

The NDLR Library - V1.0.2 Notes

Bugfix:

- 1) Changed the Max Chord Degree from 6 to 12 (not sure why NDLR would send 12)
- 2) Changed Max Pad Range to 100
- 3) Randomise Rhythm include beat 1

Feature:

- 1) Ctrl + drag between editboxes will COPY element (with out Ctrl SWAP element)

The NDLR Library - V1.01 Notes

You should have at least Version 1.1.078 firmware in your NDLR.

As of writing this, Steve has not had the time to code the saving of the Chord Sequences .

So the opening screen informing you about the problems with the NDLR will remain – although you can turn it off in the Setup.

A lot more testing has shown that the errors in the save to the NDLR routines are greater if the NDLR is on a different page (screen) to the default one (the one where the encoder button press rotates triangles). It is worse for sending the Presets to the buffer and when trying to save to flash.

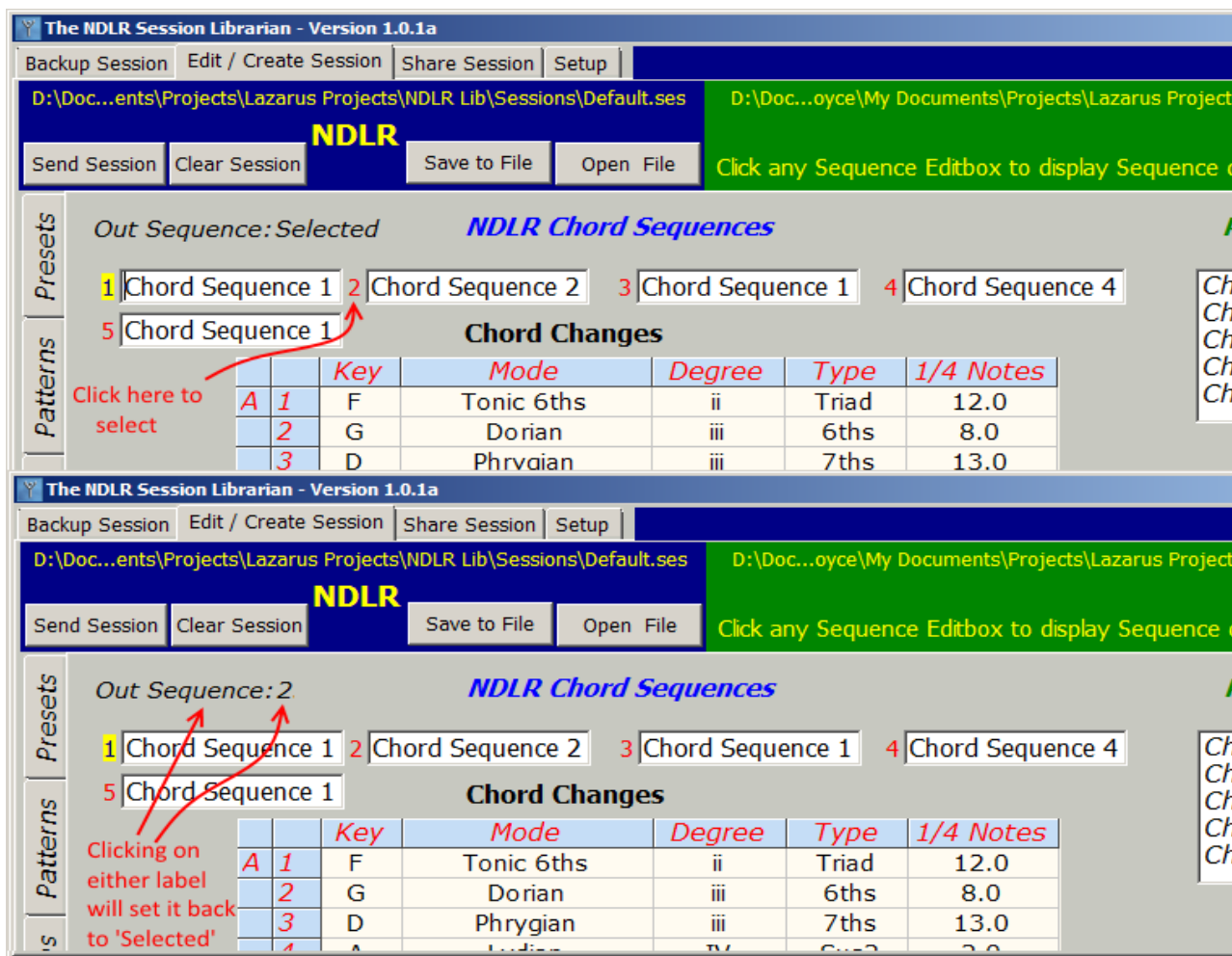
The simple solution is, if you can, be on the default page.

That being said, there is a case for being on the Sequencer page when you send Sequencer data. Although the NDLR returns a message saying that the Sequence data arrived safely, it seems to disappear.

The solution is to select the Sequencer editor page on the NDLR and have have the 'LOAD' number match the sequence you are sending from the Library.

You don't have to load the Sequence on the NDLR, just match the number. Eg select 3 on the LOAD in the NDLR. Now send Sequence 3 from the Library and the data will instantly display on the NDLR.

On the Sequencer page of the Library you can click the number (1 to 5) to the left of the editbox, for example Sequence number 2.



If you SHIFT+left click on the number label of any of the Sequencer editboxes the sequence data is sent to the NDLR and displayed because you have set the LOAD to 2 in the NDLR.

When the Library program is not in 'Selected' mode, every time ANY sequence is sent to the NDLR the program will re-identify the sequence data as the number displayed sequence. (the LOAD number has to be that number to see it come in).

This sounds a complex, but really isn't and it enables you extend the Chord Sequencer function. When new data arrives at the NDLR, it just keeps playing, but with the newly arrived data.

Another (temporary) use of this is to set the LOAD on the NDLR to a number (1 to 5) or 2 again. Left click on '2' next to the editbox to match the NDLR.

1. SHIFT+Left click on '1' next to the first editbox and download Sequence number 1 from the Library.
2. Now that it is sitting in the buffer select SAVE = 1 with the top right encoder (encoder 5).
3. Hold the blue button and push down Encoder 5's switch to save into Seq1 on the NDLR.

Saving will change the LOAD number on the NDLR to 1 (the number you saved to) so change it back to 2 and do the 3 step over again, but this time for Sequence 2. That is, SHIFT click on '2' next to the second editbox..... and SAVE to Sequence 2 on the NDLR.

It's a bit long winded, but at least you can get you sequences back into the NDLR and then create

some new ones.

You can set up one or many 'blank' sequences by

1. creating a 'blank' seq on the NDLR
2. saving it into a sequencer slot on the NDLR (say number 5)
3. Fetch it with the Library
4. Go to the Sequencer page and click on the editbox 5 to see that it is really 'blank'
5. Save it (perhaps as part of your Default.ses)

OR you could just use the Library to do it all

Now when you need to clear out one or more sequences, match the LOAD number to your blank sequence on the NDLR and SHIFT+left click the blank sequence number and save it to whatever you want to clear.

Fixes: there were a few bugs that I found using the program for a while (no complaints though – you guys are so polite).

Changes: *On most of the Editbox Number labels* SHIFT + Left click is 'send this data to the buffer' and SHIFT + Right click is 'send this data and ask the NDLR to store it in flash memory'

New: Swap things. You can now 'drag' from one editbox to another and the two elements will change places. The extra keys like SHIFT, CTRL and ALT (option on the Mac) are displayed on the top bar because I kept getting confused with the 'Command' key as I was porting to the Mac.

No one has asked for any new features so....

Odd Mac things: I had to use Check Listboxes on the Mac to get the drag to work. I think it is Lazarus on Mac (Cocoa) related, but it could just be me. No one on the Lazarus forum replied, so that has to be the fix. Select (including multiple lines) with the check, not the text. Drag as normal. Clicking on the text is still used for displaying the data.

The NDLR Library

Mac version 1.01

Intro: I would like to start with a big 'thank you' to the crew of Conductive Labs for such a fun instrument as well as their patience with me while I was writing this library program.

When I started writing the program Steve had already designed what he rightly thought was needed and this gave me a great place to start.

After coding it up and using it for a while I noticed that I couldn't remember what was in the various presets, patterns, rhythms and sequences. I had added a name to each element, but that wasn't enough information. As Steve's design has the lists of the various sections all on one page there wasn't space for more info to be typed in, so I just extended the name using '/' to display the extra information at the top of the page.

Perhaps I should have stopped there.....

I would spend ages setting up all the elements inside the NDLR. So after fetching and then saving all the data (called a 'Session'), if I hadn't typed a name/description for each of the elements in the Session, I'd be in trouble trying to remember it all. So I split up the Session into its sections and each element can now be displayed either graphically or in a table. Now I could see what was going on in a Session I saved in a mad rush ages ago without having to load them back into NDLR first.

Sometimes when grabbing a Pattern or Rhythm to include into a session I was building, it would be close to what I wanted, but I just needed to change one or two things. Easy to fix in the NDLR, of course, but thought as the element was displayed anyway I would make the data display editable. I hoped it would be about as fast on the computer as it was on the NDLR. So now there are two ways to do the same thing and you have a choice.

Definitely time to stop.

Well perhaps not. Here in Melbourne, Australia in July 2020 I was in COVID-19 lock down. What else was there to do but expand the program.

The NDLR stores all its data in flash memory which is still there after you remove power. To easily change things with the encoders it loads the data from the flash into a RAM buffer. I noticed that saving the data from my program was a two step process. Send it to the NDLR's to ram buffer and *then* save it to flash memory.

So... if I just sent the data to the buffer on the NDLR would it play using that new data ?
Absolutely it does!

Better than that. I can send the new data WHILE THE NDLR IS PLAYING. The NDLR overwrites the buffer and seems to use the new data for it's next note.

Start the NDLR playing and test your new changes in real time. That is same as you can on the NDLR itself. Now I could create all sorts of rhythms and patterns and send them to the NDLR in real time. So not 20 user rhythms to choose from, but a very large number of Rhythms and note Patterns.

Many of the Preset parameters are taken care of in NDLR's Midi CC control table, so that is already sorted.

What a machine !

Program Structure:

ALL the user programmed data inside the NDLR is called a 'Session'

There are four types of elements in a Session – Preset, Pattern, Rhythm and Sequence (Chords)

A Session has 8 Presets + 20 (User) Patterns + 20 (User) Rhythms + 5 Sequences

The main Session inside the NDLR Library is the 'NDLR Session'. It is the one that receives the data from the NDLR and the program sends the data back to the NDLR. It can be saved and loaded to a computer file. Finally, it can be edited and sent to the NDLR.

There is another Session in the program and that is called the Resource Session. It **has to be read from a computer file**, but CANNOT be saved (except in a non-simple way in the 'Share Session' area). It CANNOT be sent to the NDLR or be loaded from the NDLR and it CANNOT be edited.

So why have the Resource Session? It is primarily there to drag and drop elements, overwriting existing elements in the current NDLR Session.

Composed a great idea in the NDLR, but want some variations? Fetch it → save it → load it as a resource session → drag & drop the idea into a few slots in the NDLR session → use the program to vary it and send it back to the NDLR to try out → love the variation? Send it again, but this time with a save to the NDLR flash. Don't forget to also save the Session file to your computer disk.

The Resource element's data is displayed when selected and although it looks like it could be edited, **it cannot**. You could load the same file as a NDLR Session and edit it and save it with a new name.

By using a listbox to display the Resource element Names, you can click on the top entry and down cursor to very quickly see what's in each element in the Resource Session has in it.

To help you remember that the Resource is NOT for editing I have added a message and locked the editing controls. Click on a ANY editbox on the left to release the locks.



Resource Use Example: Rearrange the Pattern order in your NDLR.

Fetch the data -> NDLR Session → save it to a file → load this new file into the Resource Session → drag & drop Patterns to the NDLR Session → Save this new re-arranged NDLR Session and send-save the NDLR Session back to the NDLR

A new feature in version 1.01 is the drag and dropping from one editbox to another. This will swap the data in the two editboxes.

Installing the Library Program: Hopefully this should be easy as there is no installer.

