

Live Music Application

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Ver 0.5

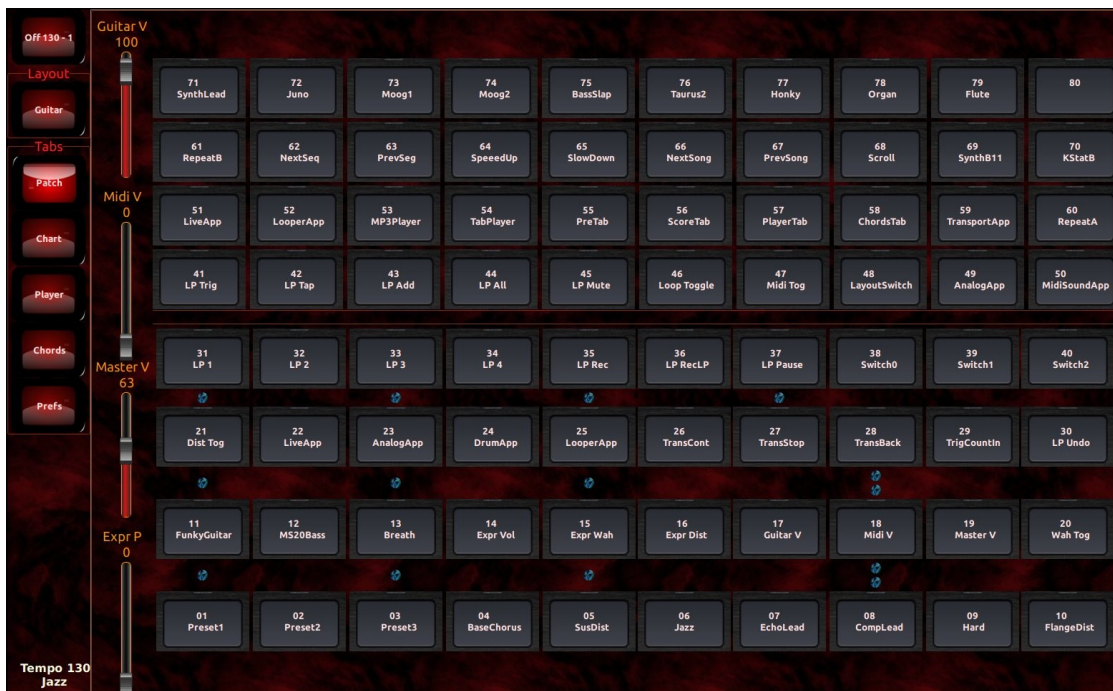
Spe 11, 2019

Ver 1.3.4

Reason:

The fundamental reason for this application is convenience, speed and cost. Having a large pedal board full of effects is heavy and large. When there is a problem with a cable or battery it takes time to find it. When you want to change the sound it usually means purchasing and learning a new pedal and finding as well as finding place for it.

Basically the LiveMusicApp is a midi router and while it can be run standalone. The more convenient usage is to have it bundled with analog and sound font software on a boot-able USB stick. The allows virtually any PC with, or without, a USB audio interface to be rebooted with the USB stick and used in place of a heavy pedal board. Before we get into the details here are a few screen shots of the current working model booted from a stick. The software currently uses an analog effects processor (rakarrack), midi font player (fluidsynth). multiple channel looper (sooperlooper), drum machine (hydrogen), MP3 player (clementine) and guitar tab editor (TuxGuitar). However all of these are configurable so that they can be changed based on the preferences of the user.



The screenshot displays the Ableton Live software interface, specifically the 'Elias Chorus' rack. The rack is organized into several sections, each containing an audio effect unit with its own set of controls and a 'Pre Filter' dropdown menu.

