

FCB/UNO CONTROL CENTER

PATCH EDITOR FOR THE FCB1010

Contents

| | |
|---|----|
| 1. Introduction..... | 2 |
| 2. Quick Start guide | 3 |
| 3. The stock FCB1010 feature set..... | 7 |
| 4. The UnO feature set | 8 |
| 5. The UnO v.1.0.3 add-ons and restrictions (compared to UnO v.1.0.2.f) | 9 |
| 6. The LG-FCB feature set..... | 10 |
| 7. MIDI communication between FCB1010 and computer..... | 11 |
| 8. FCB/UnO Control Center overview | 12 |
| 9. The FCB/UnO Control Center menu structure | 14 |
| 10. Selecting the floorboard configuration type..... | 17 |
| 11. Doing the global configuration..... | 18 |
| 12. Doing the preset configuration | 20 |
| 13. Using the preset editing grid | 24 |
| 14. Using simulation mode..... | 27 |
| 15. Sending patchdumps to and from the FCB1010 | 28 |

1. Introduction

The FCB/UnO Control Center is an editor for the FCB1010, equipped with Behringer firmware or with UnO firmware. (All versions are supported, *but see one remark about UnO feature compatibility on page 9.*)

The application allows you to create and manage FCB1010 setups, download them to the FCB1010, or upload existing setups from FCB1010 to computer for backup. It also has a built-in simulator which shows you the expected MIDI output for each key press or pedal movement. The editor doesn't send any MIDI messages on its own (it's not a "virtual FCB"), but it does have a window to view incoming MIDI messages sent by the FCB1010. This way, actual MIDI output from the floorboard can be easily compared with simulated output from the editor.

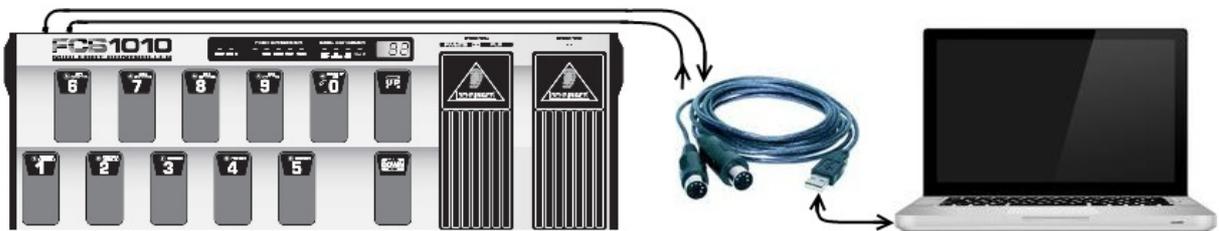
Two separate versions of the FCB /UnO Control Center have been created, one for Windows, one for Mac. Each of these versions uses methods native to the operating system for accessing the MIDI hardware. This turns out to be the most reliable approach.

The FCB/UnO ControlCenter, when used along with UnO firmware v.1.0.3, introduces an improved communication protocol for talking to the FCB1010. This should make a wider range of MIDI-USB interfaces usable for programming the FCB1010. More details about this in a later chapter.

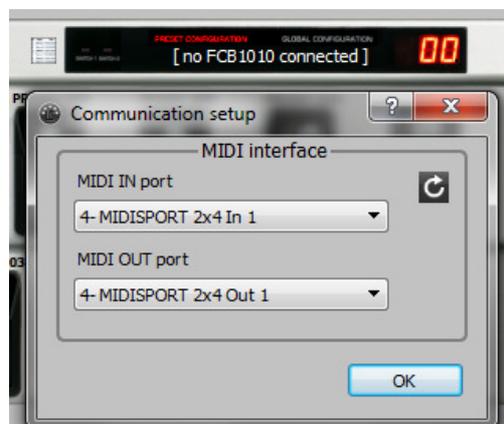
2. Quick Start guide

In order to grasp all the details and possibilities of the editor, it is advised to read this manual just once from start to finish. However, if you want to get a quick view on the editor and check if it connects with your FCB1010 alright, here are the basic steps:

1. Connect the MIDI OUT and MIDI IN ports of your FCB1010 to a MIDI IN and MIDI OUT port of the MIDI-USB interface connected to your computer. Power your FCB1010.



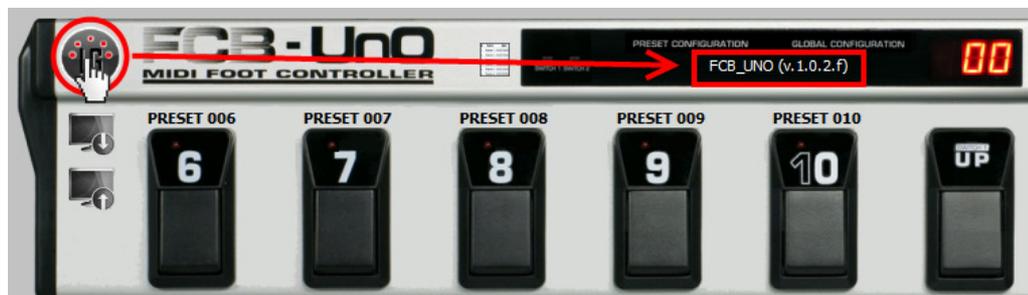
2. Launch FCB/UnO ControlCenter and go to the menu Setup > Select MIDI ports. Select the correct MIDI IN and MIDI OUT port of your MIDI-USB interface.



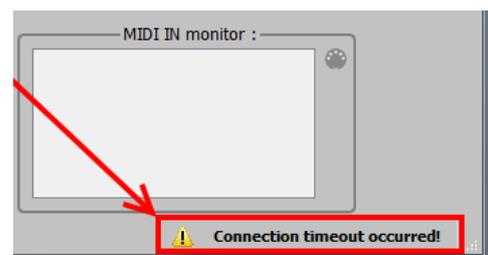
3. Select which type of FCB1010 you want to connect: this can be an FCB1010 with Behringer firmware, with UnO firmware, or with LG-FCB extension module. The selection is made by clicking the large FCB1010 logo on the foot controller picture (the logo can be “FCB1010”, “FCB-UnO” or “LG-FCB”).



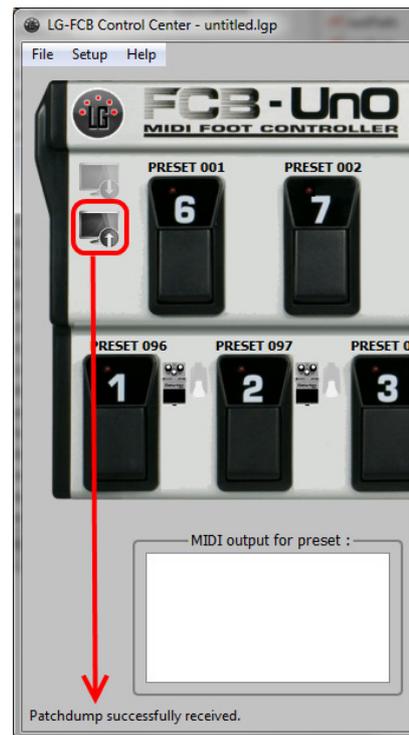
4. Now it's time to let the editor discover the connected FCB1010. Click the big black MIDI connector icon in the upper left corner of the FCB1010 picture. As soon as the FCB1010 detects the connected FCB1010, its firmware version is displayed instead of the “no FCB1010 connected” message. The MIDI connector icon now has red pins to indicate a working connection.



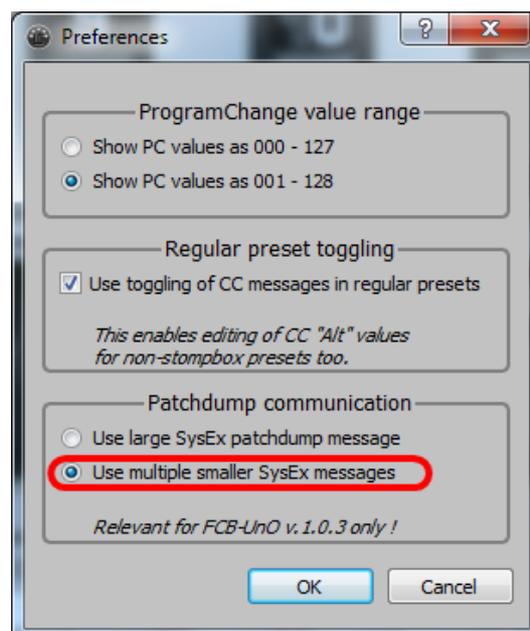
In case the editor does not detect an FCB1010, a timeout error will appear. Please check all cables and MIDI port settings mentioned above, re-launch the editor, and try again.



