**

Ever tried to edit and combine elements of large disk-streamed sample libraries? You'll know that it isn't exactly the most productive use of creative time in the studio. To save you this tedious, time-consuming process, *BFD* allows you to easily mix and match the kicks, snares, toms, hats and cymbals of the various supplied kits to create custom kits. All this within seconds, and with just a few mouse-clicks! You can preview any potential kit changes in real-time and in context, leaving you free to concentrate on the sound rather than losing your creative flow through excessive file and sample management operations.

Custom kit creations can be easily saved into a small preset file, so it's easy to create a library of drumkits tailored to your requirements, and the small size of these files makes it simple to share your kits with other users online.

## **Flexible play modes: introducing the **Groove Librarian****

In addition to functioning as a single-hit module which can be triggered via the host sequencer's MIDI engine, *BFD* also incorporates an extensive library of 'Grooves', in a number of different styles, feels and time signatures. There is also a comprehensive fill library. What makes *BFD* so powerful is that these 'Grooves' are imple-

mented using standard MIDI files, so it is incredibly easy to create and import your own, or use commercial MIDI-file libraries, such as the Kenton and Twiddly Bits products. *BFD* conforms to the General MIDI (GM) standard, making it very easy to import standard MIDI drum parts as Grooves.

## **Endless variety of sound and feel**

*BFD*'s intelligent humanization techniques inject that elusive 'soul' into your drum parts. The provided MIDI Grooves are dripping with a variety of feels, and the integrated swing controls make it easy to tighten or relax the vibe as much as required. On top of this, the sound of the Groove can be further humanized through the controlled variation of velocity and timing.

## **Potential uses for *BFD***

*BFD* has the ability to be many things to many people. As well as catering for composers who require 'ready-rolled' but flexible drum accompaniments in order to facilitate song-writing without interruption to the creative flow, it also provides convenient access to the very highest quality sampled drum sounds for producers without access to a real drumkit or good recording facilities.

*BFD*'s sounds and Grooves are perfectly suited to rock, jazz, funk, hip-hop, blues, drum & bass... in fact, anything that may require a real drumkit. It can be used for anything from auto-accompaniment, traditional song-writing and production, to modern techniques such as creating new drum breaks to use in hip-hop and drum & bass production.

## **A note about the manual**

We have designed *BFD* to be as intuitive as possible, to the point where it is possible to fire it up and be up and running within seconds for instant gratification. However, it is recommended that you go through the tutorial chapter ("Using *BFD*") which introduces the plugin's variety of features in a logical and straightforward



way, so that you can make sure you understand all the concepts crucial to the way it works.

It is also highly useful to be aware of the Appendix, which contains notes on a number of technical issues regarding performance and troubleshooting.

We also hope that you don't find the size of this manual intimidating, as there are several sections (for example, the host-specific Quickstart guides) which you may not need to concern yourself with, depending upon your level of experience.

## **Technical Support and Updates**

Before contacting our support department, please make sure you have fully read the manual, and in particular, the technical appendix. If, after following the manual's advice, you still cannot resolve your problem, our support department will be only too happy to help.

Our primary technical support channel is our support forum at [kvr-vst.com](http://www.kvr-vst.com):

<http://www.kvr-vst.com/forum/viewforum.php?f=13>

This forum is monitored by FXpansion technical support staff, as well as the developers themselves; it is also home to many highly knowledgeable users and answers to your questions can be found quickly at all hours of the day. If, for whatever reason, you are unable to access the Forum, or cannot get a satisfactory answer there, feel free to contact us at:

[support@fxpansion.com](mailto:support@fxpansion.com)

Please be aware that we are continuously working on updates to *BFD* and its content, so please be sure to keep checking our website (<http://www.fxpansion.com>) in order to download updates, new Groove bundles and more!

Many thanks,

**The FXpansion team.**

## 3. INSTALLATION AND GETTING STARTED

### System Requirements

*BFD* requires a substantial amount of computing power. Here is the minimum recommended specification:

- **1 GHz Pentium III or Athlon (for Windows platform)**
- **Apple PowerMac G4 733 MHz (for MacOSX platform)**
- **512 MB of RAM (preferably 768 MB or more)**
- **DVD drive (for installation)**
- **Windows 2000 or XP, or MacOSX**
- **9 GB of free hard disk space**
- **800x600 resolution with 16-bit colour graphics (1024x768 or higher recommended)**

On the Mac, it will **not** work on OS9 or earlier versions.

*BFD* works by streaming all its samples from the hard disk, so in order to prevent glitches during playback, please follow these guidelines.

- **Try to install the *BFD* audio data on a clean, defragmented hard disk.**
- **If possible, install *BFD* on a dedicated drive, separate from those used for the computer's operating system and any audio data used with the sequencer.**
- **If you use a notebook or laptop, try and use an external FireWire drive for the audio data. Laptop drives (often as slow as 4200 RPM) can be quite slow for *BFD*'s disk-streaming technology.**

## Installation

*BFD* comes on two DVD's which are installed separately. The first DVD contains the stand alone program, plugins, and several drum kits. The second DVD contains only drum kits.

### Windows installation

Insert the first DVD labelled “BFD Install DVD 1” and run the “BFD Windows Setup 1” program. The default options will allow you to access multiple outputs from *BFD* in most hosts.

Note: if you are using Digidesign ProTools or Sonic Foundry Acid and want multiple outputs from *BFD* you will need to install the ‘BFD ReWire’. See ‘ReWire installation’ below for help setting your ReWire options.

Follow the prompts to choose your main BFD data directory, VST plugin directory and directories for the other plugin formats.

Note: the *BFD* data directory needs to be on a fast disk with lots of space.

To install the remaining kits insert the second DVD labelled “BFD Install DVD 2” and follow the prompts.

### MacOS installation

Insert the first DVD labelled “BFD Install DVD 1” and run the “BFD MacOSX Setup 1” program. The default options will allow you to access multiple outputs from *BFD* in most hosts.

Note: if you are using Digidesign ProTools and want multiple outputs from *BFD* you will need to install the ‘BFD ReWire’. See ‘ReWire installation’ below for help setting your ReWire options.

Follow the prompts to choose your main BFD data directory, VST plugin directory and directories for the other plugin formats.

Note: the *BFD* data directory needs to be on a fast disk with lots of space.

To install the remaining kits insert the second DVD labelled “BFD Install DVD 2” and follow the prompts.

ReWire installation

If you choose to install the ‘BFD ReWire’ during the installation process you will be prompted to set your ReWire options. The main reason to use ReWire is to support BFD’s multiple outputs so you will probably want to choose ‘All outputs’ or ‘Group outputs’. You can change the other check boxes if you need to disable ReWire support later (Enable BFD ReWire device) or are having problems with graphics redraws (Alternative pannel mode).

## **USING *BFD* IN YOUR SEQUENCER OR HOST**

If you are familiar with using plugin instruments with your chosen sequencer or host, you can skip the following tutorials, and go straight to the next chapter, "Using *BFD*". Below are guides to using *BFD* in the most popular sequencing hosts. *BFD* will also work perfectly well in other hosts which support the VST, DXi and AudioUnit plugin formats, and those which support ReWire.

### **Using *BFD* in Steinberg *Cubase SX* and *Cubase VST***

As long as the installation went smoothly, you should now have three new plugins available to you: **BFD Stereo**, **BFD Groups**, and **BFD All**. To use *BFD*, please do the following after launching *Cubase*:

1. Bring up the VST Instruments panel.
2. Click on an instrument slot and choose one of the *BFD* plugins.
3. Depending on which plugin you choose, you will have a number of channels added to the mixer.
4. Assign a track on the Project Window to *BFD*.

## Using *BFD* in Emagic *Logic Audio*

As long as the installation went smoothly, you should now have three new plugins available to you: **BFD Stereo**, **BFD Groups**, and **BFD All**. During the first launch of *Logic* after installing *BFD*, it should detect the plugins, after which they will be available in the VST plugins list. To use *BFD*, please do the following after launching *Logic*:

1. Bring up the Audio environment (the mixer).
2. Find an unused Audio Instrument channel (or create one if there are none available - see your *Logic* documentation if you are unsure of how to do this) and click-hold on the instrument plugin slot (just above the output slot).
3. The Master output version of *BFD* (**BFD Stereo**) can be found in **Stereo/VST**, while the multi-channel versions (**BFD Groups** and **BFD All**) can be found in **Multi Channel/VST**.
4. Create a track in *Logic*'s Arrange window, corresponding to the Audio Instrument object on which you inserted *BFD*. You can now operate *BFD* from this track.
5. If you want to access the various multiple outputs if you load a multi-channel version of the plugin, create some Aux objects if you have not done so already, and assign *BFD* to them by click-holding on their input slots and choosing Instrument *n*, where *n* is the number of the Instrument object on which you inserted *BFD*, and selecting the required output. The output configuration in **BFD All** is different in *Logic*, because it has a limitation of 16 VST outputs. To get around this limitation (**BFD All** has 17 outputs), *BFD* outputs Cymbals 2 and 3 on the same direct output channel. The **BFD All** plugin automatically detects if *Logic* is the host, and adjusts the output configuration accordingly.
6. If an aux channel has not been opened and assigned for a particular output, that output is routed automatically to the master instrument output. Therefore, if you have not opened an aux channel and assigned it to the PZM bus output, for example, it will still be played through the instrument channel for *BFD*, assuming the **PZM** fader is not turned all the way down.

## Using *BFD* in Digidesign *Pro Tools*

As long as the installation went smoothly, you should now have a new RTAS plugin available to you: ***BFD Stereo***. At this time, *Pro Tools* does not support multiple outputs from instrument plugins. The term 'multi-channel plugins' in *Pro Tools* refers to stereo-output plugins. If you need to use multiple output versions of *BFD*, please see the section below entitled "Using *BFD* with ReWire".

To use *BFD*, please do the following after launching *Pro Tools*:

1. Add a new Audio Track or Aux channel using the File/New Track menu item.
2. Create a new MIDI track.
3. On the mixer view, click an insert button on the Audio channel you just inserted, and select *BFD* from the 'multi-channel plug-in' menu.
4. The MIDI track you created will also appear on the mixer: select *BFD* as the output port for this track.