- FX On/Out:** A master control at the top left with a 'Pre Filter' dropdown menu.
- Presets:** A section at the top right with buttons for 'New', 'Load', 'Save', 'Compare', and 'Bank'. It also includes a 'Trigger' button and a 'Put Order in your Rack' button.
- FX On/Out:** A section on the left with 'FX On' and 'Input' buttons.
- EQ:** An Equalizer unit with frequency sliders for Gain, 24, 31 Hz, 24, 125 Hz, 11, 250 Hz, 13, 1 kHz, 7, 2 kHz, 17, 4 kHz, 17, and 16 kHz. It includes a 'Pre Filter' dropdown menu.
- Distortion:** A Distortion unit with sliders for Wet/Dry, L/R, Drive, Level, and a 'Pre Filter' dropdown menu.
- Overdrive:** An Overdrive unit with sliders for Wet/Dry, L/R, Drive, Level, and a 'Pre Filter' dropdown menu.
- Echo:** An Echo unit with sliders for Wet/Dry, Reverse, Delay, L/R, and a 'Pre Filter' dropdown menu.
- Chorus:** A Chorus unit with sliders for Wet/Dry, Pan, Tempo, Rnd, LFO Type, and a 'Pre Filter' dropdown menu.
- AlienWah:** An AlienWah unit with sliders for Wet/Dry, Pan, Tempo, Rnd, and a 'Pre Filter' dropdown menu.
- Reverb:** A Reverb unit with sliders for Wet/Dry, Pan, Time, L/Del, L/R, and a 'Pre Filter' dropdown menu.
- Parametric EQ:** A Parametric EQ unit with sliders for Gain, Low F, Mid F, High F, and a 'Pre Filter' dropdown menu.
- Compressor:** A Compressor unit with sliders for A. Time, R. Time, Ratio, Knee, Threshold, and a 'Pre Filter' dropdown menu.
- Noise Gate:** A Noise Gate unit with sliders for A. Time, R. Time, Range, Hold, and a 'Pre Filter' dropdown menu.

The 'Elias Chorus' title is prominently displayed at the top of the rack. The interface is dark-themed, typical of Ableton Live.

Session Help

| | sync to | Loop 1 | tempo | 0.0 bpm | trip | 8b/cycle | 16.0 | quantize | 0.0 | multique | 0.0 | ndub quant | 0.0 | real quant | | | |
|------|----------|------------|------------|---------|---------|--------------|------|---|--------|----------|-----------|------------|----------|------------|---------|------|------|
| | data | 64 | input gain | 0.0 dB | 0.0 dB | main in mono | off | main out | 0.0 dB | 1x | round | 0.0 | rel sync | 0.0 | auto 8b | | |
| undo | record | in gain | 0.0 dB | refresh | off | 00:00:00 | | test 00:00:00 sync 00:00:00 mono 00:47:55 | 0.0 dB | sync | play sync | 0.0 | rel sync | 0.0 | load | trig | |
| | overdub | feedback | 100.0 % | main in | off | | | | 0.0 dB | sync | play sync | 0.0 | rel sync | 0.0 | save | once | solo |
| | replace | insert | | | in mean | off | off | main 1 | 0.0 dB | rev | scratch | pos | pitch | 0.0 | pause | | |
| | multiply | substitute | delay | | out | | | | 0.0 dB | 1x | 2x | rate | 1000 | stretch | 1.00 | | |
| redo | record | in gain | 0.0 dB | refresh | off | 00:00:00 | | test 00:00:00 sync 00:00:00 mono 00:47:55 | 0.0 dB | sync | play sync | 0.0 | rel sync | 0.0 | load | trig | mute |
| | overdub | feedback | 100.0 % | main in | off | | | | 0.0 dB | sync | play sync | 0.0 | rel sync | 0.0 | save | once | solo |
| | replace | insert | | | in mean | off | off | main 1 | 0.0 dB | rev | scratch | pos | pitch | 0.0 | pause | | |
| | multiply | substitute | delay | | out | | | | 0.0 dB | 1x | 2x | rate | 1000 | stretch | 1.00 | | |
| undo | record | in gain | 0.0 dB | refresh | off | 00:00:00 | | test 00:00:00 sync 00:00:00 mono 00:47:55 | 0.0 dB | sync | play sync | 0.0 | rel sync | 0.0 | load | trig | mute |
| | overdub | feedback | 100.0 % | main in | off | | | | 0.0 dB | sync | play sync | 0.0 | rel sync | 0.0 | save | once | solo |
| | replace | insert | | | in mean | off | off | main 1 | 0.0 dB | rev | scratch | pos | pitch | 0.0 | pause | | |
| | multiply | substitute | delay | | out | | | | 0.0 dB | 1x | 2x | rate | 1000 | stretch | 1.00 | | |
| undo | record | in gain | 0.0 dB | refresh | off | 00:00:00 | | test 00:00:00 sync 00:00:00 mono 00:47:55 | 0.0 dB | sync | play sync | 0.0 | rel sync | 0.0 | load | trig | mute |
| | overdub | feedback | 100.0 % | main in | off | | | | 0.0 dB | sync | play sync | 0.0 | rel sync | 0.0 | save | once | solo |
| | replace | insert | | | in mean | off | off | main 1 | 0.0 dB | rev | scratch | pos | pitch | 0.0 | pause | | |
| | multiply | substitute | delay | | out | | | | 0.0 dB | 1x | 2x | rate | 1000 | stretch | 1.00 | | |