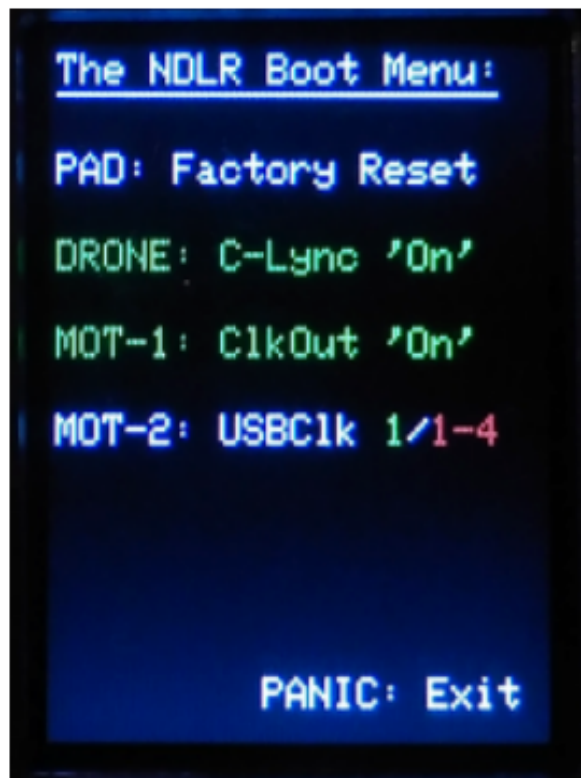
When you decompress the library zip file it shows a '**NDLR_Lib.app**', a *config.xml* and the needed *Sessions* directory.

Create a folder - /Users/*your_home_folder*/Documents/NDLR_Files

Drag the '**NDLR_Lib.app**' to the Applications folder on your Mac.

Drag the 'Config.xml' and this pdf and the *Sessions* folder (with the necessary 'Default.ses' inside it) to the NDLR_Files folder on your hard disk.

Setting Up the NDLR for the Serial connection



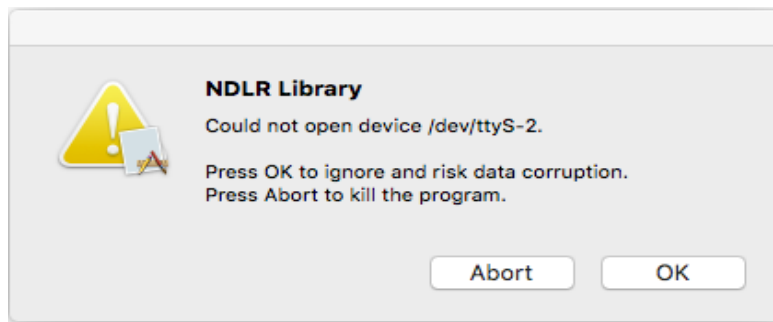
Your NDLR may or may not have the serial communication turned on, so to make sure... with the power/USB **NOT** connected to the NDLR, HOLD down the blue SHIFT button along with the white MENU button above it and then plug in the USB chord into the NDLR. As the NDLR turns on it will display the above screen.

The values are changed by pressing the white 'Play' buttons at the bottom of the NDLR. The C-Lync is the only one we are interested in here.

Press the 'Drone' play button to switch on the C-Lync (serial) function. Now press the white PANIC button and the NDLR will complete its normal start up.

You can now start the NDLR Library program.

If you see this, then it is likely that the NDLR is not connected or the C-Lynx is not turned on.



Press 'Abort' to close the program, check you connections and try again.

Setting up the NDLR:(also see *The Setup page below*) The serial communication is part of NDLR's single USB connection that also contains its 4 Midi ports.

"Unlike a standard Arduino, the Teensy Serial object always communicates at 12 Mbit/sec USB speed. " (from pjrc) so it is much faster than MIDI.

On the Mac there is no need to install a special serial driver. Go to the Setup tab in the program and select (click) your NDLR serial port from the list at the top right.

It should start with 'cu.usbmodem...'. I have no other serial device on my Mac Mini and so 'cu.usbmodem111111' shows up in the list and the only other one there is my keyboard's Bluetooth connection. The NDLR serial port is the same on my 2012 MacBook Air.

To make sure if that is the correct one, you could always disconnect your NDLR (with the program running) and relist the ports to see what serial port has disappeared.

When you re-start the Library program it should not automatically connect to the NDLR .

The Library: Many synth library programs store a database full of patches and performances and effects setups etc. so you could build a complete synth setup from the elements in the databases

This program doesn't have any databases, but has separate files of how all of the NDLR memory was at a particular moment.

This program started out as a simple a way to save the contents of the NDLR, so you can start making new things without losing your previous work. It has developed into a bit of an extension to the NDLR, but essentially it's main function is to save and load your NDLR programming and create new sessions from the parts of other sessions.

It **fetches** the data from the NDLR and you save it, hopefully with a **meaningful name**, to a hard disk or a USB stick.

These session files are your NDLR database and can be loaded back into the program and then sent to the NDLR and, if you want to, **overwriting** what is currently in NDLR flash memory, restoring it back to where it was when you fetched the data. So a **meaningful name** is important. There is no index of all your hard work except for the filenames.

Do not forget to make backups of these session files.

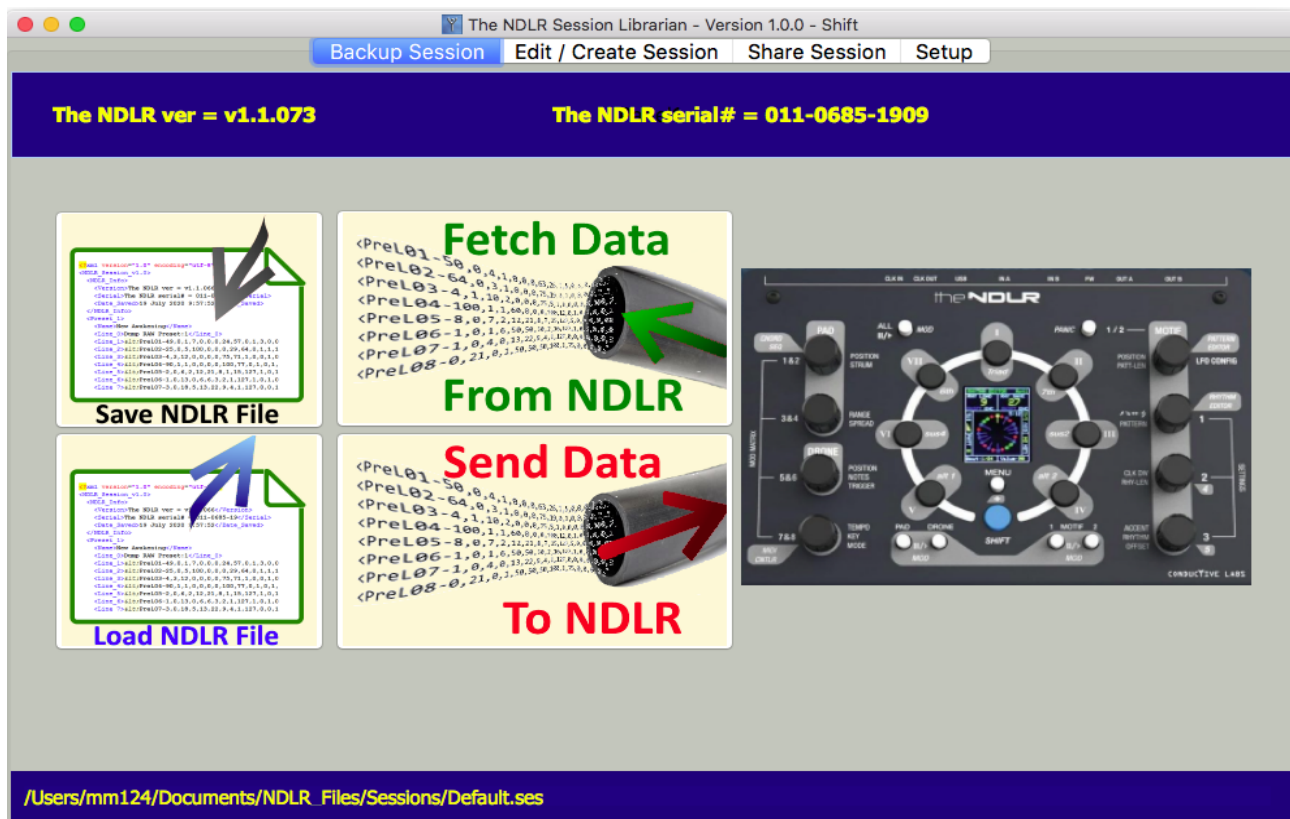
You can name any/all of the session's elements and add some notes about it to help you remember what each part was. You can then use this file to build another session file by dragging (copying) elements from other session files. There is also a page to help you share your session files.

Backup Session...

The Library program starts up by testing the connection to the NDLR. You should see your NDLR's Firmware Version and its Serial number up the top of the 'Backup Session' page.

You need to have your NDLR firmware at least version **1.1.073** with the latest fixes from Conductive Labs (get it at their NDLR forum).

The filename at the bottom is the location of the 'Default' session file.



Click on the 'Fetch Data' button and all the data from the NDLR is sent to the PC. A Save dialog then opens in the *program/Session/* directory so you can save your data in a *filename.ses* file.

Remember this 'meaningful' filename is what you will use find a certain Rhythms or Patterns or Sequences or all the other settings in the Presets.

The 'Save NDLR File' button is automatically clicked for you after a *Fetch Data*. (You can turn this automatic action off in the 'Setup' page.)

To get your data from a saved file back into the NDLR, just click on 'Load NDLR File' button to bring up an *Open* dialog in the same Session directory and select the session file to load it into the program.

Click 'Send Data To NDLR' and all the session data will be sent **along with requests to save it in flash memory** inside the NDLR.

A NDLR **Session** comprises of 8 Presets, 20 Patterns, 20 Rhythms and 5 Chord Sequences.

The eight Presets are the 'GLOB' 1 to 8 in NDLR's Settings 3.

The twenty Patterns and Rhythms are numbered from 21 to 40 as this is the USER writable memory inside the NDLR. They can be sent with or without saving them into flash memory. We will talk about this great feature later.

The Session is saved into a file, with a '*.ses' extension. It is just a text file in an XML format and so can be edited in a text editor if you feel like having a look, but perhaps don't edit it.

A needed file, 'Default.ses' is included in the NDLR Library 'Session' folder and this is loaded on start up.