## Using *BFD* in Image-Line *FL Studio*

As long as the installation went smoothly, you should now have three new plugins available in your Vstplugins folder: ***BFD Stereo***, ***BFD Groups***, and ***BFD All***. To use *BFD*, please do the following after launching *FL Studio*:

1. Add *BFD* to the project by adding it as a channel. Select the 'Channels' menu then choose 'Add one...'
2. *BFD* will not be in the list displayed by default. To make it part of the list select 'More...' to popup a list of all available plugins. From the bottom-right of this window click 'Refresh' then 'Fast Scan (recommended)'.  
3. Now enable the checkboxes next to the three *BFD* plugin names which are red to show they are newly found plugins.
4. Now you can add *BFD* to the Step Sequencer by selecting 'Channels' then 'Add one...' then select the version of *BFD* you want.
5. Assign *BFD* to an FX track, using the Channel Settings window.

6. If you are using a multiple-output version of *BFD*, enable the multiple outputs (using the down-arrow menu, just underneath the red plugin icon in the top-left corner of the plugin window). The additional outputs will occupy the FX tracks after the FX track you specified. For example, when using **BFD Groups**, assigning the main FX track to track 4 will lead to the other three stereo outputs to tracks 5-7.

## Using *BFD* in Sonic Foundry *Acid 4.0*

As long as the installation went smoothly, you should now have three new plugins available in your Vstplugins folder: **BFD Stereo**, **BFD Groups**, and **BFD All**. As long as you have pointed *Acid* to your Vstplugins folder, it should detect the *BFD* files. To use *BFD*, please do the following after launching *Acid*:

1. Load *BFD* using the 'Soft Synth' entry on the Insert menu.
2. Choose **BFD Stereo**. At this time, *Acid* does not support multiple outputs on VST instruments. If you need to use multiple output versions of *BFD*, please see the section below entitled "Using *BFD* with ReWire".
3. Create a MIDI track using the 'MIDI Track' entry on the Insert menu.
4. Assign this MIDI track to *BFD* by using the Device Selection button- *BFD* should be on the list as 'Soft Synth *N* (BFD Stereo)' where *N* is the number of the Soft Synth.
5. If you intend to play *BFD* from a MIDI input device such as a keyboard, click the 'Enable Real-Time MIDI' button at the top of the *BFD* plugin window in its 'Soft Synth Properties' dialog.

## Using *BFD* in Cakewalk *Project 5*

As long as the installation went smoothly, you should now have three DXi entries available to you: **BFD Stereo**, **BFD Groups**, and **BFD All**. Because *BFD* installs a set of DXi plugins, you do not need to run the Cakewalk VST Adapter in order to wrap the VST versions into DXi format.

To use *BFD* in *Project 5*, simply click the Insert Track button and select one of the *BFD* plugins which should be visible on the menu.

## Using *BFD* in Cakewalk *Sonar*

As long as the installation went smoothly, you should now have three DXi entries available to you: **BFD Stereo**, **BFD Groups**, and **BFD All**. Because *BFD* installs a set of DXi plugins, you do not need to run any extra utility such as Cakewalk VST Adapter in order to wrap the VST versions into DXi format. To use *BFD*, please do the following after launching *Sonar*:

1. Insert *BFD* as a DXi plugin. To do this, use one of the following methods:
  - **Open the Synth Rack (using the Synth Rack entry on the View menu) and choose one of the *BFD* plugins from the 'Insert' button's drop-down menu.**
  - or:
  - **Use the Insert/DX Instruments menu command to display a list of installed DXi's, and choose one of the *BFD* entries.**
  - or:
  - **You can also right-click on the Fx field of an unused audio track, aux bus or virtual main bus, in either the Track or Console view. Under 'DXi Synth', choose one of the *BFD* plugin entries. This method is limited to using only the first stereo output pair of the DXi, so is not recommended when using *BFD Groups* or *BFD All*.**
2. If you used one of the first two methods, bring up the Insert DXi Synth Preferences dialog (using the Insert DXi Synth Options button in the Synth Rack view) and use the 'Create These Tracks...' options according to which *BFD* version you are using. If you used the Fx field method, click the Out field of a MIDI track and select *BFD*.
3. If you intend to play *BFD* using a MIDI controller such as a keyboard, ensure that the Audio Engine button on the Transport toolbar is enabled, and the required track is in focus (its titlebar will be gold).



## Using *BFD* with ReWire

You should have already setup ReWire during the installation process. You can change your settings at any time by running the BFD ReWire Configuration Applet (**BfdRewireApplet**) at any time.

You have three options for output configuration: 'Stereo outputs', 'Group outputs', and 'All outputs'. You will probably want to select 'All outputs' to allow for individual processing of every drum sound through your host.

If you experience graphics problems you can try enabling the 'Alternative pannel mode' option. Once you have the *BFD* ReWire device enabled you can start your ReWire host and access BFD through it. Please see your ReWire host's documentation on how to initiate and use a ReWire device within it. At this time, we have tested the ReWire functionality in Sonic Foundry *Acid 4.0* and Digidesign *Pro Tools*.

## 4. USING *BFD*

If you're not familiar with using plugin instruments in your host, please make sure to read the Host Quickstart guides in the previous chapter. During the tutorial, there are references to opening various panels, which should be fairly intuitive. If you are in any doubt at any stage during the tutorial, please consult the Reference section later in the manual.

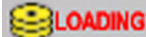
### Part One: FIRST STEPS...


When you try to launch *BFD* as a plugin instrument in your sequencer, you will notice that there are three different versions of the plugin: **BFD Stereo**, **BFD Groups** and **BFD All**. Each of these is essentially identical in functionality, with the crucial difference between them being the output bus configuration. To start with, load **BFD Stereo**, which mixes all buses to one stereo output pair.

When the *BFD* plugin is first initiated, it won't make any sound! Loading a kit takes a while so it's only done when you want it done.



To load a drumkit click the **Kit Selector** button. This brings up a projected panel showing the various supplied drumkits, along with useful information about each one, which is displayed when you move the mouse over any kit.

After you click on a kit in order to load it, you will notice that the  indicator is displayed to the left of the status window. You may also notice that, gradually, the little red lights, underneath the red (**Solo**) buttons in the Kit-Piece area of the mixer section, begin to each turn orange, yellow, then a stable green. These lights indicate the loading status of each Kit-Piece (i.e. the kick, snare, hihat, floor, medium and high toms, and cymbals 1-3). If there is nothing loaded into a Kit-Piece 'slot', the indicator light is red. When a light turns orange, *BFD* is queueing up the samples to be loaded, while a yellow light shows that the Kit-Piece is in the process of being loaded. After a Kit-Piece has finished loading, its

light will turn green. When the entire kit (i.e. all the Kit-Pieces contained within it) is fully loaded, the  indicator disappears, and all of the kit indicator lights [fig.1] will have turned green.

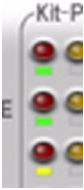




fig.1

In order to make sure all Kit-Pieces are loaded, the currently-loaded kit layout can be viewed by clicking on the main drumkit graphic, upon which the **Kit Display** [fig.2] appears: an overhead view of the kit, with a box for each individually-loadable Kit-Piece.



fig.2

Each Kit-Piece box contains a graphical representation of whatever is loaded into it (it will be blank if nothing is loaded into it), and an  button. You can now quickly audition each part of the kit by clicking on its graphic, the click position maps from bottom to top for increasing velocity. You can clear individual Kit-Piece slots by clicking the  in the corner of each box. Clicking on the Kit-Piece name labels in the mixer area also previews sounds – this time left to right for increasing velocity. When you have finished with this view, click the graphic again in order to exit the **Kit Display**.

Customizing your drumkit...

You can customize the loaded drumkit by replacing individual Kit-Pieces. To do this, click the **Kit-Piece Selector** [fig.3] buttons. Each of these brings up an individual

panel with which to select from the numerous included kicks, snares, hihats, toms and cymbals.



fig.3

For example, to replace the snare, firstly click the snare icon : you will be presented with a panel similar in appearance to the **Kit Selector** panel, except that it contains different types of snares instead of whole drumkits. When you move the mouse over each snare type, the information display is updated with useful data regarding each one. One of the most important pieces of information to be aware of in the Kit-Piece selectors is the display of each Kit-Piece's 'hits'. This shows which types of hits are present in the data for each drum. For example, most snares have a standard hit, drag, flam, rim and side-stick. Similarly, most kick drums have the kick recorded with and without the snare present, while there is a range of different hihat hits. Some kits do not have recordings of certain hits - for example, side-stick is missing on some snares, while some kicks do not have an individual hit for 'kick with snare'. On these occasions, an intelligent substitution method is used, where a suitable hit is used for the missing one. Please see the Reference section for a summary of substitutions.



There is a handy preview function for each Kit-Piece in the library: hold down the [SHIFT] key and click on any Kit-Piece in order to hear a simple preview (a typical 'hit' is used, at the highest velocity).

Ready to play!



When you are done with loading and modifying the drumkit, you are ready to start playing! You can play the plugin live via MIDI input (for example via a MIDI keyboard, or an electronic drum input device such as Roland's *V-Drums*), or program a drum sequence using your sequencer's editing tools, for example the piano-roll (also known as the key editor in *Cubase*, and the matrix editor in *Logic*). Some sequencers have editors which are more geared towards drum parts (*Cubase's* drum edit and *Logic's* hyper edit). As mentioned above, each Kit-Piece contains a number of 'hits'. You can view which hits are

assigned to which keys by initiating the **Trigger Keys** panel, brought up by clicking the icon.

It is recommended that you spend a little time at this point in getting acquainted with how *BFD* sounds and how it reacts to velocity. If you really don't feel like programming or recording a drum sequence at this stage, then you can also drag/import one of the supplied MIDI files (located in the **BFD/Grooves** folder) into the arrange page of your sequencer, or briefly skip forward to the **Groove Librarian** tutorial, which shows how *BFD* can function as a *drummer*, as well as a drum sound module.



Before we continue the tour of *BFD* by looking at the mixer section, it may be a good idea to know how to save the drumkit combination you built earlier. To do this, click the save kit combo icon (located underneath the kit display window), point it to a location on your hard drive and provide a filename.

- **hint:** if you save your kit file (.bfb) in the **BFD/Kits** folder, it will be selectable via the main **Kit Selector** panel.

*BFD*'s .bfb files are small files which only reference the bulky audio data which contains the actual sounds.

A .bfb can be loaded as the default kit via the **Options** panel which is covered later in the manual.

## Part Two: IN THE MIX...

Once a sequence or internal Groove is playing through *BFD*, it is possible to explore the plugin's extensive mixer section.