The diagram illustrates a digital signal processing (DSP) system architecture for a music synthesizer. The components and their connections are as follows:

- Input Modules:**
 - system capture_1** and **capture_2** (grey boxes) feed into the **system** block.
 - Fishman TriplePlay** (grey box) feeds into **Fishman TriplePlay MIDI 1** and **Fishman TriplePlay MIDI 2** (green boxes).
 - Teeny MIDI** (grey box) feeds into **Teeny MIDI MIDI 1** (green box).
- Processing Blocks:**
 - LVM4Proc** (green box) receives input from **Fishman TriplePlay MIDI 1**, **Fishman TriplePlay MIDI 2**, and **Teeny MIDI MIDI 1**. It outputs to **FLUID Synth (synth)**.
 - Rakarrack** (blue box) receives input from **system capture_1**, **capture_2**, and **system**. It outputs to **MC_Cat** and **SooperLooper**.
 - MC_Cat** (red box) receives input from **Rakarrack** and outputs to **FLUID Synth (synth)**.
 - SooperLooper** (blue box) receives input from **Rakarrack** and outputs to **FLUID Synth (synth)**.
 - FLUID Synth (synth)** (green box) receives input from **LVM4Proc** and **MC_Cat**. It outputs to **system playback_1** and **playback_2** (grey boxes).
- Output Modules:**
 - system playback_1** and **playback_2** (grey boxes) receive output from **FLUID Synth (synth)**.
 - MIDI Through** (grey box) receives input from **FLUID Synth (synth)** and outputs to **MIDI Through Port 0** (green box).

The screenshot displays the Ableton Live software interface. At the top, the timecode is 00:00:08.347, and the tempo is 115.00 BPM. The interface is divided into several sections:

- Top Bar:** Includes a 'PATTERN' section with a 'SONG' button, a 'MIDI-IN' section with 'CPU' and 'MISER' buttons, and a 'MIDI' section with 'J.TUNE' and 'MASTER' buttons.
- Drum Rack:** Located in the upper left, it shows a rack of drums with a 'CLEAR' button and a 'SPR' button. The rack contains four slots, each with a blue square representing a drum sample.
- MIDI Piano Roll:** The main area of the interface, showing a piano roll for the selected drum sample. The piano roll has a 'SIZE' of 8 and a 'RES' of 16. It displays a sequence of notes (circles) on a grid, with a red line indicating the current time position.
- Left Panel:** A list of drum samples including 'Kick', 'Snare Jazz', 'Hand Clap', 'Snare Rock', 'Tom Low', 'Closed HH', 'Tom Mid', 'Pedal HH', 'Tom Hi', and 'Open HH'.
- Bottom Bar:** A 'Velocity' section with a 'Velocities' button.

How it works:

The idea is that you create presets and manipulate them. Each preset can be send to a specific midi port. The presets can send midi controls, volume, tempo as well as perform certain actions to control the presets lists and perform varies actions on the computer as well.

1 Patch format:

- Patch Name – The text string that gets displayed.
- Bank Select – used mostly if you have multiple sound fonts to switch from.
- Patch number – the midi control number, like the numbers that come from a normal pedal board.
- Midi Port – The output port to send the commands.
- Channel – The midi channel.
- Custom Command – Used for computer control.
- Chain – Sometimes a single command is not enough, so you can chain commands to perform multiple actions in one shot.

Example: If you have a patch that requires an analog change (Chorus) and a midi sound, you can chain them together to that one buttons (foot pedal) can change both. Another example maybe you have 3 keyboards, you can create three patches which output to three different ports and chain them. So, selecting this patch will change all three keyboards at once.