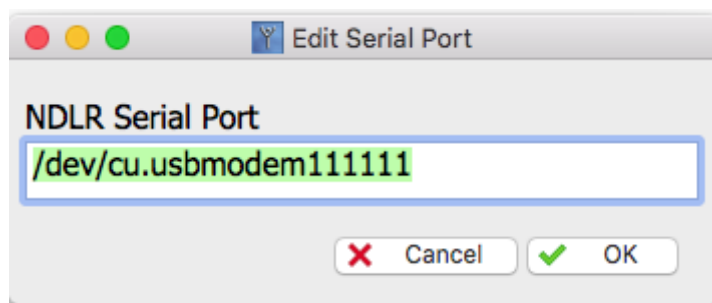
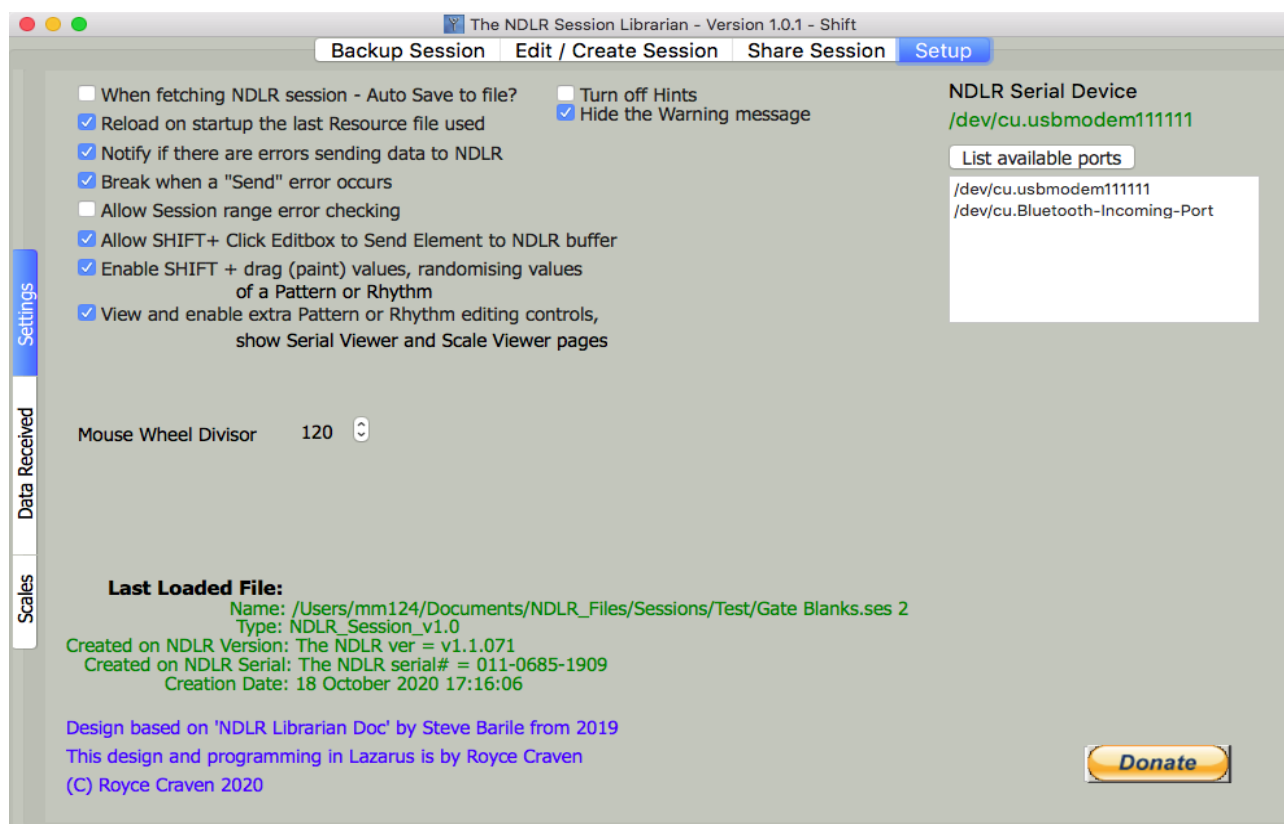
It is also the file that is loaded when the 'Load Default' button is pressed in the *Session Edit /Create* area. This is so you can start with a known data set when you create a new Session from scratch.

If you don't like the one I have included, you can rename any session file 'Default.ses' and store it in the session directory. So feel free to create something that is a more suitable starting point for you.

For many users this page with its four buttons may be all that they need, but for the others let's look at the 'Setup' page to set some options for how you might want the Library program to work.

Setup...

Here is where you can select the serial port of the NDLR.



This is also where you can turn off the '**Auto Save**', after fetching data from the NDLR.

Although there is only one **type** of file used in the Library, two session files can be loaded at any time. The “NDLR session” is loaded from a file or the data fetched from the NDLR.

The other is the read only ‘Resource session’ that is just used as a source to copy Presets, Patches, Rhythms and Chord Sequences to build or change the NDLR session (which can then be sent or saved to disk).

Only a NDLR session can be sent to the NDLR. Only a NDLR session can be saved to disk.

‘Reload on startup the last Resource file used’ just saves you a couple of clicks when you start the program by remembering the Resource file that was loaded when you quit last time.

There are a couple of error settings that might be useful if things go wrong.

If you don't want to be warned about the errors then leave **‘Notify if there are errors’** unchecked.

‘Break when “Send” error occurs’ – The program monitors the answers the NDLR gives when it tries to send Patterns or Rhythms etc to the NDLR. If there is a problem with the data then the NDLR will send back an error message eg “ERR23” for an error in Pattern 23.

These errors are written to the text file ERROR.LOG which is in the NDLR Library directory. At the end of the ‘Send’ of whatever you were sending, you are warned if an error has occurred so you can check out the ERROR.LOG

To stop sending the rest of the data if there is a first error, select this box. Otherwise the program continues the data dump to the NDLR after you click *‘OK’* and more errors and more messages may occur.

To unclutter the program's pages there are different layout ‘states’ and you enable the **‘Randomise ...’** and **‘...extra Pattern or Rhythm Editing...’** to select them. With none of the checkboxes selected the program is in its simplest form (less cluttered) and this is what the first part of this manual will describe. The other features will be discussed later.

I found that the ‘Hints’ got in the way a bit in so there is a way to turn them off.

The ‘Hide the warning message’ is there until some fixes are made to the NDLR and then it will be removed in the next version. You can turn it off the startup message here if it annoys you.

I'm not really sure it is of much use, but this was put in earlier version. The **‘Mouse Wheel Divisor’** is used to adjust your wheeled mouse's response and is discussed later.

Every time you change one of these settings, all of them, including the name of the ‘Last Loaded File’, are saved in the ‘Config.xml’ file in the program directory.

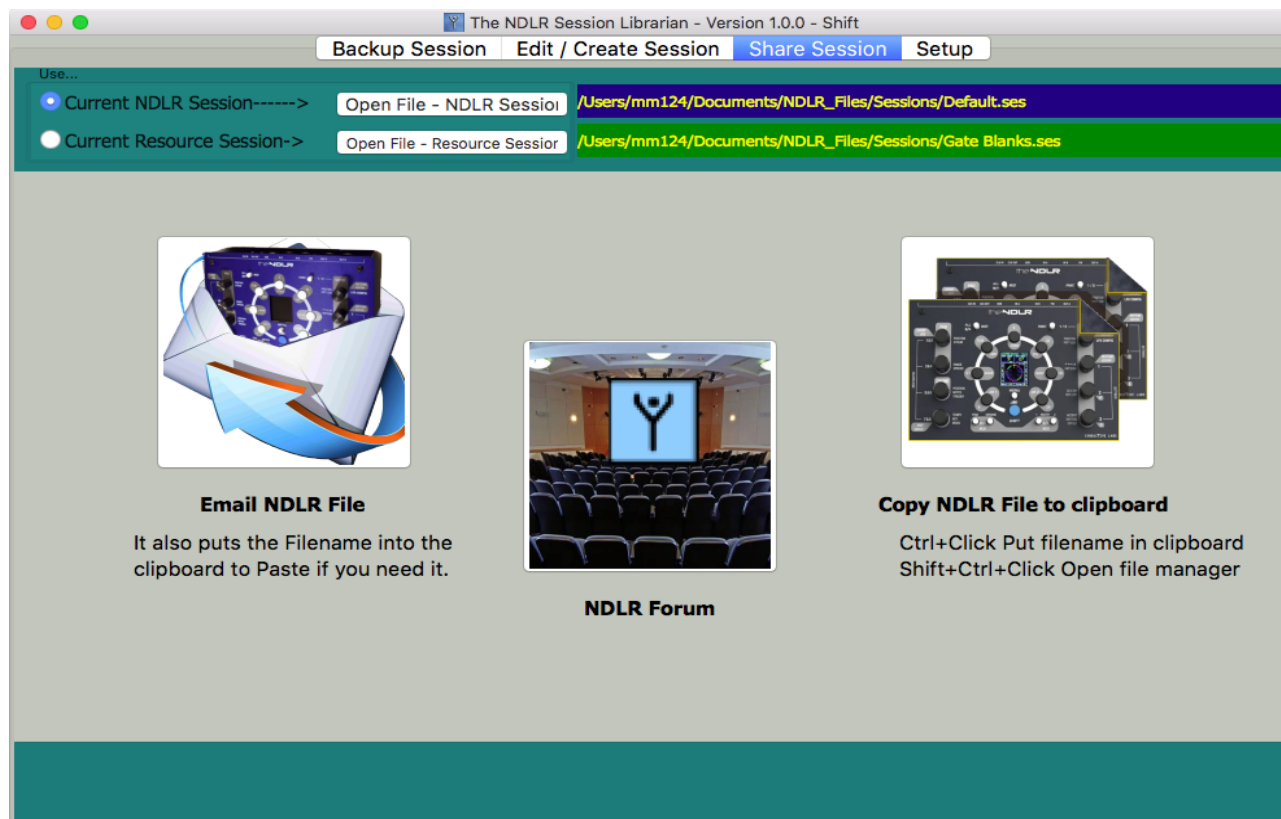
Share Session...

This page is about sharing your creations (Sessions) with the NDLR community.

As you know, there are two 'Session' areas in the Library program and up the top you can choose the ses file to send from either area.

In this example the program has just started and *Default.ses* was loaded into the NDLR Session.

The 'Resource Session' has the Gate example session file loaded.



Email: After clicking the button you will need to fill in the recipient's email address when the input box pops up. Then your email client should load (it may take a while) with a some of the email information filled in.

NDLR Forum: This is a button to start your default browser and go to the NDLR forum page. Perhaps at some stage the Conductive Labs guys might create a repository for Session files on their web site and you can paste in the file name (loaded already into the clipboard) to up load it. Otherwise it is a quick link to either find the answer you need or post a question to the community.

Copy The NDLR file: The last one just copies the whole session file into the clipboard. You can then go to an application, such as a text editor, and paste in the file contents into a new document. You could then have a look at the data directly knowing that the original ses file is safe. You could add notes and save it or send it to the Conductive guys if you are having a problem.

If you hold down the Control key and press the button, the filename (including the file directory) is put into the clipboard instead. Use Command+V to paste the name into a text document or use it to up load the file to a forum etc.

Edit/Create Session...

Stuff That Applies To All The Edit Pages...

Here you can drag and drop to rearrange your Presets, Patterns, Rhythms and Sequences. Each element has its own page selected by a tab on the bottom.

In the blue NDLR area you can select and **Open** a session file. You can **Save** the file at any point as well as **Send** it to the NDLR rather than going to the 'Backup Session' page.

The 'Clear Session' button loads the 'Default.ses' file (either yours or mine) into the NDLR area so you can start afresh.

New: You can now drag and drop between the editboxes on each page. Eg drag 'Preset 5' to 'Preset 3' and the two will swap places. A quick way to reorganise any elements.

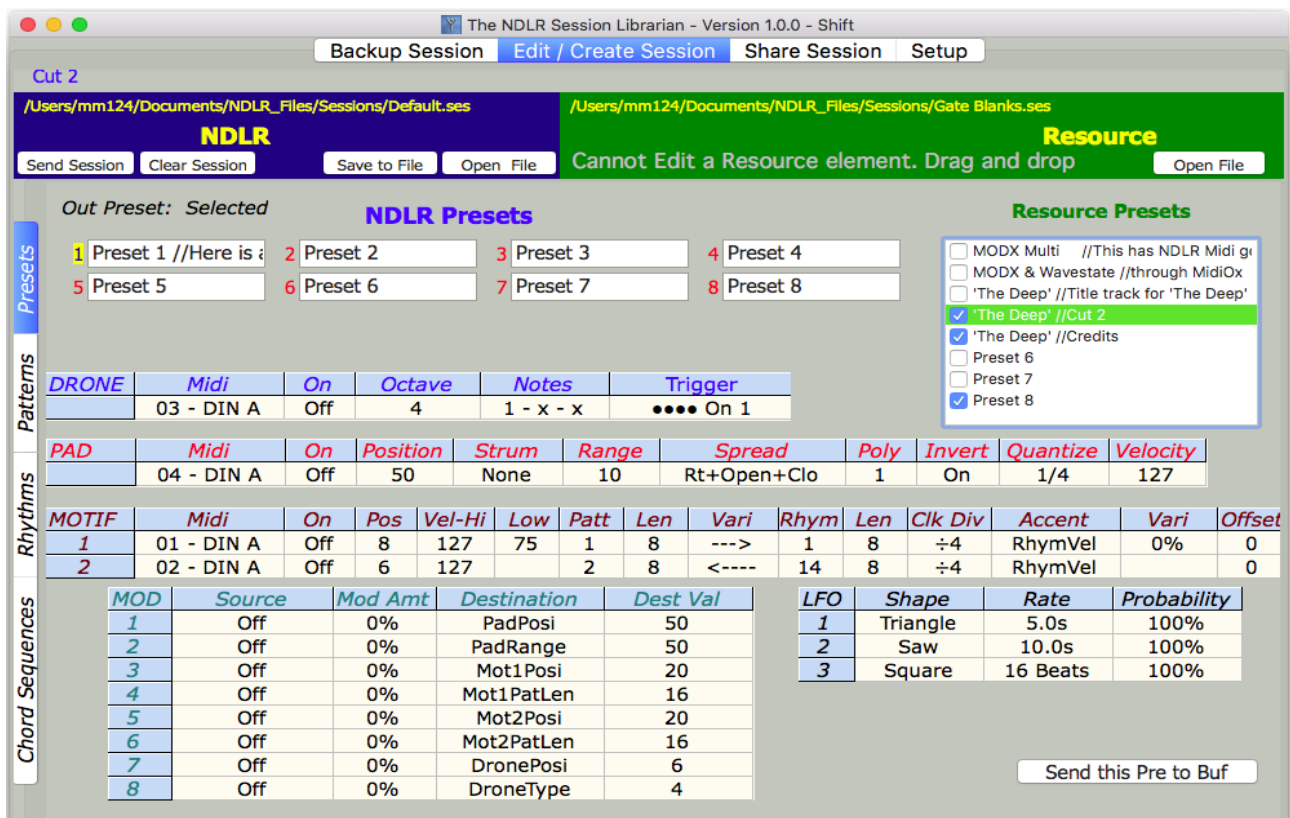
OR To rearrange the current NDLR Session just fetch, save and then load that session file into the Resource Session area and rearrange from there.