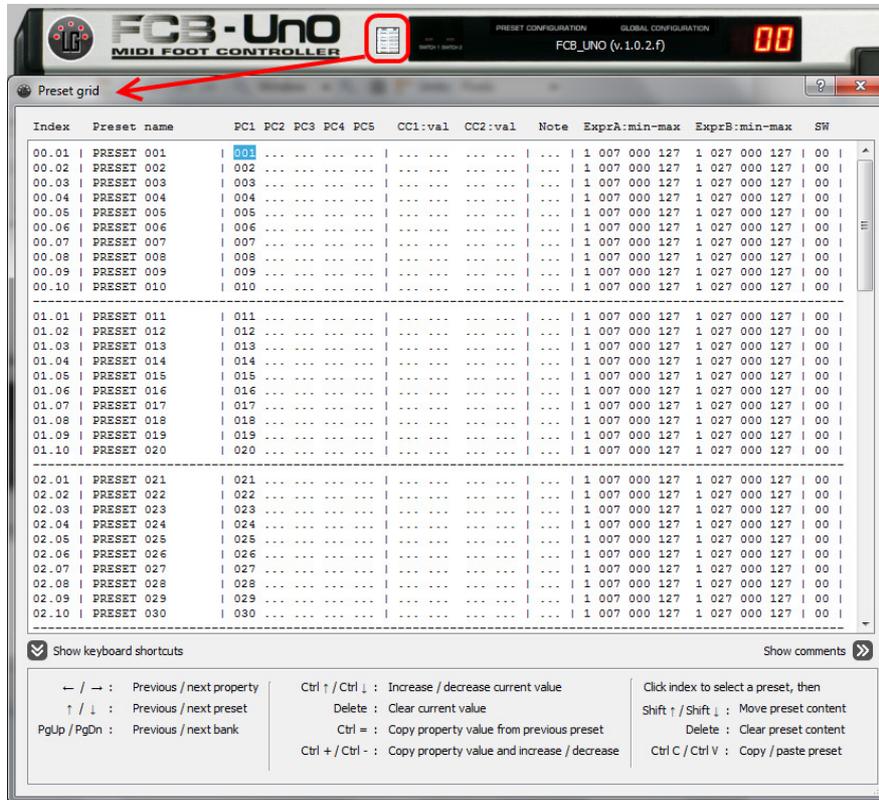
5. With a working connection, the “receive patchdump” icon is no longer grayed out. It’s the icon with computer screen and arrow up, beneath the MIDI connector icon. Click this “receive” icon, and the FCB1010 will send its current setup to the editor. The status bar now shows “Patchdump successfully received”.



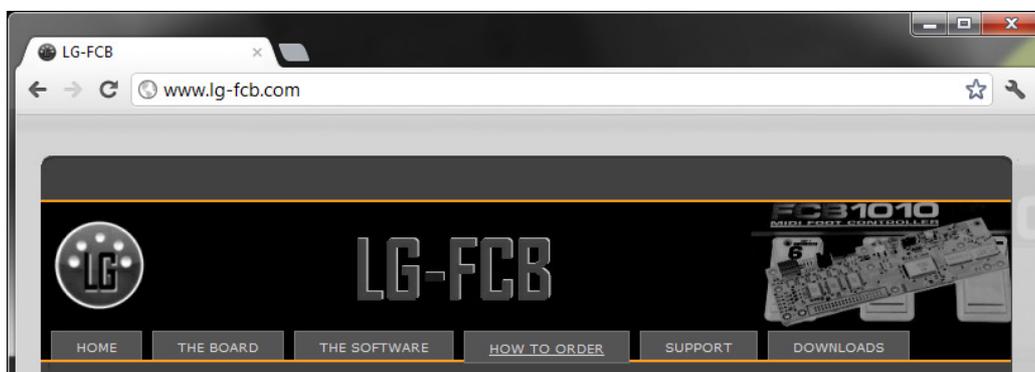
6. If on the other hand the status bar shows “Error while receiving the patchdump”, or gives a timeout error, your MIDI-USB interface might have problems with the SysEx size used for an FCB1010 patchdump. If you are using UnO firmware v.1.0.3, you can now go to the menu Setup > Preferences, and under “Patchdump communication” select the option “Use multiple smaller SysEx messages”. Now you can try again to receive the patchdump. This time the adapted communication protocol might allow your MIDI-USB interface to work correctly with the FCB1010.



- In order to have an overview of the received setup data, open the “preset gridview”. This is done by clicking the rectangular list icon located at the right side of the FCB1010 logo. This shows you the complete patchdump contents in a large list. You can review the received data in detail here.



- Once you have reached this point, you know that your FCB1010, MIDI interface, and the editor can work together correctly. When you choose to register the software, you will be able to send patchdumps to the FCB1010 and save setups on your computer.



3. The stock FCB1010 feature set

Although this is a user manual for the FCB/UnO ControlCenter, it is very helpful to have a thorough understanding of all capabilities of your floorboard first. This chapter gives an overview of the feature set of the “stock” FCB1010. Next chapter covers the add-ons offered by the UnO firmware upgrade. It is followed by a short chapter about the LG-FCB hardware extension.

Number of banks, presets, MIDI messages

The FCB1010 contains 10 banks of 10 presets, 100 presets in total. There are 10 footswitches to select a preset, and a set of UP/DOWN switches which don't send any MIDI, but just change banks. Each preset can send up to 8 MIDI messages : 5 ProgChange messages, 2 ControlChange messages and 1 Note message. When you activate a Note message in a preset, the floorboard always sends a NoteOn message on switch press, and a NoteOff message on switch release. (To be completely correct, the NoteOff message is actually a MIDI NoteOn with velocity 0, which is the same, according to the MIDI standard. However, some MIDI controlled software uses NoteOn messages for control, and might also react on those NoteOn messages with velocity 0)

The order in which the messages are sent is : PC1, PC2, PC3, PC4, CC1, CC2, PC5, NoteOn

This is important for one particular feature: if you want to select a preset on a device which contains several banks of presets, this can be achieved with a MIDI “BankSelect” (= CC 0 and/or CC 32) *followed by* a ProgChange. So in this case use PC5 as ProgChange command, since that message is sent *after* the CC commands.

Apart from transmitting MIDI messages, an FCB1010 preset can also do following actions :

- Open or close each of the 2 relays of the FCB1010. The relay outputs are available on the 2 jacks at the back of the FCB1010, and can be used to control non-MIDI-controlled amplifiers. (In this manual we use the term “relay” because that's what they actually are, while a “switch” would rather refer to a footswitch)
- Define the CC message number and range, being transmitted by each of the 2 expression pedals. The CC number is programmed in each of the presets, the CC value is defined by the position of the pedal, but you can define the minimum and maximum value of the sweep in each preset. (attention : before you change a pedal sweep from its standard value of 000-127, make sure the pedals are correctly calibrated)

Floorboard configuration types

The FCB1010 can work in 2 different configurations: “regular” mode and “direct select” mode.

In regular mode, you scroll through banks using the UP/DOWN switches, and you select one out of 10 presets within the current bank by clicking one of the 10 preset switches. The display of the FCB1010 shows the number of the current bank, which is between 00 and 09.

In “Direct Select” mode, you select one out of the 10 banks directly by clicking a numbered preset switch (0 to 9). A second click selects the preset within that bank. This means that selecting a preset always requires 2 clicks, but with those 2 clicks you can directly access all 100 presets. The FCB1010 display now shows you the number of the selected bank+preset, ranging from 00 to 99. Since the UP/DOWN switches are no longer needed for bank switching in this mode, they now act as “relay activation” switches: the UP switch controls relay1, the DOWN switch controls relay2.