2 Custom Commands:

- NoCustom – This is the standard for sending a midi control change message.
- ToNextDesktop – Switches the computer to the next desktop
- ToPrevDesktop - Switches the computer to the previous desktop
- ToDesktop - Switches the computer to the desktop number in the Patch field.
- Controller – N?A
- SwitchTab – Switch the tabs from Presets, Sheet Music, Chords and Preferences.
- RaiseApp – Raises the application listed in the Patch field
- TransStart – Sends a transport Start message
- TransCont – Sends a transport Continue message
- TransStop – Sends a transport Stop message
- TransPosition – Sends a transport Position message the location stored in Patch
- TransTempo – Sends a Tempo change message the tempo stored in Patch
- cmdPreset – This defines a button as being used by a command set in the HTML file.
 - Patch: The preset button number.
- cmdBankSelect – A command that will change the Layout Mode Presets.
- cmdMidiSelect – This is used to have a midi guitar change the patches to convert notes to control change messages.
- cmdCountIn – This is to control the count in for the looper recording.
- CmdVolume – Controls volume using switches instead of volume pedal.
 - Patch: Volume change amount, negative is down, positive is up
- cmdLnTransPort – Send Transport messages via Midi or OSC
 - Patch: SetA, SetB, Start, Loop, Next, Prev, Up, Down, SeekFw, SeekBk
- cmdSetList – Set list next and previous chart control
 - Patch: Direction next/prev
- cmdScroll – Scrolling control for sheet music

- cmdOSC – Send an Open Sound Control message, (Next Generation Midi)
 - Patch: Custom OSC command number
- cmdSendCC – Used to send Midi Control Change message to external devices based on command number and port.
 - Patch: New Controller number
- cmdSetExpr – Used to map an expression pedal to various devices, either internal or external via redirected Midi commands.
 - Patch: New Controller number
- cmdHardSlider – These are required to direct the 4 sliders on the main screen to output the correct output port and protocol.

The master list of presets is stored in an XML file and can be edited via the preferences tab.

| Name | Bank | Patch | Port | Channel | Command | Chain |
|----------------|------|-------|------|---------|------------|----------|
| BaseChorus | 255 | 0 | 1 | 1 | NoCustom | None |
| off Metronome. | 255 | 1 | 1 | 1 | NoCustom | None |
| Jazz | 255 | 2 | 1 | 1 | NoCustom | None |
| Bell | 255 | 3 | 1 | 1 | NoCustom | None |
| EchoLead | 255 | 4 | 1 | 1 | NoCustom | None |
| CompLead | 255 | 5 | 1 | 1 | NoCustom | None |
| Hard | 255 | 6 | 1 | 1 | NoCustom | None |
| FlangeDist | 255 | 7 | 1 | 1 | NoCustom | None |
| FunkyGuitar | 255 | 8 | 1 | 1 | NoCustom | None |
| BaseMel | 255 | 0 | 1 | 1 | NoCustom | Mel Tog |
| BaseWah | 255 | 0 | 1 | 1 | NoCustom | Wah Tog |
| BaseDist | 255 | 0 | 1 | 1 | NoCustom | Dist Tog |
| Expr Vol | 255 | 7 | 1 | 0 | cmdSetExpr | None |
| Expr Wah | 255 | 11 | 1 | 3 | cmdSetExpr | None |
| Expr Dist | 255 | 2 | 1 | 3 | cmdSetExpr | None |
| Wah Tog | 255 | 10 | 1 | 1 | cmdSendCC | Expr Wah |
| Dist Tog | 255 | 11 | 1 | 1 | cmdSendCC | None |
| Mel Tog | 255 | 13 | 1 | 1 | cmdSendCC | None |
| Transport **** | 255 | 0 | 7 | 1 | RaiseApp | None |
| TransStart | 255 | 0 | 3 | 1 | TransStart | None |
| TransCont | 255 | 0 | 3 | 1 | TransCont | None |
| TransStop | 255 | 0 | 3 | 1 | TransStop | None |
| TransBack | 255 | 0 | 3 | 1 | TransStart | None |
| Tap | 255 | 121 | 7 | 1 | Controller | None |
| TransPos | 255 | 0 | 3 | 1 | TransStart | None |
| Tap | 255 | 121 | 7 | 1 | Controller | None |
| Midi Tog | 255 | 122 | 0 | 1 | Controller | None |

Clicking in the Command field brings up a list of options to choose from .

| |
|----------------|
| NoCustom |
| ToNextDesktop |
| ToPrevDesktop |
| ToDesktop |
| Controller |
| SwitchTab |
| RaiseApp |
| TransStart |
| TransCont |
| TransStop |
| TransPosition |
| TransTempo |
| cmdPreset |
| cmdBankSelect |
| cmdMidiSelect |
| cmdCountIn |
| cmdVolume |
| cmdLnTransPort |
| cmdSetList |
| cmdScroll |
| cmdOSC |
| cmdSendCC |
| cmdSetExpr |
| cmdHardSlider |

Score tab:

The score is used to display HTML and PDF music pages. You can organize set lists and well as keep different lists for different bands. The unique aspect is that you can have certain patches triggered by each piece of music. The example below shows that when this music is opened the patches and tempo are automatically loaded and now can be accessed via a foot switch or midi guitar notes. The Tempo can be set to link with a drum machine, a looper and even the phaser or chorus timing in the analog section. You can have as many SetNow commands as you want which will activate preset as soon as the page is loaded. The Preset1 and Preset2 will be assigned to the patches set as cmdPreset. I generally have foot switch buttons 1 and 2 set to these so for every song I will I can access the preset for each song . You can set the directory where the music files are stored in the Preferences tab. Music files can be in any order or hierarchy since they are accessed by way of HTML page links.