Drag and Drop : **Dragging FROM the Resource Listbox**, on the right, over **TO the edit boxes** on the left you have to click a check next to what you want in the Resource listbox and then click drag the text to the right to the editbox. This is my solution to allow you to multi-select elements and drag them to the edit boxes. (I believe normal dragging and listboxes is an unsolvable problem with the Mac and Lazarus)

You might like to save the edited NDLR again with a different name.

Clicking the text will highlight a line in the Resource Listbox with the left mouse button will display the contents. You can then quickly use the cursor down key to search through the list.

When you select multiple elements in the Resource Listbox and drag to any edit box. The elements will be placed in the order they appear in the resource session and fill the consecutive edit boxes. If you dropped more elements than there are remaining Editboxes then the extra ones are just dropped.



Eg Check Preset 3 and 4 and Preset 7 in the Resource and drag them to the Preset 2 Editbox.

Then Resource Preset 3 → Presets 2, 4 → 3 and 7 → 5.

When you click on an editbox the contents (or most of it in the case of a Preset) is displayed for you so you can see what the NDLR session's element contains.

Although the NDLR is incredibly easy to edit, sometimes I want to change just one or two things without sending the session back to the NDLR. so I made the NDLR Session data editable.

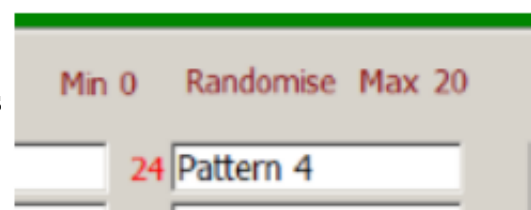
Names – all elements: There are editable names for for each Preset, Pattern, Rhythm and Sequence. These are **NOT part of the data inside the NDLR**. These names are only for the Session file on the Mac and it is there to help you remember what each element is used for.

Although the size of the name allows for 15 or so visible characters, sometimes you might need more information. For example, a video cue's details or the name of the synth preset.

Adding two forward slashes '/' anywhere in the name will display everything coming after it above the blue message area at the top of the screen. *See above 'Cut 2' in Preset 1*

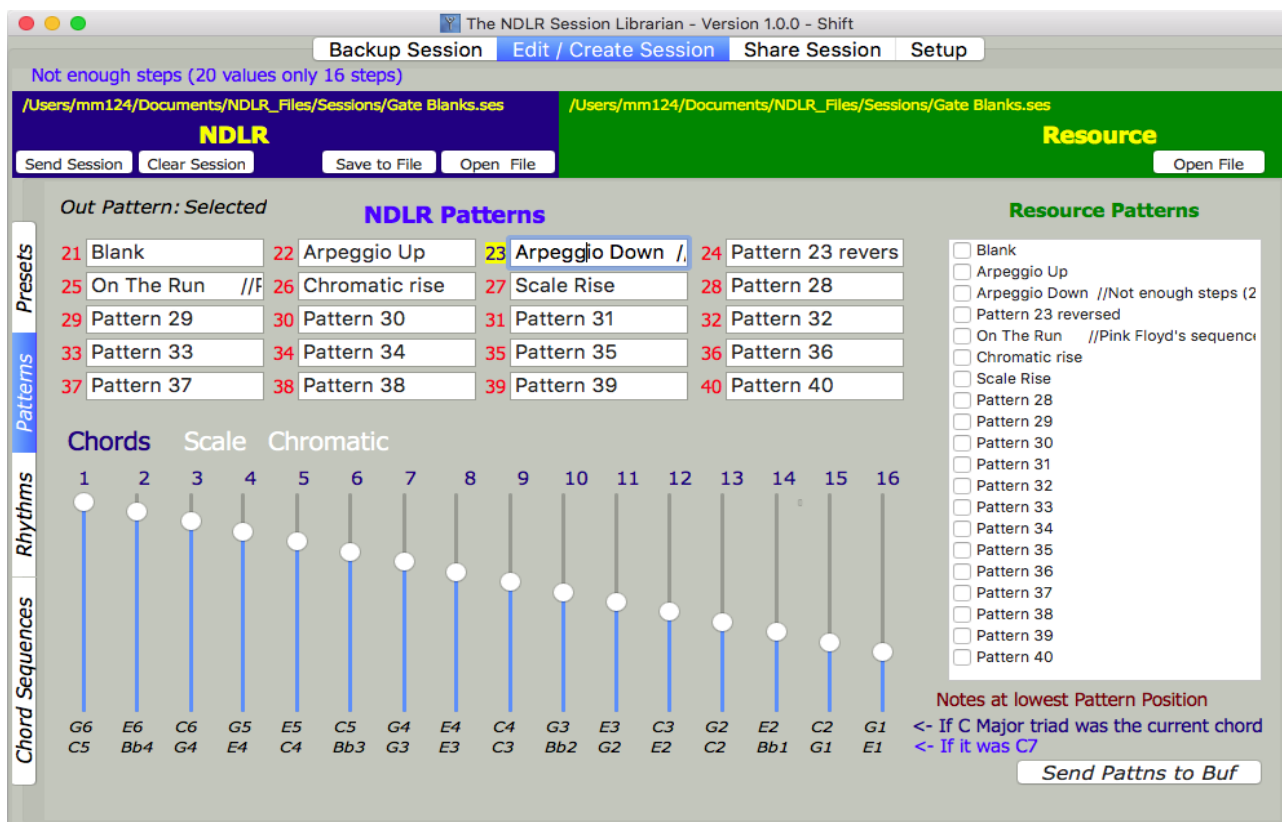
All of the Names and extra details are saved in the Session.ses file on the Mac.

Clicking on either an edit box in the NDLR area or an entry in the Resource Listbox brings up this extra information from the name. Clicking in the editbox selects it and the currently selected element has its number label in yellow.



Stuff That Applies To The Pattern & Rhythm Pages

Patterns page: The detail of the steps allows you to easily see what the Pattern you clicked on does, as well as the Name's '/' notes display.



The Chord, Scale and Chromatic data can be displayed from either the NDLR section when you click an editbox or from the Resource section when you click on an element in the listbox.

In Chords mode the information below the steps is hopefully a useful guide, but doesn't allow for the Motif's 'Pattern Position' or the 'Key' or 'Chord'. So it is displayed for **chord I in C Major**, just as a guide, The notes of a C7 chord to show what happens if you are playing a 4 note chord.

The NDLR Session Librarian - Version 1.0.0 - Shift

Backup Session Edit / Create Session Share Session Setup

Pink Floyd's sequence from 'Dark Side Of The Moon'

/Users/mm124/Documents/NDLR_Files/Sessions/Gate Blanks.ses /Users/mm124/Documents/NDLR_Files/Sessions/Gate Blanks.ses

NDLR **Resource**

Send Session Clear Session Save to File Open File Open File

Out Pattern: Selected

NDLR Patterns

21 Blank	22 Arpeggio Up	23 Arpeggio Down /	24 Pattern 23 revers
25 On The Run //F	26 Chromatic rise	27 Scale Rise	28 Pattern 28
29 Pattern 29	30 Pattern 30	31 Pattern 31	32 Pattern 32
33 Pattern 33	34 Pattern 34	35 Pattern 35	36 Pattern 36
37 Pattern 37	38 Pattern 38	39 Pattern 39	40 Pattern 40

Resource Patterns

- ☐ Blank
- ☐ Arpeggio Up
- ☐ Arpeggio Down //Not enough steps (2
- ☐ Pattern 23 reversed
- ☐ On The Run //Pink Floyd's sequenci
- ☐ Chromatic rise
- ☐ Scale Rise
- ☐ Pattern 28
- ☐ Pattern 29
- ☐ Pattern 30
- ☐ Pattern 31
- ☐ Pattern 32
- ☐ Pattern 33
- ☐ Pattern 34
- ☐ Pattern 35
- ☐ Pattern 36
- ☐ Pattern 37
- ☐ Pattern 38
- ☐ Pattern 39
- ☐ Pattern 40

Chords Scale Chromatic

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

E2 G2 A2 G2 D3 C3 D3 E3 E2 G2 A2 G2 D3 C3 D3 E3

Notes at lowest Pattern Position
 <- If it was a C Major Scale

Send Pattns to Buf

Above is a picture of a Scale pattern from the currently loaded NDLR session. Again the notes names underneath are just a guide as the Position (offset), Key or Mode is not really information you need to identify a Pattern.

Below is a Chromatic pattern. It is still affected by Key and Position, but not by mode.

The NDLR Session Librarian - Version 1.0.0 - Shift

Backup Session Edit / Create Session Share Session Setup

/Users/mm124/Documents/NDLR_Files/Sessions/Gate Blanks.ses /Users/mm124/Documents/NDLR_Files/Sessions/Gate Blanks.ses

NDLR **Resource**

Send Session Clear Session Save to File Open File Open File

Out Pattern: Selected

NDLR Patterns

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29 Pattern 29	30 Pattern 30	31 Pattern 31	32 Pattern 32
33 Pattern 33	34 Pattern 34	35 Pattern 35	36 Pattern 36
37 Pattern 37	38 Pattern 38	39 Pattern 39	40 Pattern 40

Resource Patterns

- ☐ Blank
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- ☐ Pattern 29
- ☐ Pattern 30
- ☐ Pattern 31
- ☐ Pattern 32
- ☐ Pattern 33
- ☐ Pattern 34
- ☐ Pattern 35
- ☐ Pattern 36
- ☐ Pattern 37
- ☐ Pattern 38
- ☐ Pattern 39
- ☐ Pattern 40

Chords Scale Chromatic

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

E1 F1 F#1 G1 Ab1 A1 Bb1 B1 C2 C#2 D2 Eb2 E2 F2 F#2 G2

Notes at lowest Pattern Position
 <- Chromatic notes starting on C0

Send Pattns to Buf

ONLY FOR NDLR Session – not for the Resource Session

Note that the '**Can't Edit a Resource element...**' label becomes visible when you click on the Resource listbox to remind you that the Resource is read only and **the displayed data is locked**.

Sending Patterns: You can send all 20 User Patterns **and save them to flash in the NDLR** by pressing the 'Store Patterns' button near the bottom on the right.

If you hold down the SHIFT key and click on the button you **Send Pattns to Buf** with that button. **All 20 User Patterns are loaded and ready to use by the NDLR, but they aren't saved to flash so they are lost when the NDLR is powered off.** This can be useful when you are testing things or adding Patterns during performance.

You can send any of the individual NDLR session patterns to the NDLR buffer by HOLDING the SHIFT and clicking on the **red number** to the left of the editbox of the pattern you want to send. There is the less common action of CTRL+SHIFT+click and this sends it to the buffer **and** saves it to flash inside the NDLR.

Which element does it send to...?

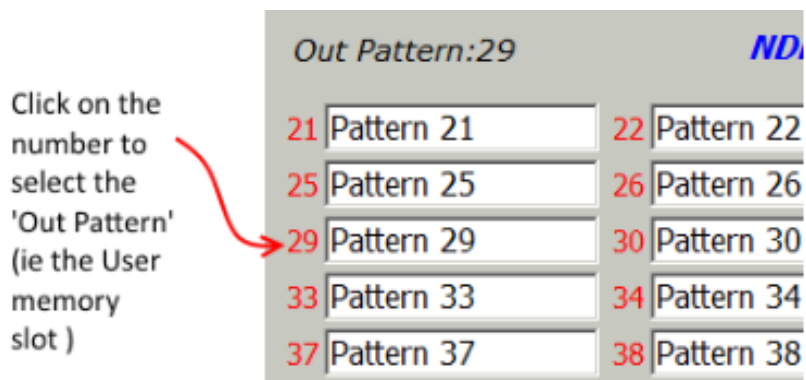
The program normally sends the element to its number. That is, SHIFT + click on Pattern 23's number and it will send it to Pattern 23 in the NDLR. When 'Selected' is displayed in **Out Pattern**, Pattern 10 is sent as Pattern 10 etc.