4. The UnO feature set

You can find a detailed comparison sheet between Behringer and UnO firmware on this link: <http://www.ossandust.be/files/comparison%20Behringer%20Uno.pdf> Here we will just mention the functional differences which you will see reflected in the FCB/UnO Control Center. The one major functional enhancement is the addition of a third operation mode: next to “regular” and “Direct Select” mode, “stompbox mode” is added.

Number of banks, presets, MIDI messages

The capabilities of the UnO equipped FCB1010 are identical to the “stock” floorboard with regards to number of banks and MIDI messages, with one exception: in stompbox mode (discussed below) the “PC4” message is not available, so each preset can send only 4 PC messages instead of 5 (the reason is that in this mode stompbox states are stored where normally the PC4 message data is stored). But read on, more about this in the topic about v.1.0.3 below.

Floorboard configuration types

Regular and “Direct Select” modes act identical as with the stock firmware. One important third configuration type is added : **stompbox mode**.

In stompbox mode, you get one row of 5 “stompboxes”, while the other row of 5 preset switches still acts as regular presets. A stompbox can have 2 states : ON or OFF, and the LED of the stompbox switch reflects that state. This stompbox state is kept when you click a different stompbox. So while in “regular” mode only one LED can be ON at the same time, in stompbox mode the LEDs of the 5 stompboxes can be ON or OFF, depending of their current state. A few extra data fields in the setup allow you to specify a different CC value for activation and for deactivation of the stompbox. There is also a possibility to specify stompboxes as “momentary” instead of “toggling”. In that case, the effect is deactivated as soon as you release the effect footswitch, instead of toggling at each switch press.

In stompbox mode, the presets are no longer organized in 10 banks of 10. Instead, you get a “global” bank of 5 stompboxes (on the upper or lower row, this is configurable), and 19 banks of 5 regular presets. The bank number is displayed as “00”...“09” for the first 10 banks, and “.00”...“.08” for the next 9 banks. (this is because the leftside digit is reserved to display the current “note transpose” value – at least for UnO firmware v.1.0.2.f or lower)

Each CC message can have 2 different values

As mentioned above, a stompbox can toggle between 2 different states (ON and OFF), and therefore the setup provides 2 different CC values for each of the CC messages. However, also the non-stompbox presets can take advantage of those extra CC values. If you want this, a preset can alternate between sending the “main” or the “alternate” CC value on each subsequent click. Since a regular preset does not have 2 states like a stompbox does, you will not see from the preset LED which of both values will be sent next – the FCB1010 just alternates between the 2 values on each click. Since this functionality is probably not often used, and might even seem confusing, we have “hidden” it behind a preference setting in the editor. You will need to go to the preferences menu of FCB/UnO ControlCenter to enable this specific option. After that, you will be able to enter 2 different values for each CC, even for regular presets, not only for stompboxes.

5. The UnO v.1.0.3 add-ons and restrictions (compared to UnO v.1.0.2.f)

The main extra feature in this latest UnO firmware version is an extended SysEx communication protocol for patchdumps, which should allow more types of MIDI-USB interfaces to be used for doing FCB1010 patchdumps without error. This will be discussed in more detail in a later chapter.

Apart from the communication protocol change, a minor change in the way you initiate patchdumps should make life easier: it is no longer necessary to “enable SysEx communication” by hand. For more details see also the last chapter, about doing patchdumps.

Support for “momentary stompboxes” is slightly extended. While previous UnO firmware versions were limited to sending a “0” CC value on switch release, v.1.0.3 firmware allows you to program the release CC value to anything between 0 and 127.

Finally, we also decided to *remove* a few UnO features, which were of very little use to most users (actually, I was probably the ONLY person using these features, they were added at the very start of the UnO firmware project, at that moment I had no idea this would ever become more than just a firmware enhancement for own personal use...)

Which features exactly have been removed, and why ? Here’s the list.

- **Note transpose.** Very specific feature to shift incoming Note messages up or down. The transpose value (-12 to +12) is displayed on the leftside digits of the FCB1010 display.

Removing this feature allows a better bank number display in stompbox mode : bank numbers can now be shown as “00”...”18” instead of “00”...”09” and “.00” ... “.08”

- **Send SysEx messages instead of PC or CC.** This feature was interesting to control my vintage OB3-squared module, but the possibilities were so restricted that possibly no other device can be sysex-controlled using this feature : only SysEx sizes of 5 or 6 bytes were supported.

Removing this feature frees up enough preset storage memory to again introduce the use of PC4. As mentioned on the previous page, PC4 was dropped in the previous UnO firmware versions, in order to allow storage of stompbox states. By removing this exotic feature we can restore 100% of the “standard” functionality in the UnO version, with 5 ProgChange messages available for each preset. This also eliminates the need for a “stompbox mode initialization” step after firmware upgrade, as described on p.2 of the UnO 1.0.2 user guide.

- **ExpA toggling** : through some rather complicated preset programming, you could make the CC number of expression pedal A toggle between 2 values when clicking a stompbox. This feature was removed along with the SysEx feature to free up that required storage byte for PC4 programming.

Attention UnO v.1.0.2.f users! It is important to note that the features which are no longer supported in UnO v.1.0.3 are also not supported in the FCB/UnO ControlCenter. So in case you do happen to use one of those exceptional features mentioned above with UnO v.1.0.2.f, you will not be able to program them using this editor.

6. The LG-FCB feature set

FCB/UnO ControlCenter can also be used to program the FCB1010 equipped with an LG-FCB extension board. However, since the programming of this board is completely different from the FCB1010 with or without UnO, setup is covered in a separate manual, also available for download from our website <http://www.lg-fcb.com>. For the sake of completeness, we will briefly mention the LG-FCB feature set here.

Number of banks, presets, MIDI messages

- Up to 100 banks containing 10 presets each.
- Each preset can send any stream of MIDI messages on switch press and on switch release. A mix of all 16 MIDI channels can be used in each preset. The number of MIDI messages per preset is not fixed. It is only limited by the total available setup memory on the extension board, which is large enough for the most complex setup.
- The layout of each bank is fully customizable. Each switch in each bank can be defined to be a regular preset switch, stompbox switch, or momentary effect switch, without the need for a rigid “stompbox mode” configuration.

Floorboard configuration types

The “regular” mode is identical to the FCB1010 regular mode, except that the setup can contain a programmable number of banks, up to 100 in total, giving you a maximum total of 1000 presets, instead of the 100 presets of the stock FCB1010.

The “Direct Select” mode acts identical as for the stock FCB1010, requiring 2 switch clicks to directly select any out of 100 presets.

An extra configuration type is added: “Direct Select plus 20 stompboxes”. In this mode, you can still select any out of 100 presets directly, but apart from that you can also directly access 2 banks of 10 stompboxes, which can be combined with the 100 regular presets. In order to achieve this, you click the DOWN switch followed by 2 digits to select any out of 100 presets. Clicking a preset switch directly (without DOWN click) will activate the stompbox linked to that switch in the current stompbox bank. For toggling between the 2 available stompbox banks, you use the UP switch.

Another extra configuration type is “Direct Bank” mode. As in the previous mode, you click the DOWN switch followed by 2 digits. This time, this doesn’t select a preset, but it directly selects any bank out of 100 available banks. After selecting a bank, just click a footswitch to activate a preset in that bank. Apart from this, a “global bank” is available for quick access. The UP switch toggles between the current bank (which can be any out of 100 banks) and the global bank. This means that in total your setup contains 101 banks or 1010 presets!

If you want more detailed info about the LG-FCB extension module and how to program it with your FCB/UnO editor, download the dedicated LG-FCB user manual from our website.

7. MIDI communication between FCB1010 and computer

The FCB1010 uses MIDI SysEx messages to communicate with a computer for sending or receiving patchdumps. Unfortunately a wide range of MIDI-USB interfaces tend to behave unreliably or even don't work at all for FCB1010 communication. After thorough investigation of the used protocol, we found a few possible causes and released a firmware update (UnO v.1.0.3) which hopefully will solve most of those issues. Time will tell how much improvement the new firmware version brings. We personally noticed a 100% reliable communication using UnO v.1.0.3 with a cheap (5 USD) Chinese brand MIDI-USB interface (the type depicted below).