The most prominent controls are the main level faders for the Direct Master and ambient (Overhead, Room and PZM) microphone buses. By using these faders, you adjust the level of each mic bus to create an overall drum mix. For convenience when mixing, **Solo** and **Mute** buttons are also present. The **Master** fader adjusts the overall level of *BFD*'s output.



We recommend dragging all the ambient bus faders down, leaving only the Direct signal. Then, begin to move each ambient fader up one by one: you will see how easy it is to dial in varying levels of room ambience.

The **Distance** control allows to 'virtually shift' the microphone placements further back. The **Width** parameter, meanwhile, varies the stereo field of each bus from the default natural stereo towards mono (turn the control to the left) or extended stereo (turn it to the right).

Try turning the **Distance** control up a little on the Room mic bus. You will notice that the signal is delayed slightly, giving the appearance of a bigger recording space. Its effect is essentially similar to the 'Pre-delay' parameter on a reverb processor. While you're doing this, experiment a little with the **Width** parameter to experience how it may be usable in a mixing situation. *BFD* has a graphical indicator for these parameters: while you are moving the controls, a 3D representation of the microphones relative to the drumkit is shown in the main display.



The finer points of mixing...


*BFD* also allows much more in-depth mixing possibilities than those detailed above. The 'Kit-Piece' and 'Direct' mixer areas allow detailed control over levels of individual Kit-Pieces.

Let's say, for instance, that you wanted to reduce the amount of ambience on the kick drum, to get a tighter, more focused bottom-end. Firstly, you can tighten the kick with the **Kick In/Out** control. By default, the Direct kick signal is an equal mix of two mics, one placed inside, and one outside, the kick drum. If you turn the **Kick In/Out** control to the left (towards the inside mic position), you will begin to hear the kick get less boomy and more focused in the Direct bus.

You may also want to reduce the level of the kick signal in the ambient mic buses, in order to tighten it up further. To do this, turn down the **Kit-Piece Trim** parameter for the kick (located immediately to the right of the **Solo** and **Mute** buttons). With the control to the extreme left, you will only hear a kick signal in the Direct section. To verify this, turn down the **Direct Master** fader: all the ambient buses will be free from the kick. Now turn up the **Direct Master** fader again (the kick should return). To do the inverse of this, turn up the **Kit-Piece Trim** control again, and decrease the **Direct Trim**. Now, you should hear a more roomy kick, rather than the fatter direct version earlier. This is an extreme way of using the mixing controls: by carefully tweaking the mixer section, you can get an infinite variety of killer drum sounds between the extremes. Many of *BFD*'s mixing functions are not necessarily 'realistic': for example, the ability to turn down the amount of a certain Kit-Piece in the ambient mics. However, we decided to include this type of functionality for maximum flexibility.

It might be a good idea to cover some of the special mixing functions. The **Kick In/Out** control was explained earlier. Meanwhile, the **Snare Bot/Top** parameter works in a similar principle: it blends between a mic placed on the top of the snare drum, and another on the bottom. Like the **Kick In/Out**, it applies only to the Direct bus. Each Kit-Piece has a **Tune** parameter. This changes the pitch for each component globally, through the Direct **and** ambient buses. The **Solo** (yellow) and **Mute** (red) lit buttons also affect each Kit-Piece globally. The **Pan** controls vary the stereo placement of each Direct signal within the stereo Direct Master bus - therefore, it has no effect (in fact, it is greyed out) when using the multi-channel **BFD All** version of the plugin, where each Direct Kit-Piece has a dedicated mono output into the sequencer (more on multi-channel capabilities later). You cannot manipulate the stereo position of Kit-Pieces in the ambient buses, other than by using the **Width** parameter.

There is another type of control in the mixer section: the **Dyn** (Dynamics) controls. These increase or decrease the velocity of each incoming MIDI note for each particular Kit-Piece. Velocity is quite distinct from volume. Each drum-hit in *BFD* is recorded at a variety of velocities - i.e. the drums were hit with different degrees of force. Manipulating the **Dyn** parameter effectively increases or decreases how hard the drum is hit, by altering the incoming velocities of the notes used to trigger them. If you turn down the **Dyn** parameter on the snare Kit-Piece, for example, you will hear the snare hits get 'softer', an effect quite different from turning down the volume on a high-velocity hit. Try it! There is also a **Master Dyn** control, situated just above the **Master** level fader (it is unlabelled on the user interface). This alters the velocity of all incoming notes in a relative manner. The small indicator light underneath the Kit-Piece **Mute** buttons is a visual indicator of the velocity of incoming MIDI notes for each Kit-Piece.

The mixer section includes a handy preset system, the controls for which are located above the main level faders. You can load and save mixer settings (**.bfm** files), as well as reset the whole mixer to default settings. If you save your mixer setups in the **BFD/Mixers** folder, you can flick through them easily with the  buttons.



## Part Three: INTRODUCING THE GROOVE LIBRARIAN...

To initiate the **Groove Librarian**, start by clicking the pull-down bar at the top of *BFD*'s interface.



You will see three 'Banks' of Grooves, flanked by a tree-view 'browser' on either side. The **Groove browser** on the left is for what we call 'Grooves': essentially MIDI drumloops. Meanwhile, the right-hand side browser is the **Fill browser**. Fills are exactly the same format as Grooves: they are just regarded as 'Fills' for convenience. The Banks are where you drag in Groove 'Bundles' from the browsers: there are two Banks for Grooves (**Bank A** and **Bank B**) and another for Fills.

A Bundle is a group of up to twelve MIDI Grooves, a large range of which are supplied with *BFD*. There are two distinct types of Bundles: 'Groove Bundles' and 'Fill Bundles'. There are two general-purpose Groove Bundles and a Fill Bundle loaded by default into the Banks.

Instant gratification...



Now click on any of the Grooves listed in **Bank A**. You will notice that the Groove plays through for its duration, and then stops. Now click the **Auto Groove Repeat A** button on the right of the *BFD* interface. The Groove will now loop until another is clicked.

Please note that this method is usually for **auditioning** the Grooves. The Grooves are mainly intended to be played from the MIDI keyboard (or alternative MIDI input device). All the three loaded Bundles are mapped to the keyboard: in fact, the keys used are reflected in the black and white slots in each Bank, which represent the actual keys on the keyboard. Therefore, the first beat in a Bundle is shown at the bottom, reflecting how it would appear in your sequencer's piano roll, for example.

The actual keys which correspond to each Bank of Grooves depend on your host - numbering conventions vary between sequencers. *Cubase* and *Logic* start their


octave numbering from C-2, rather than C0 on *Sonar* and *FL Studio*, for example. You will have noticed that there are key numbers displayed on each Bank slot. *BFD* attempts to detect the sequencer used and changes its naming convention automatically. This can be over-riden with the **-2 Octave Numbering** toggle in the **Options** panel.

Now that you are aware of all this, try triggering some Grooves and Fills with your MIDI keyboard! If the **Auto Groove Repeat** option is still checked for any of the two Banks, any Groove in that Bank will loop as long as you hold the key down, or until you press another key.



It is also possible to use *BFD* as an auto-accompaniment module by activating certain options. For more details on this, please refer to the section below, entitled "Different ways of playing Grooves..."

Using Bundles...

Drag one of the Bundles from the **Groove Browser** onto **Bank A**. When you do this, you will see that the new Bundle fills all slots in the Bank, overwriting any previous ones.

You will notice that, in the Browsers, each Bundle can be 'expanded' by clicking on the  icon next to its name. The new names which appear are the individual Grooves or Fills inside the Bundle. You can drag individual Grooves or Fills onto each of the twelve 'slots' in each Bank in order to compile your own Bundles. You can also double-click on any slot in a Bank in order to bring up a standard file browser to manually locate and load a MIDI Groove, or a multiple selection (when you import multiple Grooves via the file browser, they will be placed sequentially on the slots, starting from the one on which you double-clicked).

There is a simple system for re-ordering Bundles in *BFD*. Hold down the [SHIFT] key and click and drag a Groove or Fill from one slot to another. If you drag the Groove/Fill onto a slot which is already filled, it swaps the contents of the two slots. If the destination slot is empty, the Groove is copied there.

When you have finished compiling your Bundle, you can save it. Simply click on the  button underneath the Bank you wish to save as a Bundle, and specify a location and filename. If you save it into the **BFD/Grooves** or **BFD/Fills** folder, it will instantly appear in the respective browser. You can also clear any Bank by clicking the  icon underneath it.

Different ways of playing Grooves...

You may remember that when we first introduced the **Groove Librarian** above, we made the playing Groove repeat by clicking the **Auto Groove Repeat A** button. This button is just one of a number of options which let you change different aspects of the **Groove Librarian's** behaviour. On the right of the *BFD* interface, there are two columns of three buttons. Each column relates to one of the **Groove Librarian's** Banks. As well as the **Auto Groove Repeat** button already discussed above, there are another two buttons in each column: **Auto Bundle Shuffle** and **Auto Fill**. When **Auto Groove Repeat** is enabled for any of the two Banks, turning on **Auto Bundle Shuffle** randomly shuffles between Grooves in the Bank instead of repeating the same Groove, while **Auto Fill** inserts a random Fill from the **Fill Bank** at an interval specified by the **Auto Fill Period** option in the **Play Options** panel. In this way it is possible to create convincing, varied drum-accompaniment with minimum effort.



- The **Play Options** panel contains several other options which control how *BFD's* Grooves behave. Click the play options button in order to bring up the panel. Perhaps the most important parameters to understand here are the **Sync modes** and **Transition Mode** options.

## Sync to Song

This function makes Grooves play in phase with the song clock. You will have noticed that, so far, when you initiate any loaded Grooves, they start playing immediately, and are not synchronized with the song. With the **Sync to Song** option on, start the sequencer playing, and trigger one of *BFD's* Grooves via MIDI. You will notice that, depending on when you hit the note within a bar, the Groove starts playing from that point within it. For example, if you trigger the Groove on the 2nd

beat of a bar, it will play from the 2nd beat - so that if there is a kick on the 1st beat, and a snare on the 2nd, it will start playing with the snare.

## **Sync Groove Phase**

This method of synchronization makes subsequent Grooves play in phase with the first Groove played. Press play on your sequencer, and trigger a Groove via MIDI on, say, the 4th beat. Now, when you trigger another Groove, it will synchronize to the original Groove you played.