There are times when you might want to send different Patterns to the same number, say Number 29, in the NDLR. So although Pattern 23 is SHIFT+ clicked, the data is renamed and goes to the NDLR as Pattern 29.

To put it back in 'Selected' mode just click on the 'Out Pattern' label

The 'Out Pattern' number can be any Editbox number and you select it by clicking the red label to the left of the edit box.

This is a quick way to move elements around in the NDLR in real time.



Remember clicking the 'Out Pattern' label will return it to 'Selected' mode.

Basic Pattern Editing : I much prefer mouse editing, especially using the mouse wheel so the editing controls started out as mouse wheel based, but Jesse works differently and so you can also use left (+) or right (-) mouse button click instead of the mouse wheel (or if you don't have a wheeled mouse). Use CTRL as well to change by a jump rather than a step. Using a Mac single Mouse button might make things difficult for you.

Hovering over a bar and rolling the middle mouse wheel will change the value of that step by 1 per detente click of the wheel (you may need to go to the Setup page to adjust the MouseWheel setting).

If you move the wheel with the CTRL key down then it will increment or decrement the step by more than 1 (how much more depends on if it is in Chord, Scale or Chromatic mode). These changes are written back into the NDLR Session in the **computer memory**. Don't forget to save.

A '**SEND**' label appears when anything is changed. Clicking on the SEND label will send the freshly edited Pattern to the NDLR buffer. It won't be saved inside the NDLR's Flash memory, but it will be played by the NDLR so you can test things. (You can always SHIFT+CTRL+ click the edit box number if you want to save it)

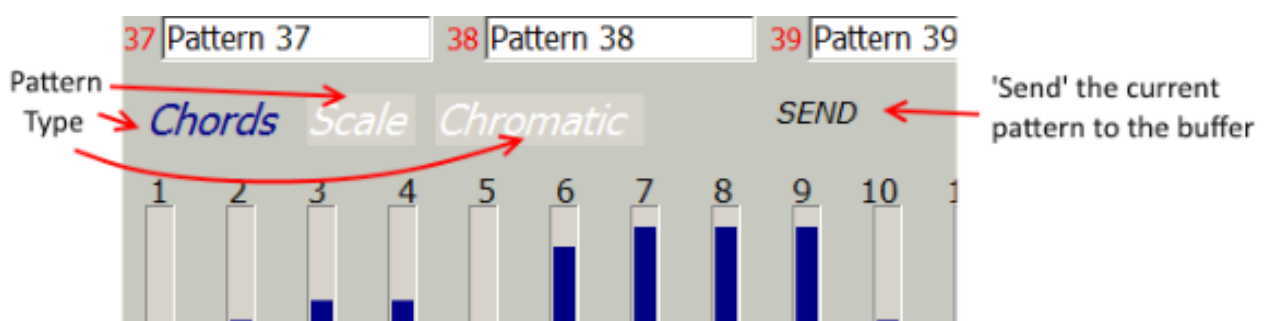
Then the 'Send' label vanishes so you know there is nothing new to send. Again this is great for a few small tweaks that you can test **without stopping** the NDLR playing.

NOTE: if your selected (visible) Motif on the NDLR has, say Pattern 14 selected, sending to the buffer will change the selection to the Library's selected pattern number, say Pattern 29, and fill Pattern 29's buffer on the NDLR with the changed data.

If the NDLR is running, the changed pattern will take over from the old one . Nothing permanent has changed inside the NDLR flash memory.

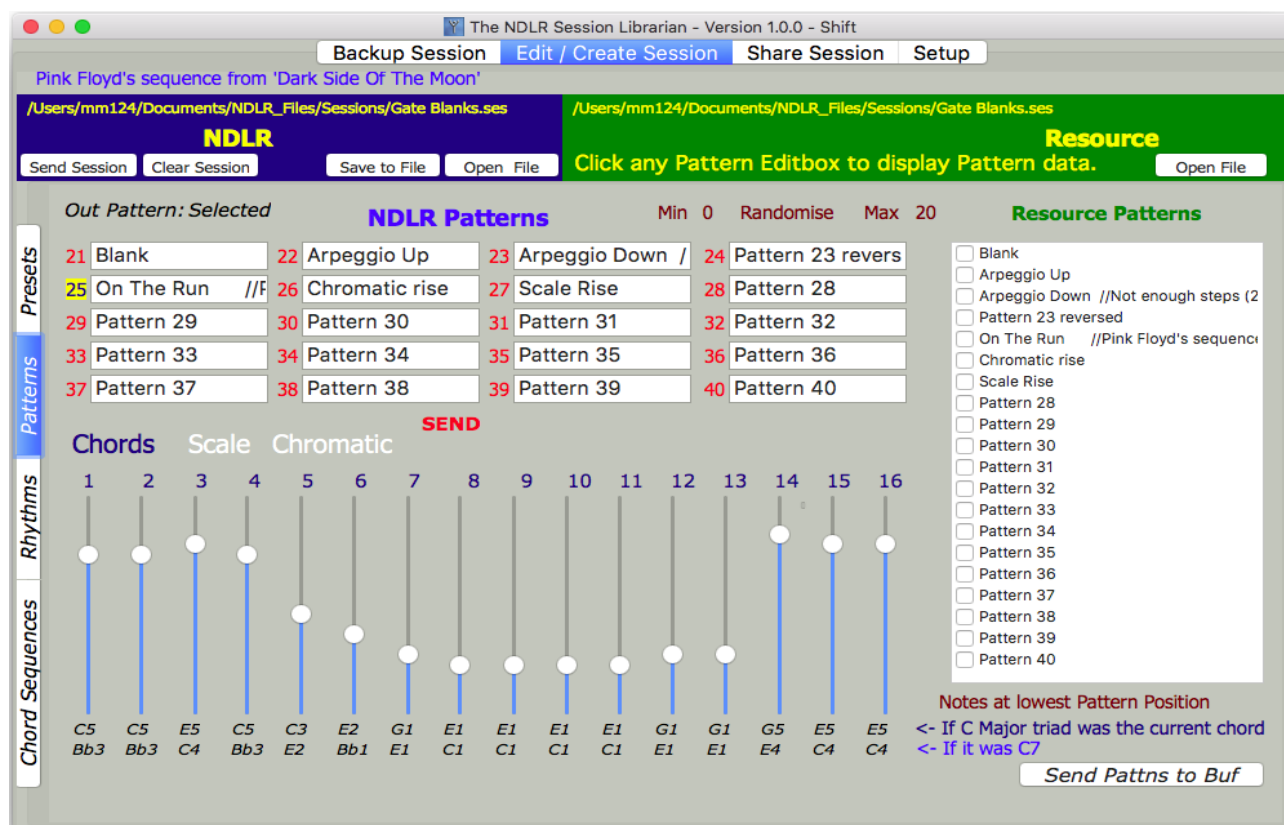
If you turn encoder 6 (Pattern Select) back and forward it will reload the old pattern from memory. Its a neat way for you to test out all your experiments in real time.

Pattern Type Change: Click on the light coloured words, 'Chord', 'Scale' or 'Chromatic'. You can change the type of pattern from Chord to Chromatic to Scale and back again. This will take the current step values and scale them so the contour is the same (looks the same) in the new Pattern type and sends the data out to NDLR. **This type change changes a lot of things so it has the auto-send of the pattern to the NDLR buffer (no flash save) and as it has been newly sent, the 'SEND' label is removed.**



Now for some of the extra elements. You will need to make sure you have selected the first two 'Allow SHIFT ...' and 'Enable SHIFT...' options on the left in the Setting page. The second one turns on the Randomisation and SHIFT + drag 'painting' functions.

Here is what appears when you do select the check-boxes.



Paint a Pattern: Position your mouse cursor over any step bar. **When you press the SHIFT key, the bar will jump to that value if you move the mouse a bit.** Good for quick big changes then fine tune it with the mouse wheel or left and right click.

Because you are likely to want make a few changes the SEND label appears rather than the Pattern being auto-sent.

If you position the cursor to the side of the Step bars then **hold** the SHIFT key down and move the mouse across the bars, the Step bars will jump to the new value as if the cursor is a magnet or painting a line where the new values should be.

You can produce quick contours or scales when set to the Scale type. (This is also great for Velocity crescendos and diminuendos in the Rhythm page.)

As you may need to make some fine adjustments this action is also not auto-sent.

Randomisation: If you hover over the numbers next to the 'Min' and 'Max' labels you can change them with the mouse wheel (or left and right click). Use with CTRL for bigger jumps.

This narrows the range of the randomisation.

Clicking on the 'Randomise' word will generate a set of pattern values between the Min and Max (including those Max and Min values).

This is a 'complete' action so it auto-sends the Pattern to the NDLR buffer (no flash save) after each randomisation.

Don't like the sound of it? Click the 'Randomise' label again and again until you do.

SHIFT + Click on 'Min' (or 'Max') text to reset the randomise range to the minimum (or the maximum).

**** Now that you have a Pattern you like, don't forget to save your NDLR session to disk, as the pattern is not saved in the NDLR's permanent flash memory.*

If you are in the Pattern Editor on the NDLR when doing all this messing around you can save the Pattern to flash memory.

Now you have one new pattern, click on another Editbox to select a new work area and start editing again till you build up your performance's Patterns/Rhythms that you can download and store into the NDLR's flash memory.

REAL TIME: As, as far as I understand, the buffer memory isn't flash memory and so there is no reason why you can't send 100s of thousands to the Pattern / Rhythm buffer. So creating and sending them during a performance on stage or in your bedroom studio while recording is completely possible and fun.

Of course, you could use this feature to just extend the number of User Patterns and Rhythms past the 20 maximum during a performance by loading in new NDLR Sessions and sending each of the patterns to the buffer at the right moment.

There are some tricks though: Sending a Pattern or Rhythm to a NDLR as it is playing will make the visible Motif respond (the 'visible' Motif is swapped with the NDLR's 'Panic' button).

As mentioned above, if Motif 2 is selected (visible in the box) and playing Pattern 10, if you send Pattern 24, this will change Motif 2's Pattern to 24 and it will start playing the buffer you have just filled. If Motif 1 has been playing Pattern 24 all along it will stay on 24 and just keep reading the newly filled buffer.

The Pattern/ Rhythm buffers are common to both Motifs.

So both Motifs can be set to and playing Pattern 24 and you change and send Pattern 24 to its buffer both Motifs will play this new Pattern data.

If both Motifs have the same user pattern selected you can send the new pattern to both.

- 1) Shift +click Pattern 21 for Motif 1 then swap to Motif 2 with the white button.
- 2) Click the label '21' next to 'Editbox 21' and the 'Out Pattern' number will be 21
- 3) Now start making changes (and click 'Send' if it doesn't have auto-send) with Type change, Painting, Mouse wheel or Randomisation.

To prevent the 'visible' Motif changing the Pattern number select the 'Out Pattern' number to the Motif's number. Now you can send any Pattern as the Motif's current pattern. The two Motifs could have different Pattern length, position or direction as well as different rhythms.

Shift the position with the NDLR, or send random, or, as we will see later, inverted or retrograde sequences with one click and the two Motifs will be playing a related line helping to hold the composition together – if that is what you want.

Out Select number becomes very useful when you want to change the 'non-visible' Motif's Pattern.

- 1) Have Motif 2 visible
- 2) Set Motif 2 to Pattern 22 by SHIFT clicking the Pattern 22 label
- 3) Press the 'Panic' button to change the Motif to Motif 1.
- 4) Any Pattern (except Pattern 22) you now send will change the visible Motif 1 to that pattern, but NOT Motif 2.
- 5) To change what the non-visible Motif 2 is playing, just send a Pattern wrapped up as Pattern 22. Motif 1 will change to Pattern 22, but if you quickly send any other Pattern number Motif 1 will play that instead
- 6) Reaching the non-visible Motif with different Patterns by SHIFT clicking any of the 20 different Editbox Labels is one reason to set the '*Out Pattern*' number to wrap up all sent patterns as Pattern 22.