Here are the firmware modifications done in UnO v.1.0.3 in order to improve reliability:

- Avoid malformed SysEx.

Enabling the “MIDI Merge” feature caused the FCB1010 to send out malformed SysEx messages (part of a patchdump SysEx being echoed back to the computer). We have noticed that several MIDI interfaces have problems coping with this unexpected corruption, and refuse to correctly send the succeeding SysEx message. With UnO v.1.0.3 the FCB1010 no longer sends such malformed SysEx messages.

- Avoid simultaneous IN and OUT traffic.

The “MIDI Merge” feature also causes some simultaneous IN and OUT traffic during patchdumps. Again something which some cheaper MIDI-USB interfaces have problems with. The code changes done to avoid malformed SysEx at the same time solve this issue.

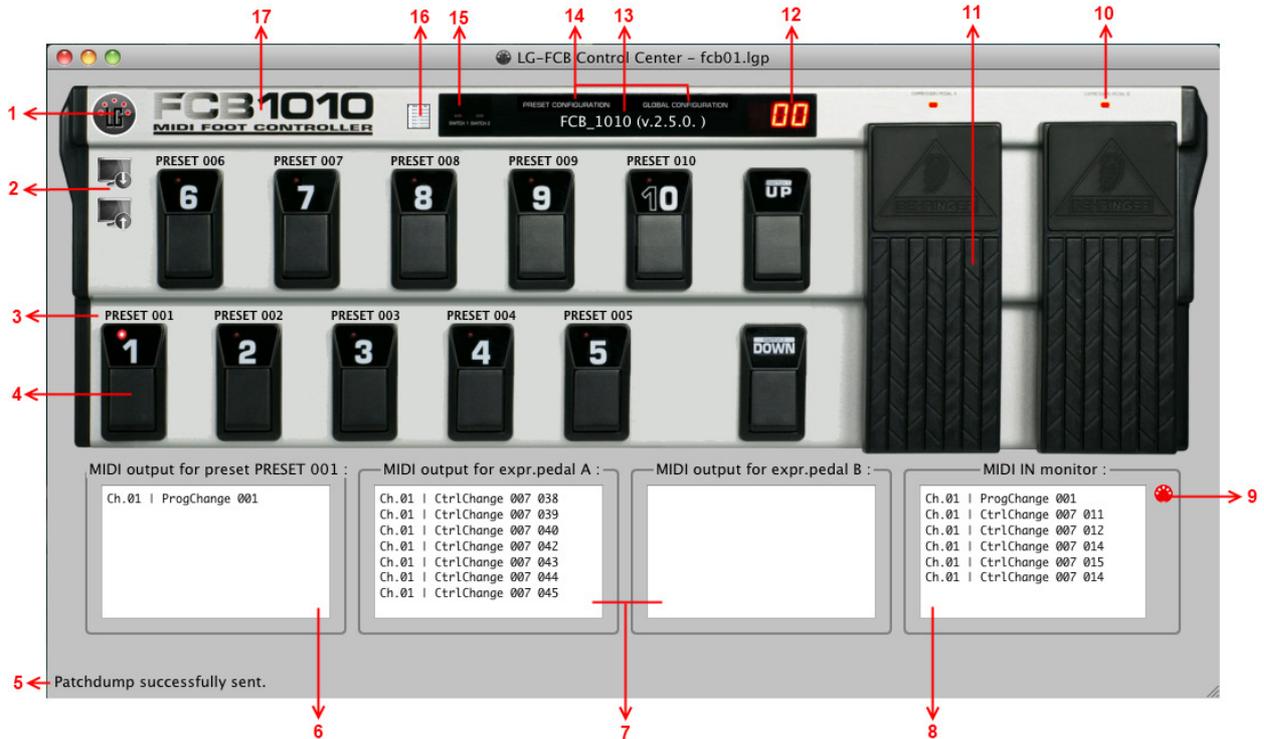
- Use smaller SysEx messages.

A third and possibly most important cause for unreliable communication is the size of the transmitted SysEx messages. The FCB1010 sends or receives its patchdump as one big SysEx. UnO firmware v.1.0.3 introduces a new (optional) communication protocol which chops the setup in smaller chunks before transmitting, and merges chunks together after receiving. This should definitely allow a wider range of MIDI-USB interfaces to be used for transmitting FCB1010 patchdumps.

For detailed patchdump instructions, see the last chapter of this manual.

8. FCB/UnO Control Center overview

The editor consists of one main window. All frequently used actions can be accessed from that main window, the number of different popup menus has been limited to the minimum. Below is an overview of the main functionality and how to access it :



1. Clicking the MIDI connector icon establishes a MIDI connection with your FCB1010. Before this is possible, the used MIDI ports need to be selected. This is a one-time operation, after initial setup the chosen ports are permanently stored as user preference.
2. Downloading a setup to your FCB1010, or uploading a setup from FCB1010 to computer, is done by clicking these icons. A connection needs to be established to enable the 2 buttons.
3. In FCB/UnO ControlCenter you can name all presets. Although those names cannot be displayed on the FCB1010 itself, they are obviously very helpful while working on your setup in the editor. The name of each preset is displayed in the user interface above its footswitch.
4. In “simulation mode”, the footswitches on the graphical representation of the FCB1010 can be used to simulate the behavior of your floorboard with the current setup. In “setup mode” they are used to select the preset to be edited.
5. The status bar shows informative messages, error messages, and a progress bar during lengthy operations.
6. In simulation mode, clicking a preset switch causes all MIDI messages programmed for that preset to be listed in this field.

7. These 2 fields show you the transmitted MIDI messages when simulating a movement of each of the 2 expression pedals.
8. A MIDI IN monitor field allows you to inspect the actual MIDI output of your FCB1010. It is placed next to the simulation output, so you can easily verify your programming by comparing expected output and actual output.
9. Clicking this MIDI connector icon toggles the MIDI monitor function on and off.
10. In simulator mode these small LEDs show if an expression pedal is currently enabled, just like on the real floorboard.
11. Two vertical sliders can be used to simulate the movement of the 2 expression pedals.
12. While in simulation mode, the 7-segment display behaves exactly the same way as the display of the real pedal. In setup mode it shows the currently selected bank. You can edit the content of each of the 10 presets in that selected bank.
13. As soon as you click the “Connect” button (see 1.) and an FCB1010 is detected, the firmware version of the FCB1010 is displayed here. It can be Behringer firmware or UnO firmware.
14. The “PRESET CONFIGURATION” and “GLOBAL CONFIGURATION” labels on the FCB1010 window can be clicked to select the current mode. You can toggle between preset config and global config mode, or if none of both are activated, the software runs in “simulator” mode.
15. In simulator mode these small LEDs show if the 2 relay outputs are currently closed or opened, just like on the real floorboard.
16. This icon represents a preset list. Click it to open the “grid view” of the editor. The grid view allows for very efficient editing of all preset data. In one glance it gives you an overview of the complete setup. Smart keyboard shortcuts allow easy copying or auto-incrementing of message contents in a range of successive presets.
17. The big logo shows you the currently selected type of setup: regular FCB1010, FCB with UnO, or LG-FCB (LG-FCB is covered in a separate manual). You can click the logo in order to select a different setup type. Also the floorboard operation mode can be chosen here: regular mode, direct select mode, stompbox mode...

9. The FCB/UnO Control Center menu structure

There are only a few menus, since most functionality is directly accessible from the main window.



Overview of all menus, both on Windows and on Mac

File

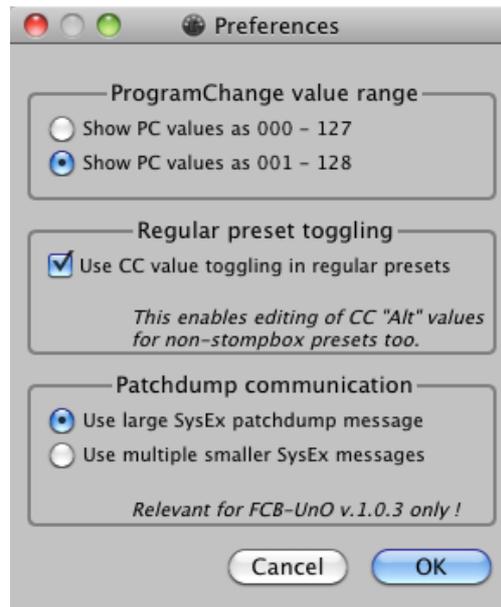
The file menu contains the standard options to open or save a setup, or to create a new one. A list of recently opened files is available for quick access.