## **Transition Mode**

This parameter sets how transitions between Grooves are handled. So far, we have been using the 'Immediate' mode, which stops a Groove which is playing already and starts the second Groove straight away when it is triggered, according to the currently-selected Sync mode. If you change the **Transition Mode** to 'Next Beat', the transition takes place on the next beat of the **Sync Mode** source. To try it, trigger a new Groove on an offbeat - for example, between the 2nd and 3rd beats of a bar. You will notice that the Groove starts playing on the 3rd beat, which is the next one after the trigger is made.

There are a further two types of **Transition Mode**, 'Next Bar' and 'End of Phrase'. As its name implies, the former works in a similar way to 'Next Beat' except that, after the next Groove is triggered, it starts playing from the start of the next bar. Meanwhile, the 'End of Phrase' mode works by triggering the next Groove after the current one has played until the end. This mode is useful when working with Grooves longer than 1 bar in duration. When using 1-bar Grooves, it will work exactly like the 'Next Bar' mode.

While you are in the **Play Options** panel, it's a good idea to acquaint yourself with the rest of the option toggles. When **Latching Mode** is enabled, Grooves are not turned off by a note-off message, but by another note-on message of the same note number. Therefore, you hit a key once to start the Groove, and hit it again to stop it. **Polyphonic Mode** allows you to overlay multiple Grooves over each other, by not stopping a Groove which might already be playing. Checking the **Respond to**

**Song Start** option results in a definable Groove (specified with the **Default Groove** parameter) being played when the sequencer is started, something which is extremely useful when using *BFD* as an auto-accompaniment module. If this option is enabled along with **Auto Groove Repeat**, you will not have to enter any MIDI notes in order to make *BFD* start playing continuously! **Respond to Song Stop** option stops all Grooves which may be playing when the sequencer is stopped. We have already examined the **Auto Groove Repeat** option earlier: this option loops the Groove until it is stopped by a note-off (or by another note-on if in **Latching Mode**).

It's useful to have a play around with these parameters to see which ones might be useful for the way in which you work: we tried to make it accessible to people with a wide array of working methods. For example, some people will not want to bother with programming in or playing the MIDI notes so the **Respond to Song Start**, **Auto Groove Repeat**, **Auto Bundle Shuffle** and **Auto Fill** options are present, making *BFD* function as a no-nonsense auto-accompaniment unit which happily plays along while you compose without requiring any MIDI input.

Humanization...

*BFD*'s intelligent humanization system offers a great deal of control over the 'feel' of Grooves. First of all, the supplied Grooves have been recorded using professional session drummers playing an electronic drumkit. with the natural swing and shuffle of the drummer to offer a great deal of natural swing and shuffle, resulting in drumloops which sound as much like a real drummer as possible. The **Quantization** panel allows you to manipulate the feel of the Grooves to your requirements.

Firstly, you can 'roll off' the amount of natural feel in the Grooves by varying the **Hard Quantize** slider. One of the ways in which *BFD*'s Grooves achieve their realistic feel is by playing certain notes slightly before or after 'where they should be', in terms of a hard-quantized, robotic drumbeat. The **Hard Quantize** slider gradually moves early or late notes back to strict beat divisions: in other words, making the feel tighter.

*BFD* also has a Swing function which works alongside the **Hard Quantize**. You can regard the concept of Swing in *BFD* as a similar one to 'groove templates' in

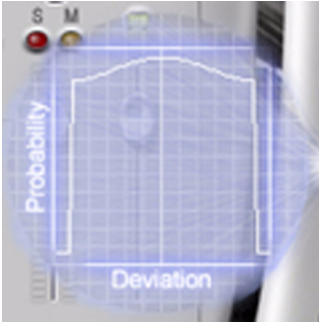
sequencers such as *Cubase* or *Logic*, which apply a quantization template to MIDI sequences. *BFD*'s Swing Templates operate by applying a timing template (chosen via the **Template** drop-down) over the Groove, which is varied by the **Swing** slider. It is applied after the **Hard Quantize** function, so that the central point of the Swing slider - i.e. when none of the Swing Template is applied - is the end result of the **Hard Quantize** function.

To better understand this, use one of the funkier Grooves, for example those contained within the **Funk\_A** bundle. Move the **Hard Quantize** slider to the maximum. You should hear that the timing becomes more rigid and 'robotic'. Now move the **Swing** slider (there is always a Swing Template loaded by default). You will notice that the timing becomes more syncopated again, but in a more uniform way compared to the original timing of the Groove, somewhat reminiscent of a 'shuffle' parameter on a drum machine. Now vary the **Hard Quantize** to allow more of the original feel, and move the Swing slider... now, the Swing Template is being applied in addition to the original timing, resulting in a different type of feel again. There are a number of different Swing Templates, which you access using the **Template** pull-down menu. Each has a different set of 'rules' to modify the feel of the Groove, which result in a different character to the timing. Try them! The funky opposing 'Groove Dudes' are a graphical representation of the two quantization parameters.

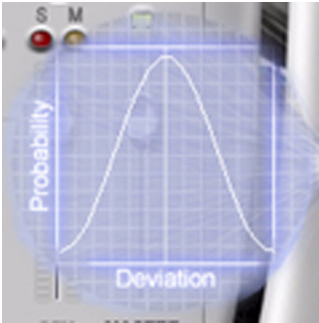
Controlled randomization...



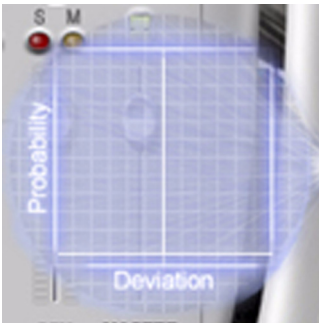
In addition to the versatile **Quantization** panel, *BFD* offers a further two functions to vary the expressive character of its output. The **Humanize Timing** panel allows you to introduce a controlled amount of variation to the timing of the Grooves. When you click on the icon, a popup graph panel is displayed, which represents the probability distribution of random timing variations: the x-axis represents the deviation from the original timing, while the y-axis indicates the probability that a certain time deviation will occur.



Move the mouse over the graph to see how it reacts. You will find that the curve changes shape according to mouse movements, while clicking the mouse button 'sets' the shape. With a graphical shape similar to that shown in here, the randomization is quite extreme. Effectively, the graph is showing you that there is the highest probability of large timing displacements.



With the graph shape shown here, there will be a reasonable amount of randomization: most notes will have a slight timing deviation, but there will be the odd note which is displaced to a more extreme degree.



When the graph looks like that shown here, there will be no randomization of timing: the graph is showing that there is an equal probability of no timing deviations occurring.



The **Humanize Velocity** panel, works in the same way except that, this time, the x-axis represents velocity. The randomization causes changes in velocity which emulate the non-linear way in which a drummer would play.

- **important note** : The **Humanize Velocity** panel is unique among *BFD*'s humanization functions in that it not only applies to the **Groove Librarian**, but also when using the plugin as a sound module: in other words, using the host's sequencing functions to trigger *BFD*'s sounds as single hits.

## Part Four : USING YOUR HOST'S MIXING CAPABILITIES

As mentioned at the beginning of the tutorial, there are three different versions of the *BFD* plugin:

**BFD Stereo**: Stereo Master output only. This version mixes all microphone buses together with the Direct signals inside the plugin, outputting a stereo pair. The **Master** output fader controls the overall output volume of the plugin.

**BFD Groups**: Stereo Groups version. This version outputs each stereo microphone group as an independent stereo output. Therefore, output pair 1-2 is the Direct Master bus, 3-4 is the Overhead bus, 5-6 is the Room bus and 7-8 is the PZM bus. The **Master** output fader affects the volume of all buses in a relative manner.

**BFD All**: All output version. This is the same as **BFD Groups** but, instead of a stereo mix of the Direct signals, each individual Kit-Piece has its own output. Therefore, kick in, kick out, snare bottom, snare top, hihat, low, medium and high toms, and cymbals 1-3 each have an independent output, starting at output 7. The **Master** output fader affects the volume of all buses in a relative manner. If you are using *Logic Audio*, please see the *Logic* Quickstart guide, as the **BFD All** plugin works slightly differently when it detects *Logic* as the host.

So far, you have been working with the Master output version, which mixes all signals together. This version is obviously very limited if you want to fully utilize your sequencer's multi-output mixing capabilities, if it has them, which are vital for processing each part of the drumkit with unique EQ, dynamics and effects settings in real time.



Save your kit changes if you have made any modifications you would like to use again, and load the **BFD All** plugin in place of the **BFD Stereo** you have been using, and reload a kit. This version of the *BFD* plugin offers the most versatility over the final mix. Please refer to the Host-specific Quickstarts if you don't know how to use your host's multi-output facilities, or if you are not sure if it supports them. You will see that you now have three stereo pairs (the ambient buses) and eleven mono outputs available to you. When using a multiple output configuration, *BFD* is operated in exactly the same way, except that each Direct Kit-Piece is routed individually into the host's mixer, according to the rules shown above. Therefore, if you are not getting any sound, or if you are only hearing certain parts of the kit, it may be necessary to 'enable' the additional outputs in your host: for example, in *Logic Audio* you need to create Aux channels and point them to one of *BFD*'s multiple outputs.

## 5. REFERENCE

### INTRODUCTION TO *BFD*'s INTERFACE



### LOADING KITS AND KIT-PIECES

Click the drumkit panel icons (the column of icons on the left side of the plugin window) in order to bring up their respective panels. These are used for loading either a full kit, or for compiling one from the components, or 'Kit-Pieces' of the various included kits, or a number of extra drums and cymbals which are not part of any one particular kit.

Exit each panel without making any changes by clicking its icon again, or by clicking the icon in the top-right corner, or bring up a new panel instead by clicking another panel icon.

## Kit Selector panel



Clicking on this icon brings up the **Kit Selector** panel. Here, you can load one of the full drumkits supplied. Moving the mouse over each kit brings up information about the kit on the right of the panel. Click on any kit in order to load it. This will load all elements of the chosen drumkit, and overwrite any previous edits made with the individual **Kit-Piece Selector** panels.

## Kit-Piece Selector panels



The rest of the icons in the left-hand column allow the loading of individual Kit-Pieces in a similar way to that in which you would load a whole kit. You can preview each available Kit-Piece by holding down the [SHIFT] key and clicking on it. A representative hit at full velocity is used.

• **important note:** Please note that in all the following descriptions, the **-2 Octave Numbering** system is used.