Or you could set Motif 1 to Pattern 21 and just swap the '*Out Pattern*' numbers from 21 to 22.

This technique also works for the Rhythms.

Rhythm page: Most of the Pattern page stuff above is true for the Rhythm page.
Click on the number below the bar to move the value to a 'Rest' (0) or a 'Tie' (128).

Of course, here the Randomisation function works for the Velocity value of the Rhythms.

So that you don't miss out on random rests (value 0) and ties (value 128), when the randomised value generated is equal to Min, a **rest** is written and when the randomised value = Max a **tie** is written. So *you should set the range to be one value lower in the Min and one value higher in the Max than you want.*

For example, if you want a loud velocity range, say between 100 and 120 then set the Min to 99 and the Max to 121. Every time the random value is 121, a tie (128) is substituted for the value and every time 99 is randomly produced a rest (0) is substituted.

Click on the label 'Rst' or 'Tie' below to remove the tie or rest if one is in the wrong spot.

The closer the Min and Max are in value the more likely a tie or rest will be generated.

By setting them to the same only 'ties' will be generated. As the value gap increases you will get less and less ties and rests. Try 3 or 4 apart.

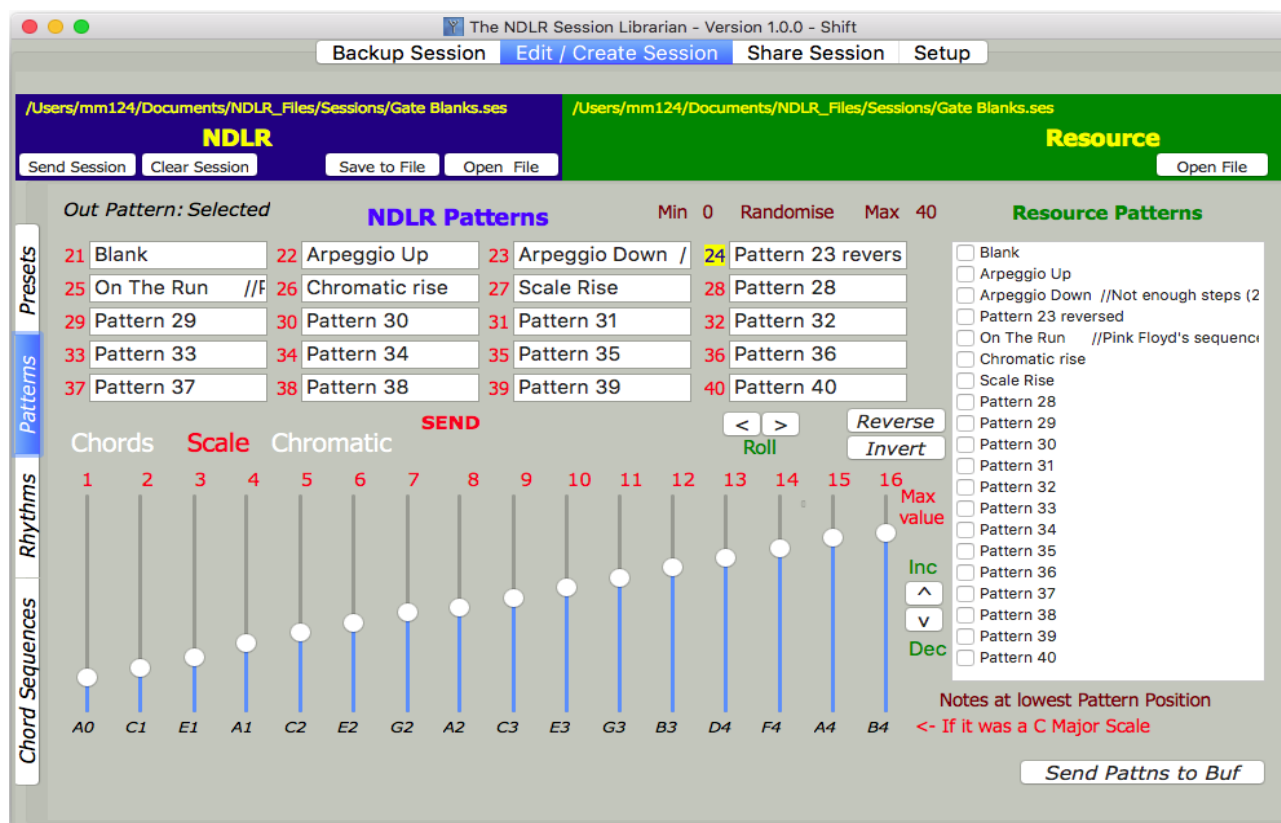
'Extra Motif Editing'

This Applies To The Pattern & Rhythm & Setup Pages

In the Setup page there is a checkbox called 'View and enable extra Pattern or Rhythm editing...'. It is just for the Pattern and Rhythm pages, but also adds an extra NDLR serial data viewing page in the Setup area.

Here is what appears when the checkbox is ticked.

Here is what appears when the checkbox is ticked.



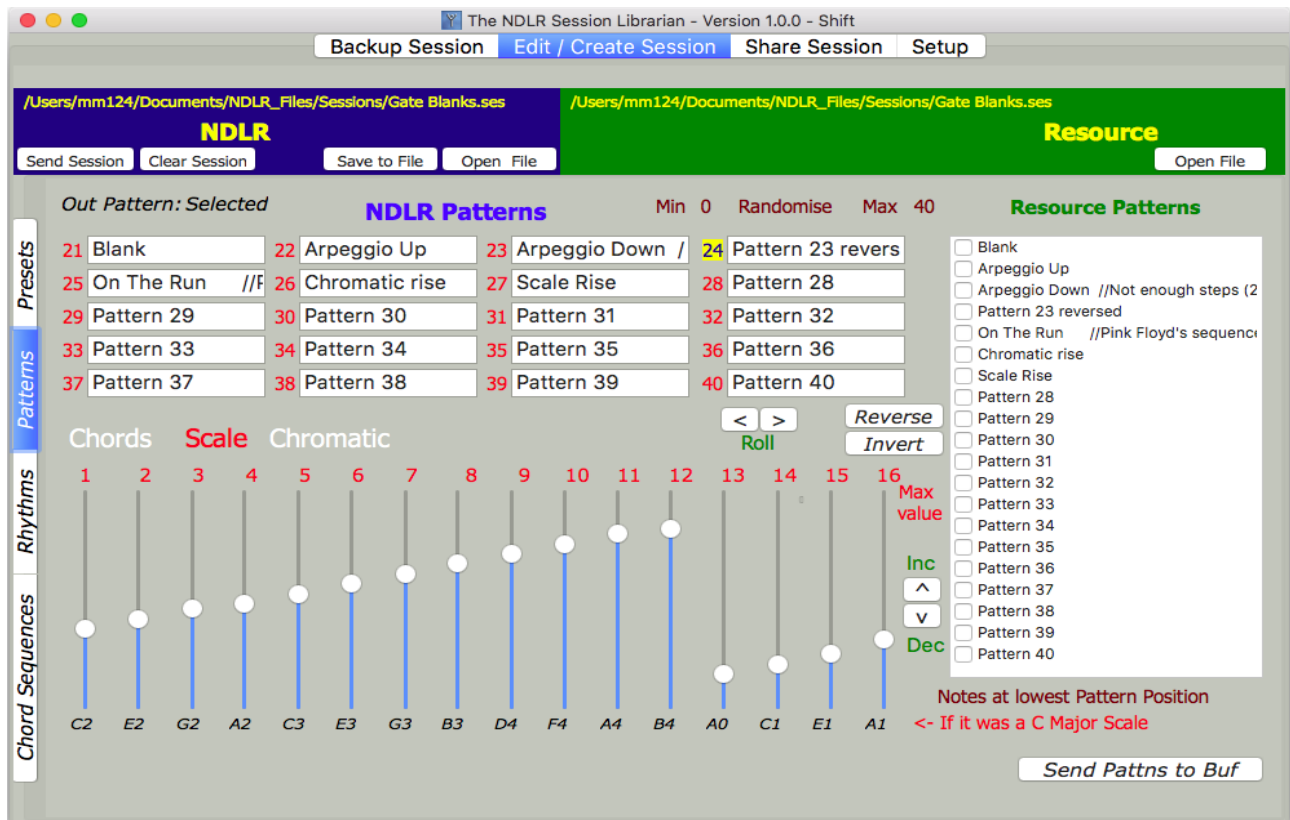
Start with this scale Pattern...

Roll: Not a bread roll or an aeroplane or boat 'roll'. The label comes more from a computer term that really means to slide along – backwards or forwards with one end value going to fill the hole left at the other end.

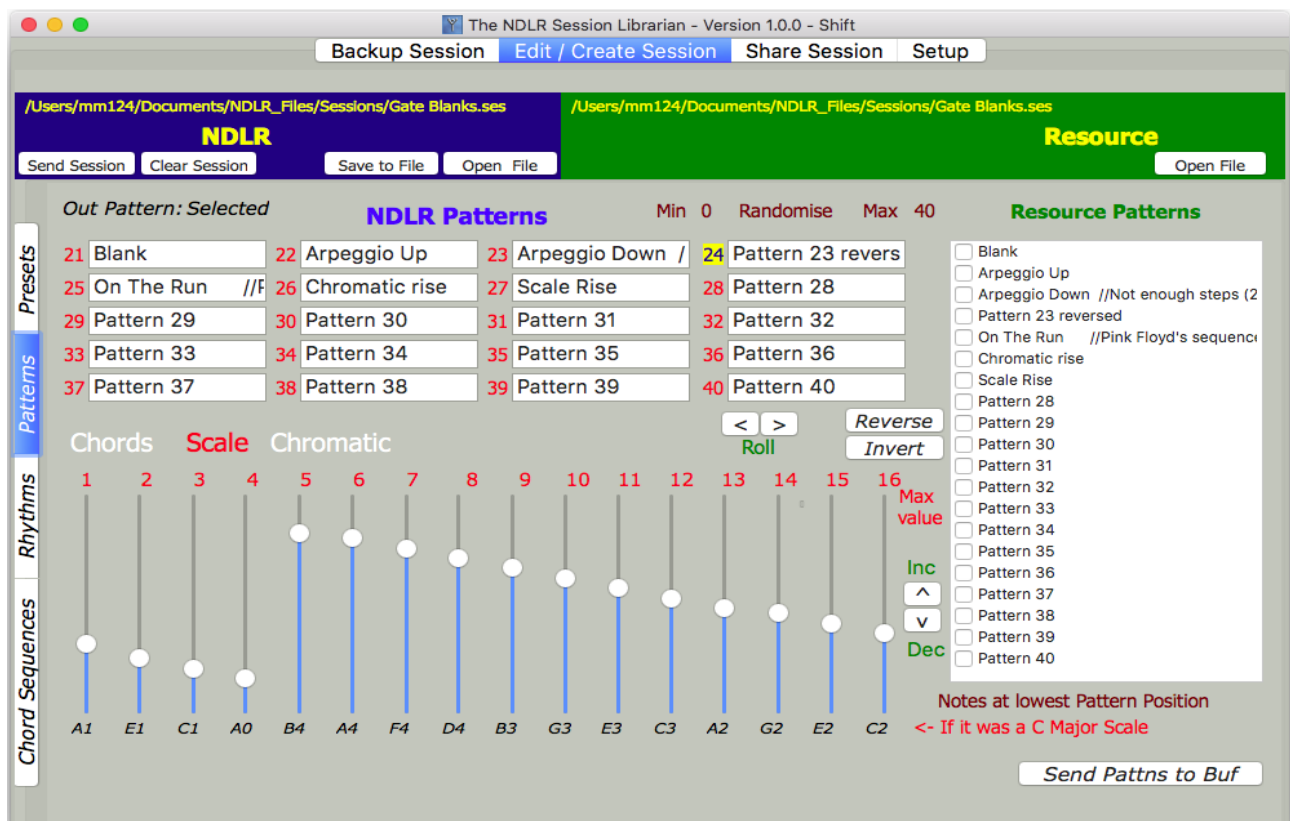
Rolling to the right will put the first value into the second step and the old second value into the third step etc. until the last value wraps around to the start and is placed in the first step. Rolling to the left does this in the opposite direction.