Select MIDI ports

This menu item allows you to select the MIDI IN and MIDI OUT port used for communication with the FCB1010. This needs to be specified only once. The setting is stored as user preference for later reuse. When plugging in the MIDI-USB interface after launch of ControlCenter, use the refresh button to refresh the detected MIDI ports. (In some cases it might even be necessary to close ControlCenter and open it again with the MIDI-USB interface connected, to get the MIDI communication working correctly)



Preferences



The Preferences dialog contains 3 topics :

- ProgramChange value range

The ProgramChange numbers can be displayed throughout the user interface with values ranging from 000 to 127, or from 001 to 128. While the actual MIDI values being transmitted are always between 000 and 127, many find it more intuitive to start numbering presets in a device from 001 instead. And since ProgChange messages are primarily used for preset selection in a sound or effects module, it can be more intuitive to display “PC 001” rather than “PC 000” as the command to select the first sound or preset.

- Regular preset toggling

The UnO firmware introduces the concept of stompboxes, which can toggle between 2 states (ON and OFF). In order to support this, each preset can have 2 distinct CC values for “CC1”, and 2 distinct values for “CC2”. Although most people will only use these 2 values when programming stompboxes, it is also possible to alternate between 2 CC values in a regular (non-stompbox) preset: the first time you select a preset, the “main” CC value is transmitted. If you click the same preset switch again, the “alternate” CC value is transmitted. Unlike stompboxes, a regular preset will not “show” which of both CC values will be sent next, since the preset doesn’t have an “ON” or “OFF” state. Most people will not use this specific toggling feature for non-stompboxes, therefore you have to explicitly enable it in this menu. After doing so, the input field to edit “alternate” CC values will appear for all presets in the preset config screen.

- Patchdump SysEx size

The SysEx size of an FCB1010 patchdump is 2352 bytes. As several MIDI-USB interfaces have been reported to be incompatible with those larger SysEx messages, the UnO v.1.0.3 firmware introduced an alternative communication protocol which uses shorter 160-byte SysEx messages instead. You can activate this alternative communication protocol in the Preferences dialog. Remember, this applies to v.1.0.3 UnO firmware only.

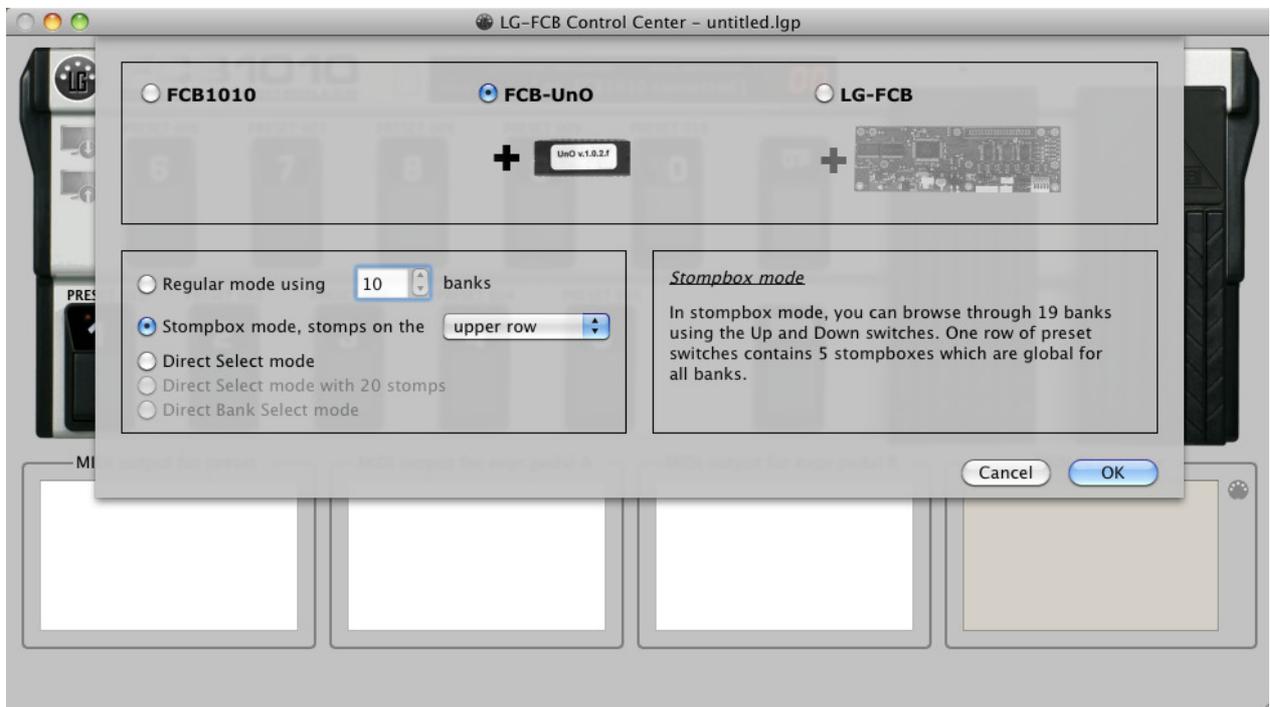
Firmware upgrade

This menu option will be greyed out, unless you have an FCB-LG extension board connected with your computer through USB. Indeed, the FCB1010 firmware is stored in a one-time-programmable memory chip. Upgrading the firmware requires opening the unit and replacing the EPROM with another chip containing the upgraded firmware (actually, “EPROM” stands for *erasable* PROM, although the used chips are not erasable at all. It’s just the commonly used name for that type of chip...) One of the major advantages of the LG-FCB extension board for the FCB1010 is that it stores its firmware in an electrically erasable chip. As a result, firmware upgrades can be done through USB without disassembling the unit. Check out the separate LG-FCB manual for more detailed info about the LG-FCB extension board.

10. Selecting the floorboard configuration type



The FCB/UnO Control Center can be used for setup of a regular FCB1010, an FCB1010 with UnO firmware, or an FCB1010 with LG-FCB extension module (download the separate LG-FCB manual to learn more about this last option). On top of that, for each of those 3 floorboard versions you have the choice between several configurations. All of this can be selected by clicking the big FCB logo depicted above. This opens following dialog :



The stock FCB1010 allows you to choose between regular 10-bank mode and Direct Select mode. The UnO-equipped FCB1010 adds to that a stompbox mode, with stompboxes either on the upper row or lower row of the floorboard. Some more configuration types are available when the FCB1010 is extended with the LG-FCB hardware board, but these are not in the scope of this manual.

11. Doing the global configuration



You enter global configuration mode by clicking the according text in the FCB1010 “display window”. The text turns red (as shown above), and the global configuration dialog appears in the lower half of the screen. In case of the non-UnO FCB1010 most of the options are greyed out: only the MIDI Channels section is accessible. Reason is that due to a bug in the Behringer firmware it is not possible to modify the other global settings through SysEx (= from an editor), they need to be edited on the floorboard itself. Since the UnO firmware fixed this bug, you can program all global settings using the FCB/UnO ControlCenter when an UnO equipped FCB1010 is connected.



MIDI channels

An FCB1010 preset can send up to 8 different MIDI messages (5 PC, 2 CC, 1 Note). These messages can be different for each preset. However, the MIDI channel on which those messages are sent is defined globally. The global setup lets you specify the MIDI channel used for PC1...PC5, CC1...CC2 and Note. Also each of the expression pedals can send its messages on a separate MIDI channel which can be specified here.

Relay output configuration: latched vs. pulsed

You can choose whether the relay outputs behave as “latched” or “pulsed” (=momentary) outputs. In latched mode, one preset can close the relay (switch it ON) while another one can open it again (switch it OFF). In pulsed mode, the relay closes on switch press, and opens again on switch release.

Attention: the latched/pulsed choice only applies on the FCB1010 (with or without UnO firmware) used in “regular” mode. When used in “direct select” mode, the switches are controlled by the UP/DOWN keys, and are always “latched”.