You can also edit the text on the pages so you can make notes or change the presets and then save the file . This is a nice feature during rehearsal and practice.

If the music file has a link to an MP3, the default player is disabled and the stretch/loop player will be run . If you are at rehearsal and for a part, you can click on the MP3 link and loop the section you want to listen to.

MP3 Key Preset1 "MS20Bass" Preset2 "CleanBass" Tempo 85
SetNow "MS20Bass"

386. WATERSIGN JEFF LORBER

01 MS20Bass

02 CleanBass

Patch3

Patch4

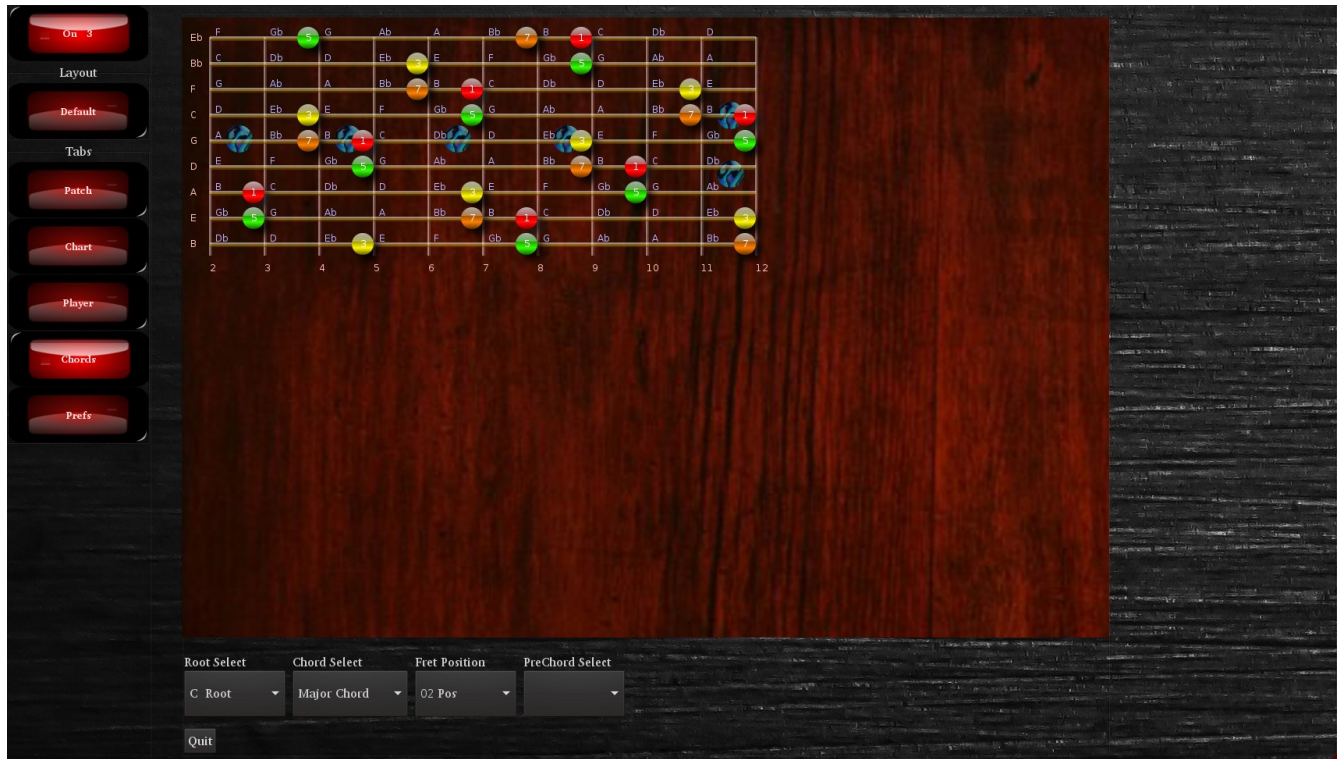
Patch5

MS20Bass
MS20Bass
MS20Bass
MS20Bass

L BASS

Chords Tab:

The chord tab is used to help determine available notes for scales and chords. The number of string and the tuning is configurable from the preferences tab. The buttons are used to set root note, set fret position to display, and the scale or chord. The colors represent the intervals so you can see can the root easily. Each dot has the interval number inside but the colors make it easier for quickly scanning.