The pattern remains the same but shifts its phase.

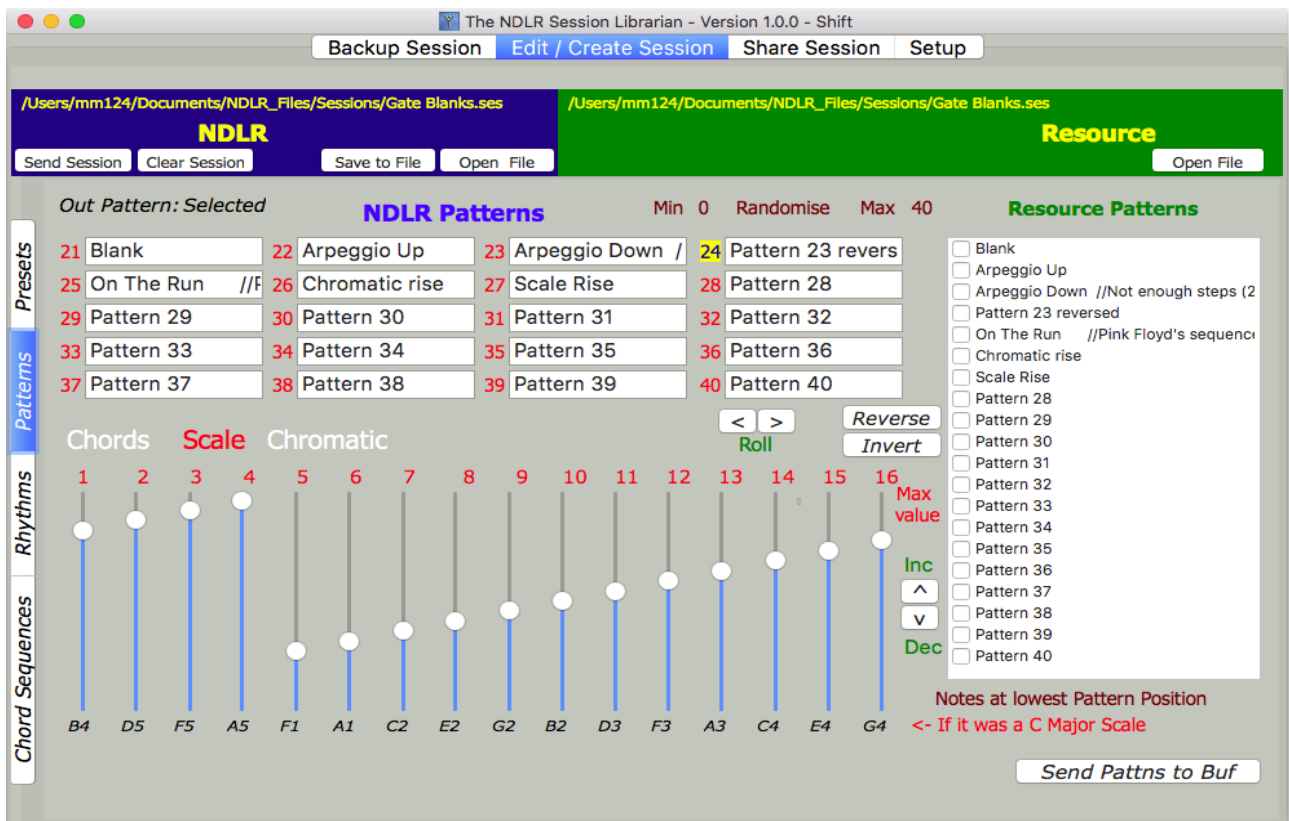
The Roll action is auto-sent to the NDLR as are all the following actions.



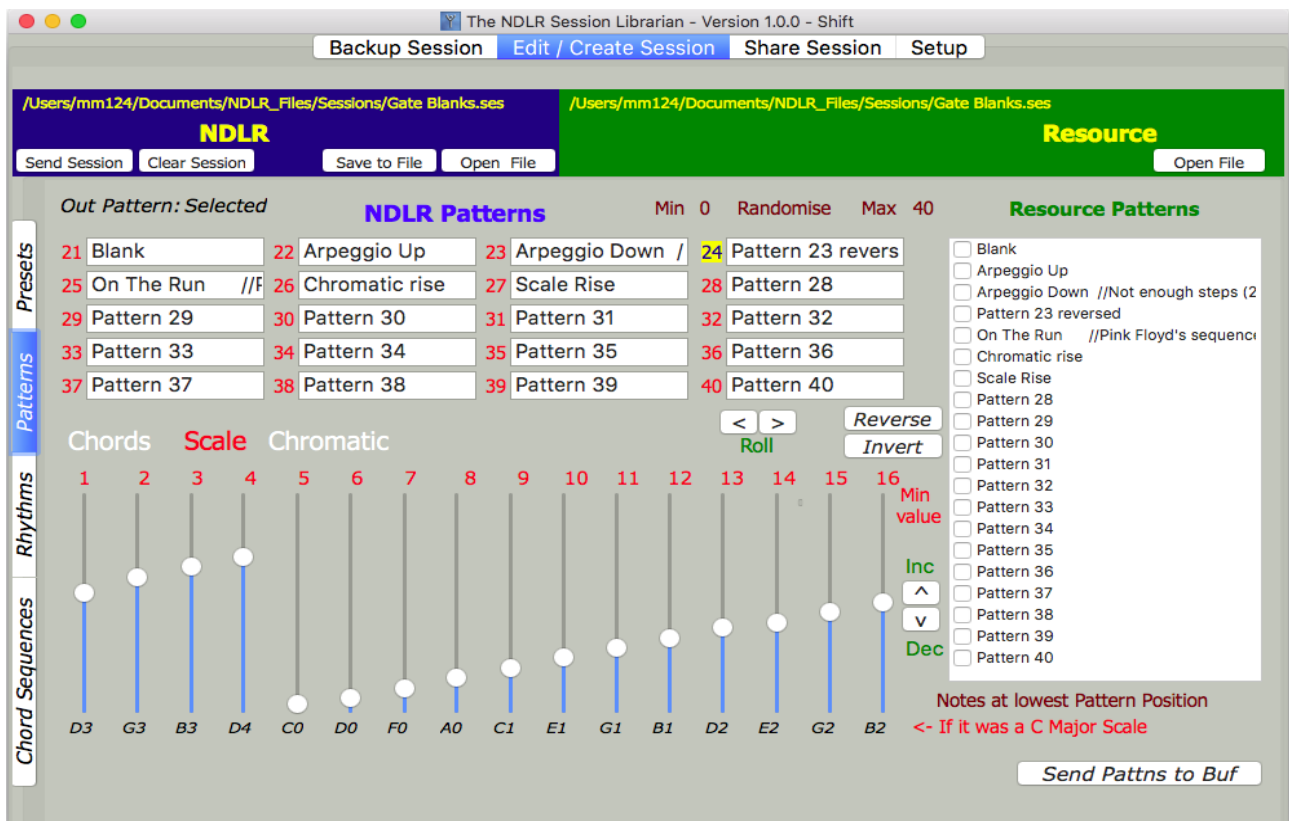
Reverse: Playing the Pattern/Rhythm backwards. Standard compositional technique. 1 and 16 swap. 2 and 15 swap ...etc. Of course, you can also easily do this on the NDLR.



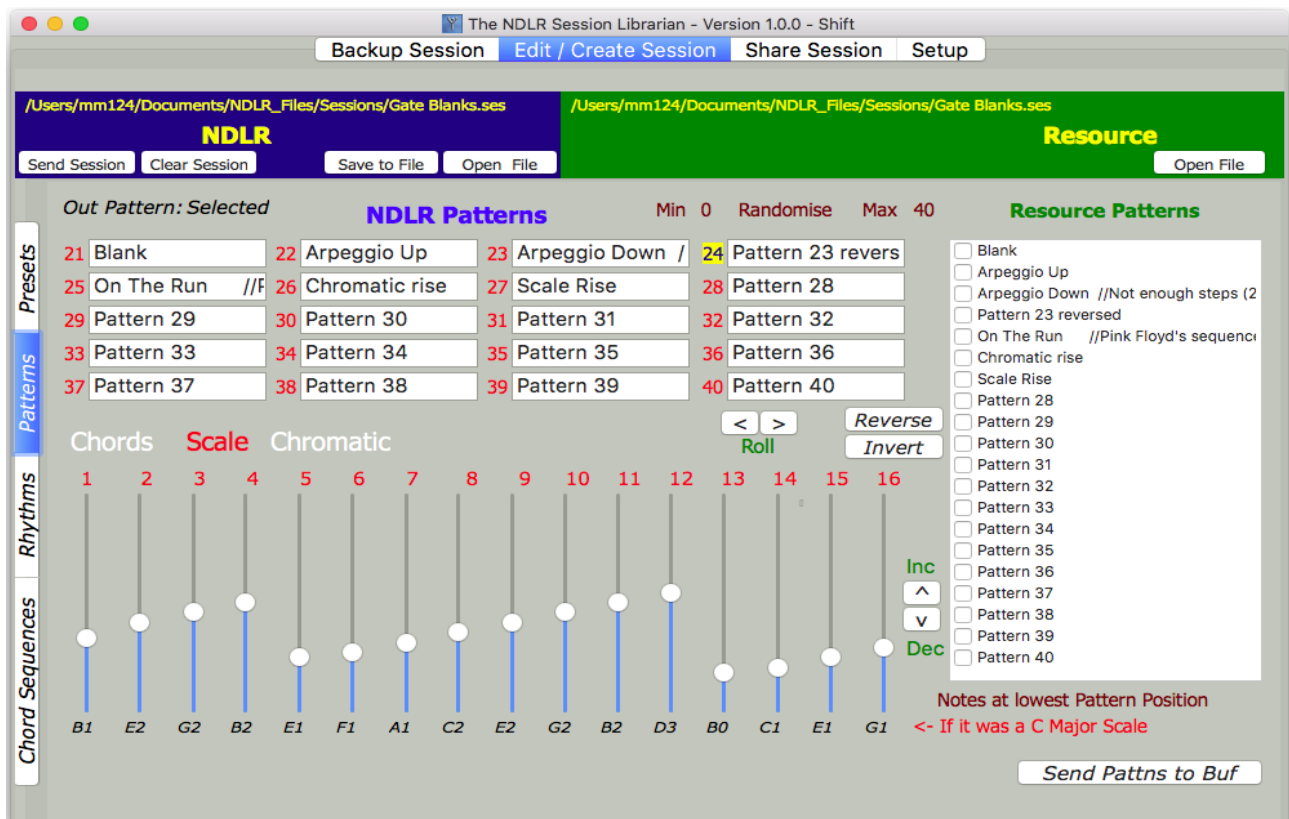
Inverse: (above) Reflecting the pitches in a horizontal axis. Another standard compositional technique.