### Kick

Each Kick Kit-Piece contains two hits:

- Hit:** C1 (the kick recorded with the snare present)
- No Snare:** B0 (the kick recorded without the snare present)

There are a couple of exceptions: the DW, Leedy, Ludwig, Extras Kick2 and Extras Kick 4 Kit-Pieces do not have a **No Snare** hit. In these cases, any notes destined for the No Snare hit are redirected to the standard **Hit**.

## Snare

Each Snare Kit-Piece contains five hits:

<b>Hit:</b>	D1 (a standard snare drum hit)
<b>Drag:</b>	D#1
<b>Flam:</b>	F1
<b>Rim:</b>	E1
<b>Side-stick:</b>	C#1

There are some exceptions: the DW Snare 1, DW Snare 2, Extras Snare 3, Extras Snare 7, Lucite and Radio King Kit-Pieces do not have a **Side-stick** hit. These are all redirected to a **Rim** hit. Additionally, the Ayotte Snare has a **Sizzle** hit instead of a **Side-stick**.

## Hihats

Each Hihat Kit-Piece contains six hits:

<b>Closed Tip:</b>	F#1
<b>Closed Shank:</b>	C2
<b>Half Tip:</b>	D2
<b>Half Shank:</b>	E2
<b>Open Tip:</b>	A#1
<b>Pedal:</b>	G#1

## Toms

Each Tom Kit-Piece contains three hits:

<b>Floor Tom:</b>	G1
<b>Mid Tom:</b>	A1
<b>High Tom:</b>	B1

There are a few exceptions: the Leedy and Ludwig Tom Kit-Pieces do not have a **High Tom**. Instead, they duplicate the **Mid Tom** into the **High Tom** slot. Also, the

DW Tom Kit-Piece does not have a **Mid Tom**, so the **High Tom** is substituted for it. *BFD* does not tune this substitution automatically: it is recommended that you retune the substituted Tom as desired with the **Tune** parameter in the mixer section.

## Cymbals

Each Cymbal Kit-Piece has two hits: a standard hit and a control to choke the cymbal (i.e. damping it).

<b>Cymbal 1:</b>	C#2
<b>Cymbal 1 choke:</b>	F#2
<b>Cymbal 2:</b>	G2
<b>Cymbal 2 choke:</b>	G#2
<b>Cymbal 3:</b>	D#2
<b>Cymbal 3 choke:</b>	A#2



By default, each Kit and Kit-Piece is mapped to the keys shown above, which corresponds to the GM standard. However, the key assignments can be changed using the **Trigger Keys** panel, which is brought up by clicking the show Trigger Keys icon button in the right-hand column.

## KIT DISPLAY

Clicking on the main drumkit graphic in the upper centre of the *BFD* window shows the **Kit Display**. At the top of the display is an indicator showing which kit is loaded. The rest of the display shows a graphical layout of the drumkit, showing which parts are loaded for each component. Clicking on the box for each Kit-Piece auditions the sound, the position of the click from bottom to top maps to increasing velocity. The  icon in the corner of the box clears the Kit-Piece - you may want to clear some unused Kit-Pieces to reduce kit loading times on some occasions.

Click the **Kit Display** again in order to return to the main panel.

Underneath the kit display are three icons:

- **Reset kit:**



Clears the whole kit layout.

- **Save kit:**



Saves a customized kit layout. If you save it into the **BFD/Kits** folder, then it appears in the main **Kit Selector** panel.

It is important to note that only the kit layout is saved: any mixer settings and key assignments are not saved with this function! For that, please use the relevant buttons in the mixer section and **Trigger Keys** panel, or save a global program preset. Please see the section below entitled 'Loading and Saving Presets' for more information on *BFD's* preset systems.

- **Load kit:**



Allows you to load a kit file from any location.

## MIXER SECTION

### A note on the controls:

Controls are manipulated by clicking on them and dragging up and down. Double-clicking any control returns it to its default value. Holding down the [SHIFT] key while moving a control allows fine control over it.

*BFD's* mixer section is divided into three areas.

## 1. The Kit-Piece area



- **Kit-Piece labels:**

The name labels for each Kit-Piece have a handy preview functionality. Clicking on the name previews the sound with the left to right position mapping to increased velocity.

- **Solo and Mute buttons:**

These lit buttons allow you to solo or mute any Kit-Piece(s). When one or more parts are soloed, the **Mute** buttons light up for all non-soloed parts, giving an easily-visible indication of the mute/solo status. If a muted part is soloed, when the **Solo** button is deactivated, the muted status will return.

- **Small indicator lights:**

The indicator lights beneath the **Solo** buttons show the load status of each Kit-Piece 'slot'. A red light indicates that there is no Kit-Piece loaded, an orange light shows that the samples for that Kit-Piece are being queued up for loading. A yellow light indicates that it is in the process of loading, and the light turns green when a Kit-Piece has successfully been loaded.

Additionally, there is also a blue status for the high, medium and floor tom indicator lights. This is to show that a substitution has occurred. Some of *BFD*'s kits have only two toms, because the original kit did not have either a mid or high tom. In these cases, one of the other toms in the kit is substituted for the missing one. You can still independently mix the substituted tom: in other words, you can alter the tuning, panning and levels without affecting the original. To preserve a realistic three-tom set, it is advisable to retune the substituted tom.

The indicator lights under the **Mute** buttons light up when any hits in each Kit-Piece are triggered via MIDI (or via the **Groove Librarian**).

- **Trim:**

This control allows you to trim the ambient level of each drumkit component, between +6 and -inf dB. Effectively, it functions as a 'reverb send' for the natural ambience in *BFD*'s mic buses.

- **Tune:**

Using this control, the pitch of each drumkit component can be tuned up or down an octave (+/- 1200 cents). This control acts globally for all mic buses.

- **Dyn (Dynamics):**

This control scales the velocity sensitivity of each drumkit component. The control's value (-127 to 127) is added onto the velocity of each incoming MIDI note for that particular component.

## 2. The Direct area



This area of the mixer section controls only the sound of the Direct Master stereo bus or the Direct mono outputs (in **BFD All**), and does not affect the Overhead, Room or PZM mic buses. Here, each Kit-Piece has two controls (apart from the kick and the snare: more on those in a moment):

- **Trim:**

Controls the level of each Kit-Piece between -inf and +6 dB, in the Direct bus.



- **Pan:**

Here, you can control the position in the stereo field of each Kit-Piece, in the Direct Master stereo bus. They are only functional when using **BFD Stereo** or **BFD Groups**, and are greyed out when using the **BFD All** version of the plugin, as the individual mono Direct outputs do not need to be panned.

The kick and snare Kit-Pieces each have some special controls for the Direct bus.

- **Kick In/out:**

This control adjusts the blend between the mic placed inside the kick drum, and that outside. If you click the  button, the phase of the internal mic is inverted.

- **Snare hot/top:**

Using this control, the blend between the mics below and above the snare drum can be adjusted. If you click the phase  button, the phase of the bottom mic is inverted.

### 3. Bus mixer area



This area allows easy control over the overall mix. The Direct and each individual ambient bus each have their own volume fader here, as well as **Solo** and **Mute** buttons. In addition, the ambient mics have two extra controls:

- **Distance:**

This parameter allows you to virtually manipulate the distance of each ambient mic set from the drumkit.

- **Width:**

This control adjusts the stereo width of each ambient mic bus. It ranges from mono (hard-left) through stereo (centre position) to enhanced stereo (hard-right).

Extreme settings of enhanced stereo should be used carefully as they can add an out of phase component to your mix.

The **Distance** and **Width** parameters for each ambient mic bus are illustrated by a moving set of mics which can be seen in the Main Kit Display.

The last two controls in this area are as follows:

- **Master:**

This is an overall master level control for all of the buses together. In the master output plugin (**BFD Stereo**) this will control the overall level of the stereo channel. In the multi-channel versions of the plugin (**BFD Groups** and **BFD All**), it controls the relative volume of all separate outputs.

- **Master Dynamics:**

This is a global control over velocity sensitivity. Its value (ranging from -127 to 127) is added to the velocity of all incoming notes (from either normal MIDI input or from the **Groove Librarian**), after the individual Kit-Piece dynamic values have been added.

**note:** this is unlabelled on the interface - it is located just above the **Master** fader.

The mixer section contains a preset system, which allows very quick access to different mixer settings.

- **Save Mixer Preset**



Brings up a standard file browser in order to save your mixer setups. By default, the **BFD/Mixers** folder is used.

- **Load Mixer Preset**



Brings up a standard file browser, allowing you to load a mixer setup file from any location.

- **Quick-access Preset Browsers**



If you save your mixer setups into the **BFD/Mixers** folder, you can use these quick access buttons in order to quickly flick between the various setups stored in the folder.

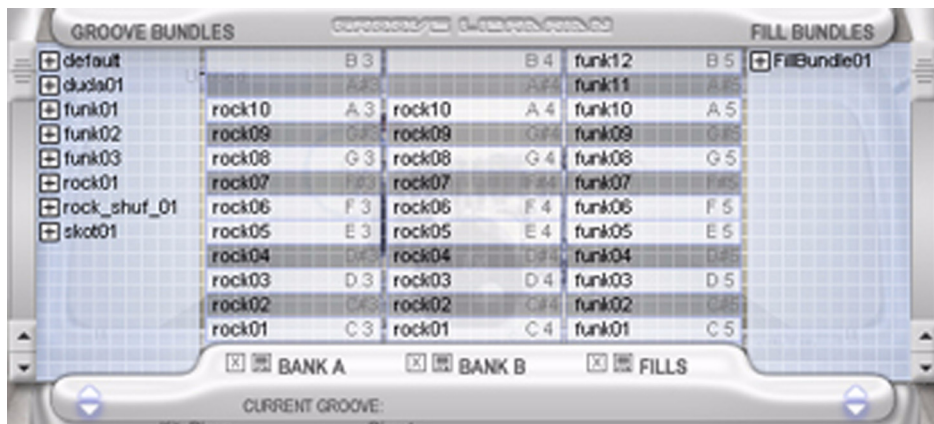
- **Reset Mixer Section**



Resets the mixer section to default settings.

## GROOVE LIBRARIAN

To open the **Groove Librarian**, click the top bar of *BFD*'s plugin window. To close it again, click on the bottom or top bars of the **Groove Librarian** drop-down panel.



When using the **Groove Librarian**, it is important to remember some of the terms used in *BFD* in order to properly understand its functionality.