Relay output configuration: normally open (N.O.) vs. normally closed (N.C.) *(Uno only!)*

By default, the relay outputs behave as normally open switches (contacts open when the relay is programmed OFF, contacts closed when it is programmed ON). With this global setting, you can invert the behavior to act like normally closed switches, which have their contacts closed when programmed OFF, and contacts open when programmed ON.

MIDI merge

You can connect another MIDI device to the MIDI IN port of the FCB1010, and let the floorboard merge its own MIDI messages with the incoming messages into one MIDI stream, which is then forwarded to the next MIDI device. In order to do so, enable the “MIDI merge” setting.

RunningStatus

Enabling Running Status will result in the FCB1010 expression pedals sending fewer bytes. The RunningStatus protocol allows 3-byte MIDI messages to be transmitted as 2-byte only, as long as the MIDI status byte remains unchanged. This setting may have been relevant in a far history, when devices could get clogged by a continuous MIDI stream. This should not be the case anymore with nowadays hardware, so it is not important to enable this setting.

No taptempo *(Uno only!)*

The stock FCB1010 has a feature which causes the floorboard to send a kind of “taptempo” messages, specific to other Behringer gear. As soon as you enable transmission of MIDI Note messages, each second switch click will send an extra CC message. The value of that CC message is proportional to the time in between switch clicks.

Many people are using Note messages in their FCB1010 presets in order to control software like Ableton Live. They may find it very annoying to have those “taptempo” messages interfering with the programmed MIDI commands. Therefore UnO firmware adds the possibility to disable this Behringer specific feature.

No PC repeats *(Uno only!)*

Another UnO specific global setting is the “No PC repeats” setting. With this setting, you can avoid the same ProgChange message to be sent twice in a row. You could for instance have a few presets which all select the same sound (using a ProgChange message) but with different effects activated. Going from one variation to another might cause a glitch in the sound, because of the patch being selected again. With the “No PC repeats” setting activated, the ProgChange message will not be transmitted a second time, and there will be no glitch in the sound when activating a sound variation.

Note velocity *(Uno only!)*

With the stock FCB1010, all transmitted Note messages have a fixed velocity of 100. With UnO firmware, the possibility has been added to program the Note velocity globally. This means that all notes will still have the same velocity, but at least you can adapt it globally to your needs.

12. Doing the preset configuration



You enter preset configuration by clicking the according text in the FCB1010 “display window”. The text turns red (as shown above), and the preset configuration dialog appears in the lower half of the screen. We will first discuss the setup for the regular FCB1010, afterwards we will focus on the differences when using UnO firmware, and more specifically when using stompbox mode.



Regular FCB1010 preset config

You select the preset to edit the same way as you would do it on the floorboard itself: click the UP/DOWN switches (with your mouse) to browse through the banks, then click the switch linked to the preset which you want to edit. The corresponding switch LED will go ON, and the preset setup dialog will show the current setup of the selected preset.

First of all, you can give the preset a relevant name, and you can type some comment which you may find helpful when revisiting the setup in the future. Preset name and comment are never transmitted to the FCB1010, since they cannot be displayed on the small FCB1010 display. They are stored in the FCB setup on the computer, along with the actual MIDI data.

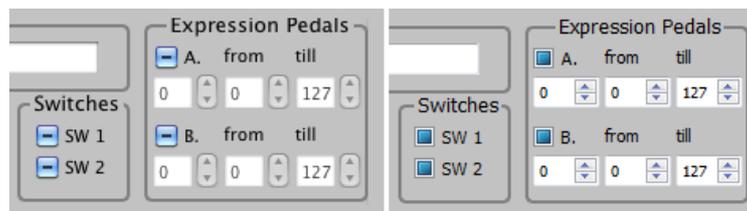
The other setup elements are pretty obvious: you can activate each of the 5 ProgChange messages, 2 ControlChange messages, and 1 Note message. For each of those messages you fill in the required data (PC number, CC number and value, Note number). The MIDI channel used for those messages cannot be specified here, since they are globally defined for all presets (see previous chapter)

Apart from this, each preset can open or close the 2 relay outputs linked to the 2 jacks at the back of the FCB1010. Tick the checkbox in the “Switches” group to close a relay, untick the checkbox to open a relay. Finally, the Expression pedal setup allows you to specify the CC number and value range used by each of the 2 expression pedals. Unticking the checkbox will disable the pedal, ticking the checkbox will make it send CC messages as soon as you move it.

UnO specific preset config (“default” mode)

In non-stompbox mode, the preset setup with UnO firmware is almost identical to the stock FCB1010. There is a small but important difference in the way the switch and expression pedal checkboxes behave : in an UnO setup, these checkboxes are “3-state” instead of “2-state”. This means they can not only be set to ON or OFF, but also to PARTIALLY ON. In our setup, this actually means “NO CHANGE”. With the NO CHANGE setting, a relay will not close or open when selecting the preset, it will just remain in its previous state. Same thing for the expression pedals: they will retain their previous CC number and range when they are set to NO CHANGE in a preset.

Here is what checkboxes look like when they are in the “NO CHANGE” setting, left on Mac, right on Windows :



Preset config in stompbox mode

When configuring the floorboard for stompbox mode, the board layout in the main window gets a few extra icons next to the switches of the stompbox row :



In the screenshot above, we chose for stompbox mode with stompboxes on the upper row. Next to each of the 5 switches on that row, you now see an icon indicating that this is a stompbox. Actually the icon is a selection button which lets you choose between a “stompbox” or a “momentary effect”. A stompbox toggles between 2 states each time you click it. A momentary effect on the other hand is selected as long as you keep the switch pressed. On switch release the effect is deactivated.

In the preset setup part on the lower half of the screen, you can see 2 extra fields for a stompbox. For regular presets, each of the ControlChange messages has a CC Number and a CC Value field. Stompboxes have CC Number, “ON” value, and “OFF” value instead. Indeed, 2 different messages are sent when activating or when deactivating the effect. In general an effect will be activated through a value higher than 64, and deactivated through a value lower than 64. It is safe to use 127 as activation value, and 0 as deactivation value.

“Momentary effects” are a special case. These also have an “activation message” and “deactivation message”. However, with UnO v.1.0.2.f the deactivation message is hardcoded to 0, you cannot change it. Thanks to some slight setup storage changes, this restriction no longer applies with UnO v.1.0.3. With this version all ON and OFF values can be modified, also in case of momentary effects.

Although stompboxes in most cases need nothing else than a toggling ControlChange message, be aware that all other message types are also available, just like with a regular preset. Don’t forget to keep the ProgChange checkboxes unticked if you don’t want the stompbox to send those messages.

Below you see the preset setup pane for a regular preset while in stompbox mode :

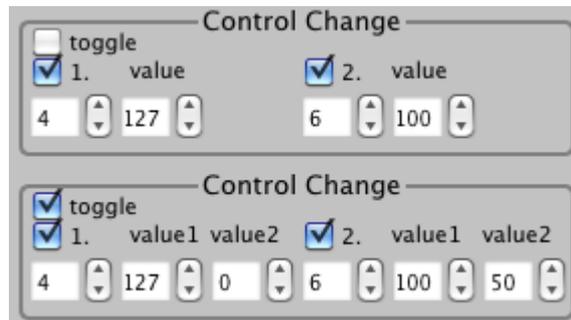


The ControlChange fields are again the same as in regular mode (only one CC value per message, instead of the ON/OFF pair for stompboxes), but you now get an extra groupbox labeled “Stomps”. Indeed, for each preset you can specify the initial state for each of the 5 stompboxes here. And again you have the choice between 3 states : ON, OFF, or NO CHANGE.

Using toggling CC values in regular presets (UnO only)

There is one specific option available with UnO, which might not be used often. Therefore it needs to be explicitly enabled in the Preferences menu. The option to use toggling CC values in non-stompbox presets is explained in chapter 9, which covers the Preferences menu items.

Below you see the ControlChange part of the preset setup pane for a regular preset, with this “toggling CC values” option enabled. As you can see, a “toggle” option is now added to the ControlChange field. When this toggle option is selected, you can again fill in 2 distinct values for each CC message, much like with a stompbox. The preset will “toggle” between both values on each consecutive click on the preset footswitch. Whenever you select a different toggling preset, its “value1” will be transmitted. When clicking the same preset switch again, its “value2” is transmitted.