Music Player

Clicking on the MP3 link in any of the charts will load the music player with that file. The basic functions are play/pause, change tempo and looping, as well as being able to save loop marks.



A few minor improvements however, are included in the looper. The start of the loop can be set with the Set A button, but instead of a Set B there is a length button. Both of these will be set when the button is click or but the Patch (foot pedal). However, having a length instead of a be give the ability to move the segments forward and backward. So as you practice when you are ready to learn the next part you can hit the Next Loop button and the Set A will increase by the length taking you to the next loop. This save fumbling around trying to set the next loop white holding your guitar/bass. In addition to the buttons you can increase or decrease the Start and Length via the controls so if you have a minor adjustment you do not have to go an reselect the region as most loop players have you do.

Guitar V
100

Midi V
0

Master V
63

Expr P
0

| | | | | | | | | | |
|-------------------|-----------------|-----------------|------------------|-----------------|-------------------|-----------------|--------------------|--------------------|-------------|
| 71 SynthLead | 72 Juno | 73 Moog1 | 74 Moog2 | 75 BassSlap | 76 Taurus2 | 77 Honky | 78 Organ | 79 Flute | |
| 61 RepeatB | 62 NextSeq | 63 PrevSeg | 64 SpeedUp | 65 SlowDown | 66 NextSong | 67 PrevSong | 68 Scroll | 69 SynthB11 | |
| 51 LiveApp | 52 LooperApp | 53 MP3Player | 54 TabPlayer | 55 PreTab | 56 ScoreTab | 57 PlayerTab | 58 ChordsTab | 59 TransportApp | |
| 41 LP Trig | 42 LP Tap | 43 LP Add | 44 LP All | 45 LP Mute | 46 Loop Toggle | 47 Midi Tog | 48 LayoutSwitch | 49 AnalogApp | 50 MidiS |
| 31 LP 1 | 32 LP 2 | 33 LP 3 | 34 LP 4 | 35 LP Rec | 36 LP ReclP | 37 LP Pause | 38 Switch0 | 39 Switch1 | 40 Swi |
| 21 Dist Tog | 22 LiveApp | 23 AnalogApp | 24 DrumApp | 25 LooperApp | 26 TransCont | 27 TransStop | 28 TransBack | 29 TrigCountIn | 30 LP 1 |
| 11 FunkyGuitar | 12 MS20Bass | 13 Breath | 14 Expr Vol | 15 Expr Wah | 16 Expr Dist | 17 Guitar V | 18 Midi V | 19 Master V | 20 Wal |
| 01 Preset1 | 02 Preset2 | 03 Preset3 | 04 BaseChorus | 05 SusDist | 06 Jazz | 07 EchoLead | 08 CompLead | 09 Hard | 10 Flang |

BaseChorus

SusDist

Jazz

Bell

EchoLead

CompLead

Hard

FlangeDist

FunkyGuitar

BaseMel

BaseWah

BaseDist

Expr Vol

Expr Wah

Expr Dist

Wah Tog

Dist Tog

Mel Tog

Transport ****

TransStart

TransCont

TransStop

TransBack

Tap

TransPos

Tap

Midi Tog

Tuner

AnaOnOff

Loop***

TrigCountIn

LP Undo

LP 1

LP 2

LP 3

Patch Tab:

This is the main screen which shows the first 55 patches on the screen. Default is the mode where is shows the patches in the order that they are entered. This isn't always the best order for all uses so you can re-arrange the patch order several different ways depending on the conditions.

The currently defined modes are:
Default, Rehearsal, Practice,
Performance and Looper. You can
switch modes using the Mode Switch



button or the patch cmdBankSelect so that the modes can be changed via the foot switch. Since most pedals only have 10 switches being able to switch modes so that the most used patches are accessible via the foot switch is very convenient. When the mode changes the buttons update on the main screen so you always know what each foot switch button does since it is displayed on the screen.

To change the current patch just ctrl-click the buttons and a popup menu will appear with the list of patches.