- **Groove:**

A MIDI drum sequence used in *BFD*'s **Groove Librarian**. *BFD* can import any General MIDI (GM) MIDI file (type 0 and type 1). It is advisable to import MIDI files with only one track. If *BFD* encounters a file with multiple tracks, it will access only the track with the largest amount of notes (most likely to be the drum track).

- **Fill:**

Similar to a Groove, but distinctly categorized as a fill.

- **Bundle:**

A group of up to twelve Grooves. Bundles are small files which point to any Grooves or Fills. *BFD* comes supplied with a comprehensive library of Grooves and Fills sorted into Bundles.

When you access the **Groove Librarian**, you will be presented by a couple of distinct areas.

- **Browsers:**

There are two tree-view browsers in *BFD*'s Groove Librarian, which are used to select Groove and Fill bundles, located within the **BFD/Grooves** and **BFD/Fills** folders, and the individual Grooves within them. The top 'tree-level' is the Bundle itself. If you expand the tree structure (click on the + icon next to the Bundle name), you will see the individual Grooves which comprise it.


- **Banks:**

There are three banks, each with twelve 'slots', in *BFD*'s **Groove Librarian**. These areas are where you drag Bundles or individual Grooves from the Browsers. It can also be used in order to compile and save Bundles: There are two banks for Groove Bundles and one for Fill Bundles.

Each slot in each Bank corresponds to a MIDI key, an indicator for which is displayed on the right-hand side of the slot, alongside the name of any Groove which is loaded into the slot. When a MIDI key within the range of the **Groove Librarian**'s key mappings is pressed, the MIDI note value and the Groove name are highlighted in red. If you are in **Auto Bundle Shuffle** mode, the MIDI key highlight will remain the same, while the actual Groove which is playing will be highlighted instead.

Grooves can be copied or re-ordered within the Banks by holding down the [SHIFT] key while dragging a Groove from one slot to another. If the destination

slot is empty, the Groove is copied, whereas if the destination slot contains another Groove, they are swapped between the slots.

After a Bundle has been compiled in one of the Banks, it can be saved for future use by clicking the Save  button under each Bank. It is best to save it in the **BFD/Grooves** folder, or in **BFD/Fills** if it is a Fill Bundle, so that it appears in the Browsers.

## Auditioning Grooves

Grooves or Fills within any Bank can be auditioned just by clicking on them. The name of the Groove and the MIDI note label will turn red. If you want to audition the Groove while it repeats, turn on the **Auto Groove Repeat** option for the relevant Bank. Clicking a playing Groove again will stop auditioning it.

## Playing Bundles from the Keyboard

The Grooves and Fills in all three Banks are mapped to the keyboard. The actual names of the keys used are displayed in the Bank slots, next to the name of each Groove. These values change dynamically depending upon the status of the **-2 Octave Numbering** option in the **Options** panel.

It is highly recommended to turn on the **Polyphonic Mode** option (in the **Play Options** panel) when using the **Groove Librarian**. This mode allows two or more Grooves to play at the same time. This is useful for working with Fills: some Fills do not start on the first beat of the bar. Therefore, it may be desirable to trigger the start of a drumloop-type Groove playing, and then stop it when the Fill begins.

Please consult the sections below about the **Play Options** panel and the **Auto Groove Repeat** buttons, in order to see how the **Groove Librarian's** behaviour can be tailored to suit your particular methods of working.

## Creating your own Grooves and Fills

*BFD*'s Grooves and Fills use the standard MIDI file format. This makes it incredibly easy to create and import your own Grooves. Please follow these guidelines if you would like to create your own Grooves.


- **You can use any MIDI sequencer which allows the export of MIDI files.**
- **Load *BFD* into the sequencer and program or record the sequences you want to convert into Grooves.**
- **You can also import any commercial or freeware MIDI files you have, using the import function in your sequencer (some sequencers also allow dragging MIDI files from the operating system file browsers right into the arrange page). Make sure that the notes in the MIDI files correspond properly with *BFD*'s key assignments: you may need to do some editing of the MIDI data in order to achieve this.**
- **Grooves can be of any length, although it is recommended to keep them to bar-length multiples. Please also remember that, in general, each Groove must be written for any particular time signature. If presented with a Groove which is intended for a different time signature than the current one, it will do one of two things. If the Groove's time signature has more beats in the bar than the current time signature, then the notes within the extra beats are cut off. If the Groove's time signature contains less beats in the bar than the current time signature, then the Groove will be repeated until the end of the bar.**
- **When you have finished creating your Grooves, export them to standard MIDI format. *BFD* supports both Type 0 and Type 1 MIDI files.**
- **It is recommended to organize your Grooves into subfolders within the *BFD*/Grooves or *BFD*/Fills folders for convenience.**

## QUANTIZATION PANEL

*BFD's* humanization system is comprised of the **Quantization** panel, and the **Humanize Velocity** and **Humanize Timing** panels. All of these functions take effect when *BFD* is playing Grooves, with the exception of the **Humanize Velocity** panel, which also affects *BFD's* output when using standard MIDI input (in other words, when triggering *BFD's* sounds using the MIDI functions of your sequencer, rather than the built-in **Groove Librarian**).



To access the **Quantization** panel, click the quantization button. The two sliders in the panel allow a great deal of control over the timing “feel” of the playing Grooves. Here, you can control the variation from the original timing of the Groove and a hard-quantized, robotic feel, and also apply a timing distortion map loaded from a 'Swing Template'.

Exit the panel without making any changes by clicking its icon again, or by clicking the  icon in the top-right corner, or bring up a new panel instead by clicking another panel icon.

### Hard Quantize slider

This slider gradually varies the timing of the playing Groove from its original timing, to a hard-quantized, rigid, 'robotic' feel, where any slight timing deviations of notes away from a metrical grid (used in order to achieve a more realistic feel) are 'snapped' back to strict timing divisions.

You can select what metrical grid you would like to use, ranging from 4<sup>th</sup> to 64<sup>th</sup> notes, by using the drop-down menu selector.

### Swing Templates

*BFD's* Swing Templates can be considered as a cross between 'groove templates' in sequencers such as *Cubase* or *Logic*, and the 'shuffle' or 'swing' function on classic drum machines. They define an X-Y map which translates original time into



swung time to achieve different feels. Currently, BFD comes with the common 8<sup>th</sup> and 16<sup>th</sup> note swings.

Template selector

This drop-down menu allows the selection of one of a number of Swing Templates supplied with *BFD*.

Swing slider

This control gradually varies the timing of the playing Groove between the setting specified with the **Hard Quantize** slider, and the currently selected **Template**.

The funky opposing 'Groove Dudes' are a graphical representation of the two swing parameters.

## HUMANIZATION PANELS



In addition to the versatile **Quantization** panel, *BFD* offers a further two functions to vary the expressive character of its output: the **Humanize Timing** and **Humanize Velocity** panels. These work in a slightly different way to the other panels. To bring up either panel, click the timing or velocity buttons. You will see that a popup graph is displayed, the curve of which can be shaped by moving the mouse, after which a click will both finalize the curve shape and exit the panel. Please see below for an explanation regarding how to interpret the curve shapes.

Humanize Timing panel

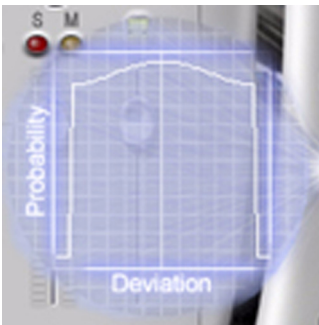
Use this panel to introduce random timing variations to make a Groove sound more 'human' - in other words, less mechanically perfect. The panel graph has an x-axis showing time deviations away from a note's original time position (marked by a white line in the centre), and the y-axis represents the probability of a certain deviation occurring, the top of the graph being "highly probable". If you are playing a Groove with **Auto Groove Repeat** enabled, the timing variations will be different for

every repetition. Timing randomizations are **not** applied to notes from your sequencer or MIDI controller – only to Grooves.

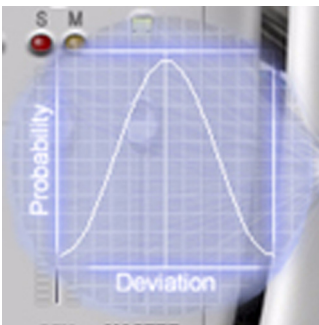
Humanize Velocity panel:

This panel graph works in exactly the same way as the **Humanize Timing** panel, except that the x-axis represents changes in velocity from the original. Therefore, it is possible to emulate the slight variations in force used by a real drummer when hitting the drums. This panel is unique among *BFD*'s humanization functions in that it not only applies to the **Groove Librarian**, but also when using the plugin as a sound module - i.e. using the host's sequencing functions to trigger its sounds as single hits.

Here are a few examples showing how to interpret the graph curves. If, for instance, you are using the **Humanize Timing** panel:



With a graphical shape similar to that shown in the picture to the right, the randomization can be quite extreme. Effectively, the graph is showing you that there is an equal probability of all timing displacements, large or small.



With the graph shape shown in the picture to the left, there will be a reasonable amount of randomization: most notes will have a slight timing deviation, but there will be the odd note which is displaced to a more extreme degree.



When the graph looks like that shown in this picture, there will be no randomization of timing: the graph is showing that there is an equal probability of no timing deviations occurring.

The principle is exactly the same for the **Humanize Velocity** panel.

## PLAY OPTIONS PANEL



This panel lets you change a number of different aspects of the **Groove Librarian's** behaviour.

Exit the panel without making any changes by clicking its icon again, or by clicking the  icon in the top-right corner, or bring up a new panel instead by clicking another panel icon.

### Sync to Song

This setting sets the host sequencer's song clock as the synchronization source for *BFD's* Grooves, so that they play in phase with the song clock. Effectively, it means that if a Groove is triggered, it starts playing from the point in the bar at which it is triggered. For example, if you trigger a Groove on the 2nd beat of a bar in your song, it will play the Groove from its 2nd beat - so that if there is a kick on the 1st beat, and a snare on the 2nd, it will start playing with the snare.

### Sync Groove Phase

This setting makes subsequent Grooves play in phase with the first Groove played. So, if you trigger a new Groove whilst the original is playing its third beat,

the new Groove will start playing from its third beat as well. Note that **Polyphonic Mode** (see below) must be enabled for this to have any effect.

### Transition Mode

This drop-down sets how transitions between Grooves are handled.

#### 'Immediate'

When in this mode, a newly triggered Groove will start playing immediately.

Any Groove synchronization options will still be in effect, however, which may lead to an apparent delay in the Groove's playback if, for instance, the Groove has no notes at the synchronized play start point.