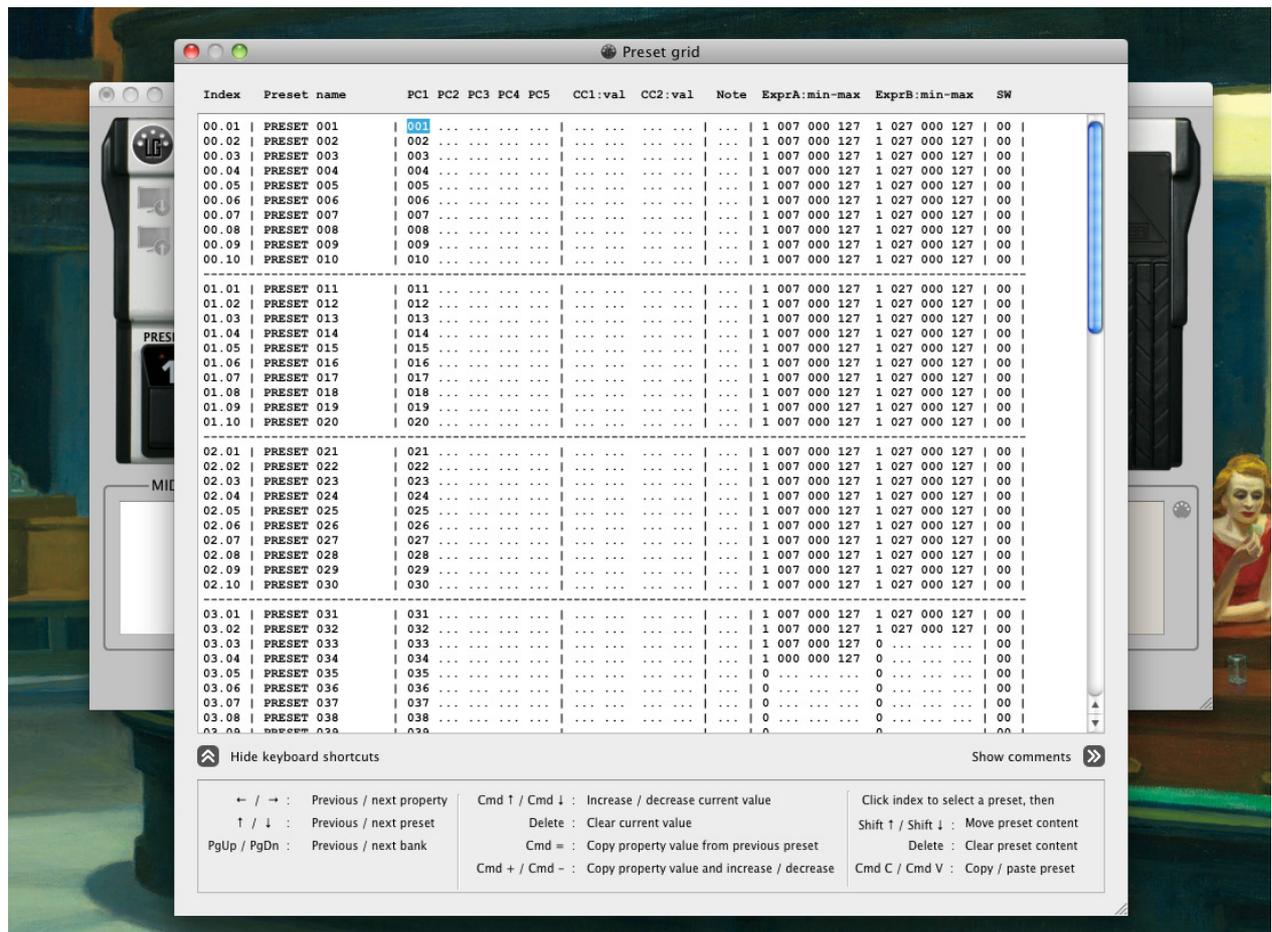


13. Using the preset editing grid



Creating a new setup from scratch can be a huge job, especially if you want to set up all 100 presets. The previous chapter showed how you can select each preset and change the content of that preset using the preset configuration screen. However, when you want to do lots of changes in many presets, you will definitely find the preset editing grid a more efficient tool.

The grid is opened by clicking the small list icon depicted above. It gives you an overview of your complete setup in a condensed way, and at the same time it allows you to edit the setup content, using a few clever keyboard shortcuts. In order to make editing as efficient as possible, the grid can be used for preset content editing only. Preset names and comments are displayed but cannot be edited in this view. If you are not interested in the preset comments right now, you can simply collapse the comments column and concentrate on the preset data content.



You can browse the preset contents by using the 4 arrow keys, while the PageUp/PageDown keys jump to previous or next bank. Each line represents one preset, all MIDI message values are displayed in consecutive columns. In order to enter one specific value, just click the corresponding “cell” in the grid and type the value. However, you may find it easier to scroll through the possible values for a field by using the “cmd ↑” or “cmd ↓” key combinations.

Remark : whenever we mention cmd here, we mean the ⌘ command key on Mac. Windows users should use the Ctrl key instead. For the sake of clarity we don't mention this each time in the text.

A disabled MIDI command is displayed as “...”. You can enable it by typing a value, or by clicking “cmd ↑”, which will change its value from “...” to 0. The other way around, in order to disable a message you can click “Delete” or you can scroll the value down using “cmd ↓” until it reaches “...”.

Remember, the Preferences menu gives you the choice to display ProgChange values in a range of 000-127 or 001-128 (see p. 10). This will be the case in this editing grid too: the first 5 columns, which represent PC1-PC5, will have their values in the specified range, starting from 0 or from 1, whatever you prefer.

With UnO firmware, the relay outputs can be switched on, switched off, or “kept unchanged”. Therefore, the relay settings can have 3 possible values: “.” (=don't change), “0” (=off) or “1” (=on). With Behringer firmware you can only choose between 0 or 1. Same applies for the expression pedals.

Copying a value to all presets

There will probably be several cases where you want to copy the same value to all presets. For instance the expression pedals might be used globally for the same adjustment, and therefore their setup needs to be copied to all 100 preset contents. Luckily this is just a matter of seconds when using the editing grid, thanks to the “cmd =” shortcut. Enter the required value once, then use the down arrow to go to the next preset, and click “cmd =” to copy the value of the preset above into this preset. This also brings you to the next row immediately, where another “cmd =” will again copy that same value. Well... just try it out for yourself, it's much easier to use than to explain. If you keep the “cmd =” keys pressed, you will auto-scroll through your complete setup, and you will have copied the same value throughout your setup in a matter of seconds.

Copy-and-increment a value

Another frequent scenario is where you want to have increasing values programmed in consecutive presets. Typically, you might want to select the first sound of your device with preset 01, the next sound with preset 02, and so on. Therefore preset 01 needs to transmit ProgChange 001, preset 02 ProgChange 002, and so on. This can again be accomplished in a matter of seconds, the same way as described above, now using the “cmd +” key combination. One “cmd +” click will copy-and-increment the value of the previous preset into the data field of the current preset, and then advance the cursor to the next preset. Specify ProgChange 001 for the first preset, click the down arrow once, and then keep the “cmd +” key pressed for a few seconds. As a result, all 100 presets will have a ProgChange message ranging from 001 to 100. That easy!

For the sake of completeness, a copy-and-decrement is also possible, using the “cmd -” keys, although that will probably be less used.

Clear a preset

Click the “index” at the start of the preset line, or click the preset name. This will automatically select the whole preset line. Now click Delete to clear the preset contents. This will only clear the preset contents (MIDI messages, expression pedal settings, switch settings) but not the preset name or comments.

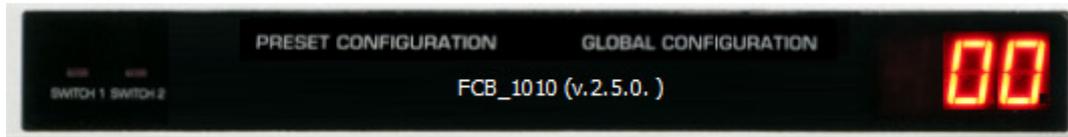
Move a preset

Moving a preset to another location is very easy. Select the preset, as described above. Then press “Shift ↑” or “Shift ↓” to move the preset up or down the full preset list.

Copy a preset

Select the preset you want to copy the contents from (by clicking its name). Then press “Cmd C”, the standard shortcut for Copy. Now select the target preset (by clicking its name) and press “Cmd V”, the standard Paste shortcut. This will copy all preset contents from the first preset to the second. Again, only the preset contents are copied, not the preset name or comments.

14. Using simulation mode



As soon as you leave both preset configuration and global configuration, you are in simulation mode (just click the “configuration” labels in the FCB1010 window until both are white, as shown above)



In simulation mode, click the preset switches or UP/DOWN switches with your mouse, and the FCB1010 will behave just like “in real life”. The LED of the selected preset will turn on, and the MIDI output field will show the messages being transmitted when selecting that preset. The UP/DOWN switches activate the next/previous bank, which is reflected in the bank number, displayed on the simulated FCB1010 display. When your mouse hovers over one of the expression pedals, a vertical slider appears, and you can move it to simulate pedal movement. The MIDI output field for expr.pedal A and B show you the expected output for those pedals. As pedals can be enabled or disabled when selecting a preset, check the small LEDs above the pedals to see their current state (active or not).

In stompbox mode, the LEDs of the 5 stompboxes indicate whether they are activated or not. Selecting a preset can automatically modify the 5 stompbox states if you programmed it that way.

In Direct Select mode, again you can simulate the floorboard as in real life: 2 mouse clicks are needed to select any out of 100 presets. The simulated 7-segment display shows you bank and preset number, the MIDI output field shows you the expected MIDI output after selecting a preset.

15. Sending patchdumps to and from the FCB1010



In order to send a patchdump from computer to FCB1010, or to receive a patchdump from FCB1010 to computer, a MIDI connection needs to be established. To do so, connect a MIDI cable from FCB1010 MIDI OUT to the MIDI IN port of your USB-MIDI interface, and a second MIDI cable from the MIDI OUT port of your USB-MIDI interface to the MIDI IN port of your FCB1010.

Remark: especially in case of those small interfaces with MIDI cables attached, the IN/OUT labeling may seem confusing. The male plugs contain an inscription “MIDI IN →” and “MIDI OUT →”, which indeed indicate the MIDI IN port and MIDI OUT port of that interface, and NOT the connector they need to be connected to. The plug labeled “MIDI IN →” needs to be plugged into the FCB1010 connector labeled “MIDI OUT”, and vice versa.

Once the connection is made, the correct MIDI-USB ports need to be selected in FCB/UnO ControlCenter. If the big MIDI connector icon in the left upper corner of the screen (see screenshot above) is light gray, this indicates no MIDI port has been selected yet. Just click the MIDI connector icon, or go to the menu “Setup” > “Select MIDI ports”. Select the MIDI-USB ports which you are using for your FCB1010. Once selected, the MIDI connector icon will look enabled, and you are ready to establish a connection. Click the icon again, and ControlCenter will try to “talk to” the FCB1010. If the FCB1010 responds, the connection is OK, and the small pins in the MIDI connector icon turn red, as depicted above. If no FCB1010 responds, the connection will timeout with an error. In that case check the MIDI cables and the MIDI port selection. In case the MIDI-USB interface was connected after ControlCenter was launched, it might help to close ControlCenter and launch it again in order to establish a valid MIDI-USB connection.

Once the FCB1010 is correctly detected, ControlCenter will display the detected firmware version in the black FCB1010 “display window”, instead of the “[no FCB1010 connected]” warning shown at startup. At the same time, the 2 icons below the MIDI connector (shown above) become enabled. The upper one is for doing a download (from computer to FCB1010), the lower one for doing an upload (from FCB1010 to computer)

Now, the way to proceed with the actual patchdump is depending on the used firmware. Not very straightforward with the stock FCB1010, made much easier with the UnO firmware, and with UnO firmware v.1.0.3 it should be a “no-brainer”. Here are the details:

Patchdump with the stock FCB1010

Before you can do a patchdump, you need to enable “SysEx receive” on the floorboard. You need to do this *each time* you send a patchdump.

1. Power off the FCB1010
2. Power it on with the DOWN key pressed. This will bring the unit in global config mode. Keep the key pressed until the small green LED labeled DIRECT SELECT turns on.
3. Press the UP key twice. The first click will make the MIDI FUNCTION LED blink. The second click turns the CONFIG LED on.
4. Now press switch 7 (which is also labeled SYSEX RCV). The LED of switch 7 turns on, this indicates that your FCB1010 is now ready to receive a patchdump.
5. Click the Download icon in ControlCenter (the icon with the down arrow). The patchdump is now sent to your FCB1010. During patchdump receive, the LED of switch 7 blinks. After receive, the LED turns off.
6. Last important step is to let your FCB1010 save the new setup into permanent storage memory. To do so, keep the DOWN key pressed for about 3 seconds. The FCB1010 display will show a countdown from 9 to 0 while it is storing the setup. This finalizes the patchdump procedure.

Patchdump with the UnO equipped FCB1010

As we found this patchdump procedure very cumbersome, we introduced a slight change in the UnO firmware, which makes the whole procedure a lot easier. Instead of putting the device in “SysEx Receive” mode each time, we made this setting a “toggle” setting which is stored in permanent memory. As a result, you just need to activate “SysEx receive” once, and from then on you can do patchdumps from ControlCenter with a single click, without any action required on the FCB1010.

In order to activate “SysEx Receive” on your FCB1010, follow steps 1 to 4 described above. Then skip point 5 and immediately go to point 6, which now just stores the SysEx Receive setting for good.

From now on, the patchdump procedure is :

1. Click the Download icon in ControlCenter. The patchdump is now sent to your FCB1010 and stored in permanent storage memory (since “SysEx Receive” is enabled permanently).

That’s it. Easier, no?

Patchdump with the UnO firmware v.1.0.3

The final UnO firmware version 1.0.3 again takes it one step further in simplifying the patchdump procedure. An extra patchdump consistency check was added to the firmware, minimizing the chance for unintentional patchdump storage. This allowed us to remove the “SysEx receive” switch. So the complete patchdump procedure is now reduced to this one single action:

1. Click the Download icon in ControlCenter.

Nothing more.

Did the patchdump actually succeed ?

On the FCB1010 forums, regular reports appear about failing or unreliable sysex communication. As a result, one could never be sure if a patchdump was actually received correctly by the FCB1010. Not so with FCB/UnO ControlCenter. In ControlCenter a patchdump download actually consists of 2 steps: first the patchdump is downloaded and stored in the FCB1010. Then ControlCenter sends a “patchdump upload request”, and the FCB1010 responds with a sysex dump of its current setup. Now both sent and received data are compared byte-by-byte, and if any difference is detected the patchdump is marked as failed and an error message is displayed. All this is done with a single “Download patchdump” click. Therefore, if after a patchdump download ControlCenter reports “Patchdump successfully sent” in its statusbar, you can rest assured that the FCB correctly stored the transmitted setup.

Using improved SysEx communication with UnO v.1.0.3

As mentioned in previous chapters already, one of the reasons for possible corruption of a transmitted SysEx is the fact that some MIDI-USB interfaces cannot cope with the SysEx size of an FCB1010 patchdump. For that reason, UnO v.1.0.3 adds an option to send and receive patchdumps in consecutive “chunks”. Each patchdump is chopped into 16 equal parts of 160 bytes, and sent sequentially. The chunks are merged again after receiving, both at the FCB1010 side (by the v.1.0.3 firmware) as at the computer side (by FCB/UnO ControlCenter). Only after receiving all 16 chunks, a patchdump is stored in the FCB1010 permanent memory.

In case you experience communication problems, and you have UnO v.1.0.3 installed, try this alternative communication protocol: go to the Preferences menu, and choose the option “Use multiple smaller SysEx messages” under Patchdump communication.

That's it folks! Have fun with your FCB1010 and FCB/UnO ControlCenter !