#### 'Next Beat'

Using this mode, when a new Groove is triggered, the transition takes place on the next beat of the Sync Mode source. For example, if the new Groove is triggered between the 2nd and 3rd beats of a bar, it will actually start playing on the 3rd beat, which is the next beat after the trigger is made.

#### 'Next Bar'

This mode works in a similar way to 'Next Beat' except that, when the next Groove is triggered, it starts playing from the start of the next bar.

### Default Groove

This parameter specifies the default Groove trigger note to play when the **Respond to Song Start** option is enabled. Whatever Groove you have loaded into this note's corresponding Groove Bank slot will be triggered when you start playing your song.

## Auto Fill period (Bars)

Here, you set the period, in bars, between every Fill played when in Auto Fill mode. For example, setting it to 16 will result in a Fill being played every 16 bars.

## Latching Mode

When this mode is enabled, Grooves are tuned off not by a note-off message, but by another note-on message of the same note number. Therefore, you hit a key once to start the Groove, and hit it again to stop it. Please be aware that this applies to all notes – those that you trigger from your keyboard, and those from your sequencer.

## Polyphonic Mode

When in **Polyphonic Mode**, multiple Grooves may be played simultaneously. A newly triggered Groove doesn't stop any other Grooves currently playing. This is useful, for example, to layer grooves that are partial beat components, and for overlaying ride and crash patterns over kick/snare/hat drumloop Grooves.

## Respond to Song Start

Checking this option results in the default Groove (specified with the **Default Groove** option described above) being played when the sequencer is started.

## Respond to Song Stop

This option stops all Grooves which may be playing when the sequencer is stopped.

## Respond to Groove Notes

If you need to use a drum mapping that includes midi notes in the range that triggers grooves you can use this option to disable triggering of grooves.

## AUTO GROOVE REPEAT BUTTONS



The two columns of three buttons on the right of the *BFD* interface are used for auto-accompaniment purposes. Each column represents one of the Groove Banks: the column on the left represents **Bank A**, while the one on the right represents **Bank B**.

### Auto Groove Repeat

When this option is checked, any triggered Groove will repeat until it is stopped by a note-off (or by another note-on if in **Latching Mode**).

You can toggle this option via MIDI:

**Auto Groove Repeat A** ON/OFF: F4 or F6\*, note no. 101

**Auto Groove Repeat B** ON/OFF: F#4 or F#6\*, note no. 102

### Auto Bundle Shuffle

When in **Auto Groove Repeat** mode, this option causes random Grooves within the same Bank to play, instead of the triggered Groove being repeated. This option has no effect when **Auto Groove Repeat** is disabled.

You can toggle this option via MIDI:

**Auto Bundle Shuffle A** ON/OFF: G4 or G6\*, note no. 103

**Auto Bundle Shuffle B** ON/OFF: G#4 or G#6\*, note no. 104

### Auto Fill

When in **Auto Groove Repeat** mode, enabling this option causes a random Fill from the **Fill Bank** to be played every  $n$  bars, where  $n$  is defined by the **Auto Fill Period** option in the **Play Options** panel.

You can toggle this option via MIDI:

**Auto Fill A** ON/OFF: A4 or A6\*, note no. 105

**Auto Fill B** ON/OFF: A#4 or A#6\*, note no. 106

\* depends on the state of the **-2 Octave Numbering** option in the **Options** panel.

## OPTIONS PANEL



This icon activates the **Options** panel. Here, you can toggle various options within *BFD*, which affect how it performs.

Exit the panel without making any changes by clicking its icon again, or by clicking the  icon in the top-right corner, or bring up a new panel instead by clicking another panel icon.

### Animation options

It is strongly recommended to turn off animations if you are using a relatively slow computer, or a laptop, as the additional CPU load generated by the animations might lead to an impairment of performance. You can turn off any or all of the animated panels, hit-indicator lights, tempo beat indicator light and level VU LED's.

### Enable Context Info

This enables the context-sensitive Status window at the bottom of the plugin window. When you move the mouse over a control, it shows a summary of the control and its value. You can turn off this functionality here if you find it a distraction.

### Load Default Kit

With this option and the **Default Kit** selector box, you can specify and load a kit by default when *BFD* is initiated. Click on the **Default Kit** box in order to bring up a file browser so that a kit can be selected.

### -2 Octave Numbering

Some sequencers, such as *Cubase* and *Logic*, use an octave numbering system which begins at C-2, rather than C0 in sequencers such as *Sonar* and *Fruity*

*Loops*. When it launches, *BFD* attempts to detect the sequencer used and adjusts the naming convention used in the **Trigger Keys** panel and **Groove Librarian** Banks. You can override this by manually setting this option in order to use whatever convention you prefer.

#### Direct Mic Bleed (*BFD All only*)

By default, each Kit-Piece Direct output in the **BFD All** plugin contains only that Kit-Piece's signal. In general, this is the setting which most people will use.

However, if you prefer, you can activate this option and make *BFD* emulate a real drum recording process by preserving the natural bleed of signals across the individual Direct mic outputs. The effect is exactly the same as recording a real drum-kit with multiple mics dedicated to each piece of the kit, because the mics are very close together and will pick up sound from other drums. Many engineers prefer to mix drums like this, so the option is included within *BFD*.

#### Maximum Cache Buffers

*BFD* keeps recently played audio data in RAM, so that there is less strain on the hard disk. Specifying a lower number of buffers within the cache leads to less RAM overhead, but also to a higher strain on the hard disk.

If you are using a wide range of velocities, RAM caching will be less effective, as each velocity split maps to a different sample.

To adjust the amount of cache buffers, double-click the value box, enter a new value, and press enter. Only do this when *BFD* is idle!

#### Maximum Voices

Here, you can set a limit on *BFD*'s polyphony. If the voice limit is exceeded, *BFD* implements an intelligent voice-stealing system, based on the oldest note which is still playing.


To adjust the number of voices, double-click the value box, enter a new value, and press enter.



## TRIGGER KEYS PANEL




The **Trigger Keys** panel allows you to adjust the key assignments for the different hits in each Kit-Piece of the drumkit.

Exit the panel without making any changes by clicking its icon again, or by clicking the  icon in the top-right corner, or bring up a new panel instead by clicking another panel icon.

There are three different ways of adjusting the key assignments:

- **click and drag: click the key value and drag the mouse up or down**
- **manual editing: double-click the key value and enter the new value with the computer keyboard**
- **learn mode: click the name next to the key value and then press the desired key on the MIDI keyboard. There is no feedback to show you have clicked and the next key will be learned, but it does work!**

You can also save and load key assignments by using the buttons at the top of this window. Press the  button in order to reset the key assignments to default settings.

## TEMPO DISPLAY

There is a handy tempo display in the bottom-right of the *BFD* interface. This area also houses the 'panic' button.

Panic Button



Clicking this button stops any sound which may be coming out of *BFD*. It is useful if you get any stuck notes.

Beat LED



This light flashes on every beat when the song is playing.

Tempo display



Shows the current tempo in your sequencer.

Time Signature display



Shows the current time signature in your sequencer.

## LOADING AND SAVING PRESETS

*BFD* has 3 different types of presets:

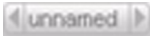
Kit Combo Preset: `.bfc`

Location: **BFD/Kits**

This preset type contains information about the loaded kit components. You load and save these presets via the buttons just under the **Kit Display**.

Mixer Setup preset: `.bfm`

Location: **BFD/Mixers**

These files contain information about the mixer section. These can be saved and loaded, as well as browsed quickly with the  buttons, by using the mixer section preset bar, located just above the **Distance** and **Width** controls on the mixer.

Key Trigger preset: `.bft` (*BFD triggers*)

Location: **BFD/KeyMaps**

You can save preferred layouts of key assignments as defined in the **Trigger Keys** panel.

Global Preset: **.bfp** (*BFD programs*)

Location: **BFD/Programs**

This type of preset file is a global setting: it contains both kit and mixer and key assignment setups and, as such, can be regarded as a combination of **.bfb**, **.bfm** and **.bfp** files. To load and save a global preset, use the buttons on the top-right of the *BFD* interface.

Your host should save the state of the plugin when you save a song. Effectively this is like saving a **.bfp** file.

## **OTHER FILE TYPES USED IN *BFD***

As well as the preset file formats listed above, *BFD* uses a number of other file-types:

Grooves and Fills: **.mid**

Location: **BFD/Grooves** and **BFD/Fills**

These are standard MIDI files.

Groove and Fill Bundles: **.bfb**

Location: **BFD/Grooves** and **BFD/Fills**

These are text files which reference up to twelve Grooves and Fills.

Swing Templates: **.txt**

Location: **BFD/SwingTemplates**

These are text files which contain information on time-distortion mapping used in the **Quantization** panel's Swing Template functionality.

## MISCELLANEOUS FUNCTIONS

*BFD* and multiple outputs

There are three versions of the *BFD* plugin, which give different permutations of outputs into the host. We made this decision because of some hosts' inability to properly change the output configuration.

- **BFD Stereo:**

Stereo Master output only. This version mixes all microphone buses together with the Direct Master stereo mix inside the plugin, outputting a single stereo pair. The **Master** output fader controls the overall output volume of the plugin.

- **BFD Groups:**

Stereo Groups version. This version outputs each stereo microphone bus as an independent stereo output. The **Master** output fader affects the volume of all buses in a relative manner.

Output	Name
1+2	Direct Master
3+4	Overhead bus
5+6	Room bus
7+8	PZM bus

- **BFD All:**

All Outputs version. This is the same as **BFD Groups** but, instead of a stereo mix of the Direct signals, each individual kit-component has its own output. The **Master** output fader affects the volume of all buses in a relative manner. Note that Logic only supports a maximum of 16 outputs from a plugin so the direct signal from cymbal 2 and 3 are mixed together.

Output	Name (non Logic)	Name (Logic)
1+2	Overhead bus	Overhead bus

3+4	Room bus	Room bus
5+6	PZM bus	PZM bus
7	Direct Kick In	Direct Kick In
8	Direct Kick Out	Direct Kick Out
9	Direct Snare Bottom	Direct Snare Bottom
10	Direct Snare Top	Direct Snare Top
11	Direct Hihat	Direct Hihat
12	Direct Floor Tom	Direct Floor Tom
13	Direct Mid Tom	Direct Mid Tom
14	Direct High Tom	Direct High Tom
15	Direct Cymbal 1	Direct Cymbal 1
16	Direct Cymbal 2	Direct Cymbal 2+3
17	Direct Cymbal 3	-

## DRUM RECORDING NOTES

BFD's high-quality drum content was produced and edited by Steve Duda...

<http://www.good-science.com/SteveDuda/>

... and was recorded by Elan Trujillo and Steve Duda at Eldorado Studios, Burbank, CA, USA.

<http://www.eldoradorecording.com/>

Drums were provided courtesy of Josh Baldwin and Christopher S. Heuer at Vintage Drum Rental, Los Angeles.

<http://www.vintagedrumrental.com/>

Here is a comprehensive breakdown of how each drum was recorded...

- **Direct signals:**

Snare top and bottom: Shure SM57

Kick In: ElectroVoice Re20

Kick Out: Neumann M49

Hihats: Neumann KM81

Toms: Sennheiser MD421

Cymbals: AKG 451

All the above microphones were recorded through custom modified API preamps. Please note that the Sennheiser MD421 used to record the toms is actually two mics, one placed on the top and one on the bottom of the drum. Each part was fed into custom API preamps, and then summed on an SSL desk.

- **Overhead set:**

AKG C-12's recorded through Summit MPC-100A tube preamps.

These were placed 5 ft. directly above the kit, with the capsules facing each other, 3 ft. apart.

- **Room set:**

Neumann U87's recorded through Avalon preamps.

They were placed 15 ft. back from the bass drum, each at a 45 degree angle from the kit.

A room set like this is often mixed in mono and set back 10 to 24 dB. It provides a nice 'filler' for the drum tone, and adds a live room flavour.

- **PZM set:**

Crown PZM microphones at floor level recorded through API preamps and Empirical Labs Distressors set at 3:1 compression ratio with a gentle threshold (removing 0 to 6dB depending on drum-hit velocity). This compression stage was added in order to bring more body and sustain to the PZM recordings.

Their placement was 10 ft. back from the bass drum, each at a 45 degree angle from the kit, forming a right-angle intersecting bass drum trajectory.

PZM's are also good 'filler' as they capture a good room tone and drum trajectory/ stereo image not captured by the other mics.

## ***BFD's* LIBRARY OF GROOVES**

Most of the Grooves supplied with *BFD* are performed on Roland V-Drums by Chris Dagley, a renowned UK session drummer. As well as playing with the National Youth Jazz Orchestra for several years, Chris has played with such diverse luminaries of the international music scene as Lalo Schifrin, Des'ree, Gary Barlow, All Saints, Rosie Gaines, Jamiroquai, Tom Scott, Gloria Gaynor, Chaka Khan, Ray Charles, Eric Clapton, Ella Fitzgerald, George Michael and countless others. He has also played on numerous film soundtracks, theatre productions and adverts, and somehow also finds time to play in various jazz fusion and big band groups. Additionally, Chris was an early pioneer of internet-based session recording, via WorldNetStudios.

<http://www.worldnetstudios.com>

Additional Grooves were played by Tom Santamera on V-Drums. There are also many programmed Grooves in the package, put together in-house by Mayur Maha.

Please see the **GroovesReadme.txt** file for further information on the Grooves.

## 6. APPENDIX

### Host-specific issues

Some hosts do not support multiple outputs from plugin instruments. At this time, we are aware that Sonic Foundry *Acid 4.0* and Digidesign *ProTools* fall into this category.

To get around this limitation, we suggest you use the ReWire application in these hosts.

Emagic's *Logic Audio* has a limitation of 16 outputs from plugin instruments. If the **BFD All** plugin is loaded in *Logic*, it automatically detects that *Logic* is the host and uses the 16th output for both Cymbal 2 and Cymbal 3.

To get any the multiple output version of **BFD** to work in specific hosts please refer to the "Installation and Getting Started" section.

### Troubleshooting

- **I'm not hearing any sound!**

Chances are that you have not yet loaded a kit. Also, many sequencers (such as *Logic*) require you to record-enable a MIDI track, or enable live MIDI input in order to get MIDI input to it.

- **There is a noticeable delay between pressing a key on my MIDI keyboard and hearing the sound.**

This is a symptom of latency, something which all CPU-based processing suffers from. Latency can be reduced by using a better soundcard with well-written drivers. Latency also depends upon the speed of your computer processor: even if your soundcard supports very low latencies (for example RME cards are capable of going down to 1.5ms, lower than the latency of many hardware synths) it takes a heavy amount of processing power in order to actually achieve this.



- **I'm getting clicks and pops!**

First of all, please verify if you are only getting this behaviour with *BFD*. Clicks and pops are usually a result of interruptions to the computer, caused by conflicting IRQs and substandard motherboards (such as those with a VIA chipset). These symptoms are also very common when using very low latencies on a computer which cannot handle them. Often, you may not get clicks and pops when working on small projects; however, the symptoms can manifest themselves when using many tracks and plugins, or some resource-hungry plugins. *BFD* makes big demands on the disk subsystem (that is, the hard drive and the controller and routing on the motherboard used to deliver the data to the operating system). Try increasing the latency (i.e. the size of the buffers) on your soundcard, and increasing buffer-size settings within your host. If this does not fix the problem, please contact our support channels for further assistance.

- **I'm getting dropped notes, loss of sync, or drop-outs.**

If you are getting such symptoms, it is likely that your hard disk cannot deliver data fast enough for *BFD*! Because of *BFD*'s disk-streamed multiple microphone technology, playing back just one drum sound is the equivalent of 11 mono audio tracks!

You should **always** make sure that the drive or partition on which the *BFD* audio data resides is defragmented. As long as you defragment the drive before installing the plugin, you should be okay. Also, on Windows platforms, make sure that the drive is running in DMA mode (check your primary and secondary hard disk controller settings in Control Panel/Device Manager).

You can try the following workarounds to get around hard disk subsystem bottlenecks:

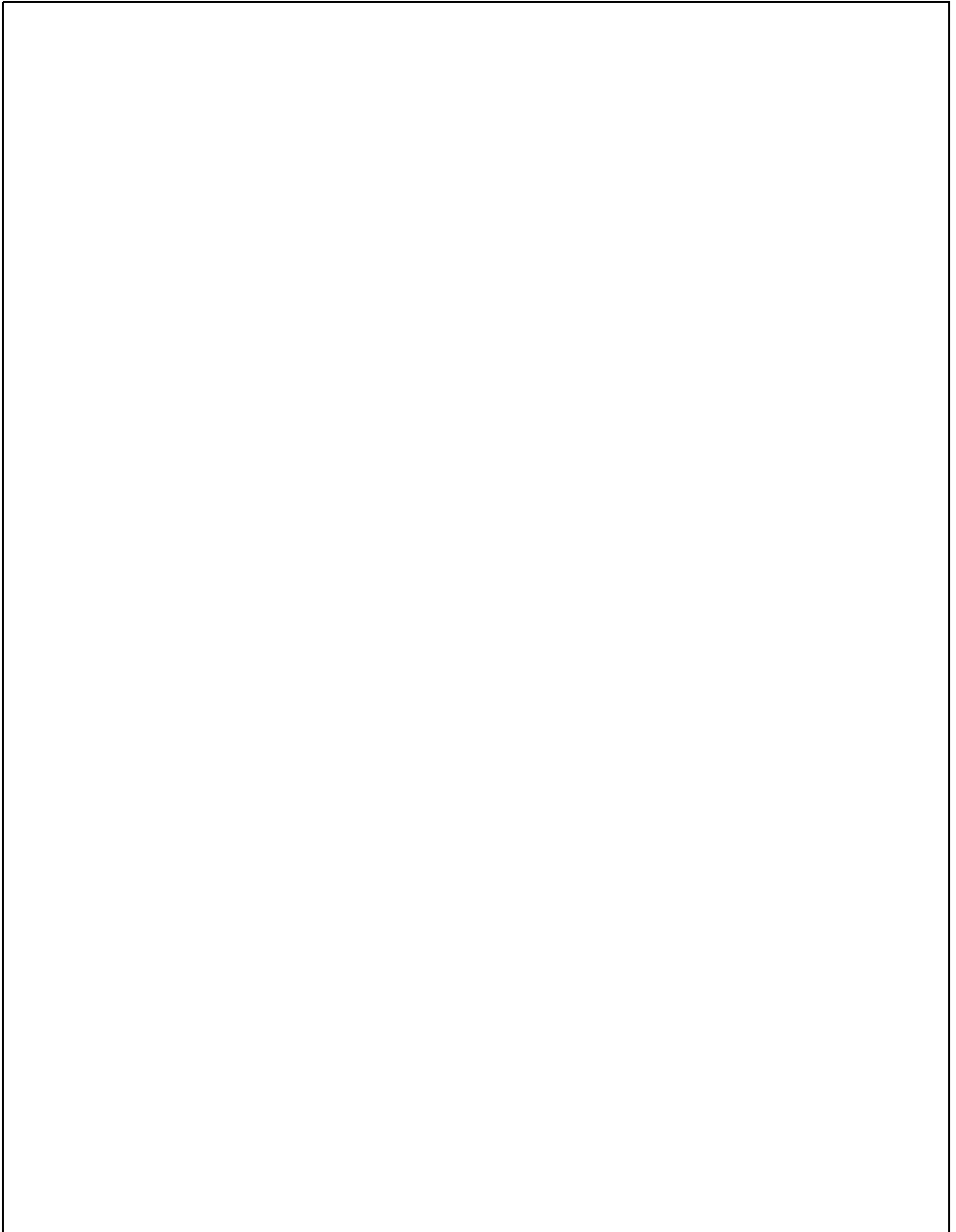
- **Install *BFD* on a separate drive to the operating system and any audio tracks you may be using. If this is impractical, try using a dedicated partition.**
- **Use an external firewire or USB 2.0 drive. This is especially useful for laptop/notebook users, as the internal hard drives on these types of machines are usually very slow compared to their desktop equivalents (4200 rpm versus 7200 rpm). An external drive should be capable**

enough to deliver the required amount of data in time. To give you an idea of the transfer rate required, a particularly heavy scenario when using *BFD* would need around 15 mB/sec. This means that a firewire or USB 2.0 drive which typically delivers 30 mB/sec would be perfectly adequate.

- **Triggering of grooves isn't working as expected.**

Check the settings in **Play Options** panel and see that the latch mode and sync modes are what you need to trigger the grooves how you would like. Refer to the **Play Options** help section to find out more about the different triggering and sync options available.

# NOTES

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