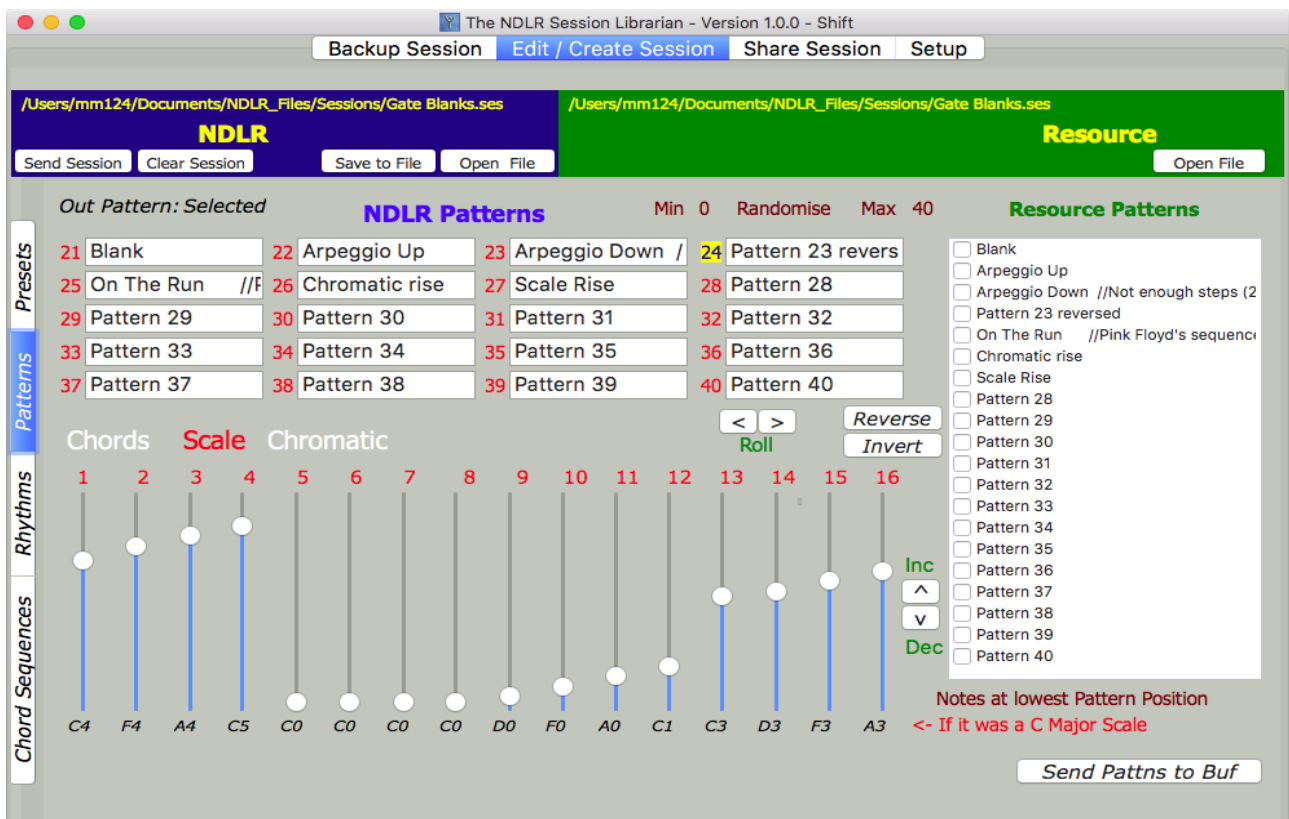
Increment and Decrement: This is like the 'Position' control on the NDLR for Patterns.



Increment and Decrement + SHIFT:(above) This compresses/decompresses the pitch range maintaining the melodic shape. It compresses around a horizontal line at the median value with values above the median decreasing and the others increasing.



As it keeps going past the median it creates a new contour.



I think this is of most use on the pitches in the Patterns, but it is also interesting to

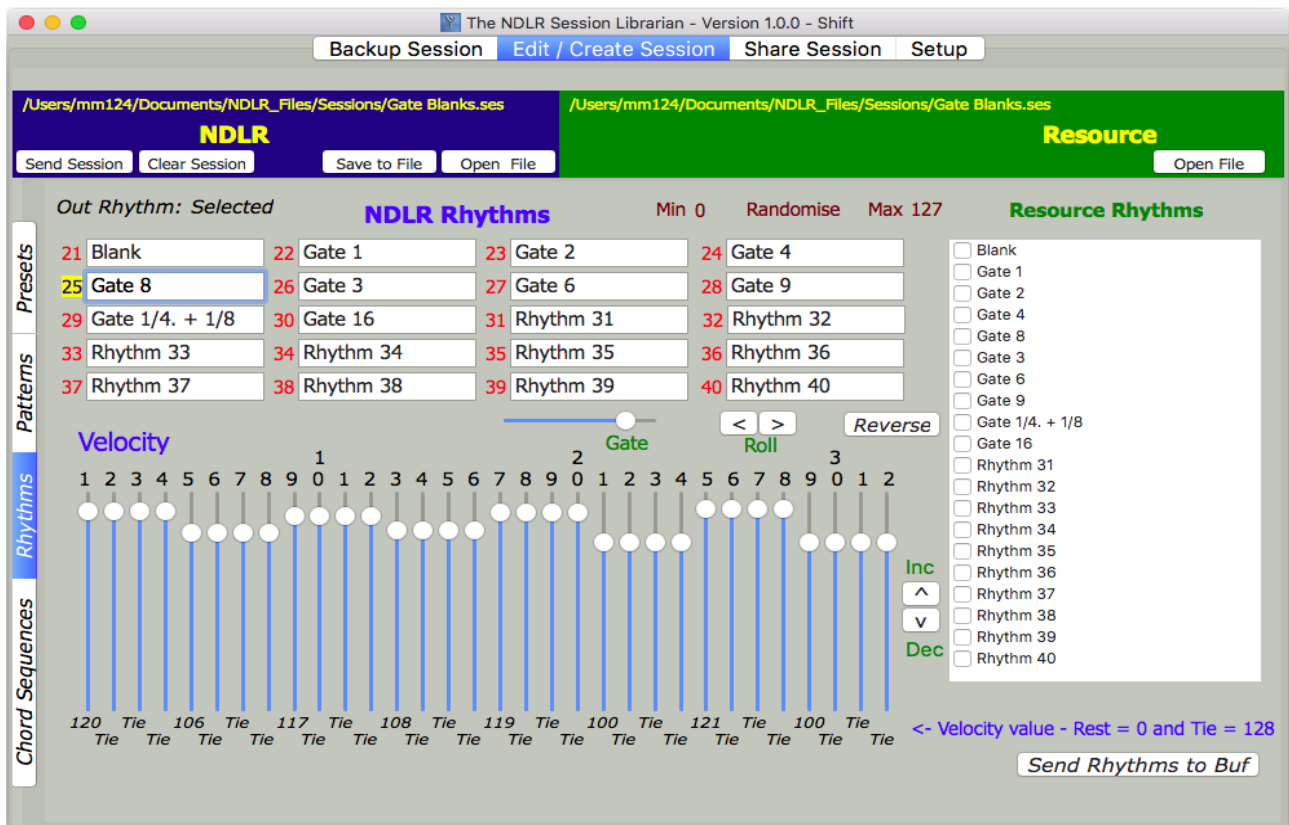
Here is the traditional staccato of 1/8 notes in 4/4 time. The Gate slider is moved right for more legato.

The screenshot shows the 'The NDLR Session Librarian - Version 1.0.0 - Shift' interface. The 'NDLR' tab is active, displaying a session named 'Gate Blanks.ses'. The 'Out Rhythm: Selected' is 'Gate 8'. The 'NDLR Rhythms' section shows a grid of 40 rhythms, with 'Gate 8' selected. The 'Resource Rhythms' section on the right lists various rhythms, including 'Blank', 'Gate 1', 'Gate 2', 'Gate 4', 'Gate 9', 'Gate 1/4. + 1/8', 'Gate 16', 'Rhythm 31', 'Rhythm 32', 'Rhythm 33', 'Rhythm 34', 'Rhythm 35', 'Rhythm 36', 'Rhythm 37', 'Rhythm 38', 'Rhythm 39', and 'Rhythm 40'. The 'Velocity' section shows a series of vertical bars representing the rhythm, with a 'Gate' slider set to 127. The 'Chord Sequences' section is visible on the left. The 'Send Rhythms to Buf' button is at the bottom right.

Here is $\frac{3}{4}$ of the note

The screenshot shows the same 'The NDLR Session Librarian' interface. The 'Out Rhythm: Selected' is 'Gate 8'. The 'NDLR Rhythms' section shows a grid of 40 rhythms, with 'Gate 8' selected. The 'Resource Rhythms' section on the right lists various rhythms, including 'Blank', 'Gate 1', 'Gate 2', 'Gate 4', 'Gate 9', 'Gate 1/4. + 1/8', 'Gate 16', 'Rhythm 31', 'Rhythm 32', 'Rhythm 33', 'Rhythm 34', 'Rhythm 35', 'Rhythm 36', 'Rhythm 37', 'Rhythm 38', 'Rhythm 39', and 'Rhythm 40'. The 'Velocity' section shows a series of vertical bars representing the rhythm, with a 'Gate' slider set to 127. The 'Chord Sequences' section is visible on the left. The 'Send Rhythms to Buf' button is at the bottom right.

Fully legato.



With NDLR's Clock Division, the Motifs can change the length of their note against the Drone or Pad.

÷8 setting and the Rhythms 32 sub beats will create a 4/4 bar with 1/32 note gate resolution.

÷4 setting gives two bars of 4/4 with 1/16 note resolution.

The way you can create a gated note on the NDLR is to have the note and then ties to make up the length of the gate and then rests for the remainder of the note. So a 'staccato' note in a 4/4 bar at a Clock setting of ...

÷2 would be the note plus 1 ties and 2 rests.

÷4 would be the note plus 3 ties and 4 rests.

÷8 would be the note plus 7 ties and 8 rests.

You could edit the beats to do this, but I have included a slider control to speed it up.

You can drag the knob, but, of course, you can use the Mousewheel when the cursor is over the slider.

I have included a session file called 'Gate Blanks.ses' in the Session directory so you can try it out.

A mixed note value Rhythm to try out the Gate.

The NDLR Session Librarian - Version 1.0.0 - Shift

Backup Session Edit / Create Session Share Session Setup

/Users/mm124/Documents/NDLR_Files/Sessions/Gate Blanks.ses /Users/mm124/Documents/NDLR_Files/Sessions/Gate Blanks.ses

NDLR **Resource**

Send Session Clear Session Save to File Open File Open File

Out Rhythm: Selected **NDLR Rhythms** Min 0 Randomise Max 127 **Resource Rhythms**

21 Blank 22 Gate 1 23 Gate 2 24 Gate 4
 25 Gate 8 26 Gate 3 27 Gate 6 28 Gate 9
 29 Gate 1/4. + 1/8 30 Gate 16 31 Rhythm 31 32 Rhythm 32
 33 Rhythm 33 34 Rhythm 34 35 Rhythm 35 36 Rhythm 36
 37 Rhythm 37 38 Rhythm 38 39 Rhythm 39 40 Rhythm 40

Velocity

1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2

120 Tie Rst Tie 095 Rst Tie Rst 100 Rst Tie Rst 100 Rst Tie Rst 100 Rst Tie Rst 100 Rst

Gate Roll Reverse

Inc
 ^
 v
 Dec

<- Velocity value - Rest = 0 and Tie = 128

Send Rhythms to Buf

Chord Sequencer page:

The NDLR Session Librarian - Version 1.0.0 - Shift

Backup Session Edit / Create Session Share Session Setup

/Users/mm124/Documents/NDLR_Files/Sessions/Gate Blanks.ses /Users/mm124/Documents/NDLR_Files/Sessions/Gate Blanks.ses

NDLR **Resource**

Send Session Clear Session Save to File Open File Click any Sequence Editbox to display Sequence data. Open File

Out Sequence: Selected

NDLR Chord Sequences

1 Chord Sequence 1 2 Chord Sequence 2 3 Chord Sequence 1 4 Chord Sequence 4

5 Chord Sequence 1

Chord Changes

		Key	Mode	Degree	Type	1/4 Notes
A	1	F	Tonic 6ths	ii	Triad	12.0
	2	G	Dorian	iii	6ths	8.0
	3	D	Phrygian	iii	7ths	13.0
	4	A	Lydian	IV	Sus2	2.0
	5	E	Mixolydian	V	Sus4	2.5
	6	B	Minor	I	7ths	5.0
B	1	F#	Minor Pentatonic	I	Triad	4.5
	2	Db	Tonic 2nds	I	Triad	4.0
	3	Ab	Tonic 2nds	ii	Sus4	4.5
	4	Eb	Minor Pentatonic	iii	7ths	5.0
	5	Bb	Wholetone	IV	Sus2	5.5
	6	F	Tonic 2nds	vi	7ths	10.5
C	1	C	Tonic 3rds	I	Triad	6.5
	2	G	Tonic 4ths	vii	Alt2	7.0
	3	D	Tonic 6ths	I	Triad	7.5
	4	A	Major	ii	6ths	8.0
	5	E	Dorian	iii	7ths	8.5
	6	B	Phrygian	vi	7ths	2.0

Resource Chord Sequences

☐ Chord Sequence 1
☐ Chord Sequence 2
☐ Chord Sequence 1
☐ Chord Sequence 4
☐ Chord Sequence 1

Structure

	Sect.	Repeat
1	A	: 4
2	B	: 7
3	C	: 6
4	B	: 5
5	A	: 4
6	A	: 3
7		
8		

Send this Seq to Buf

TIP : If a line is blank in the Chord Changes table then then the '1 / 4 Notes' entry is 0.

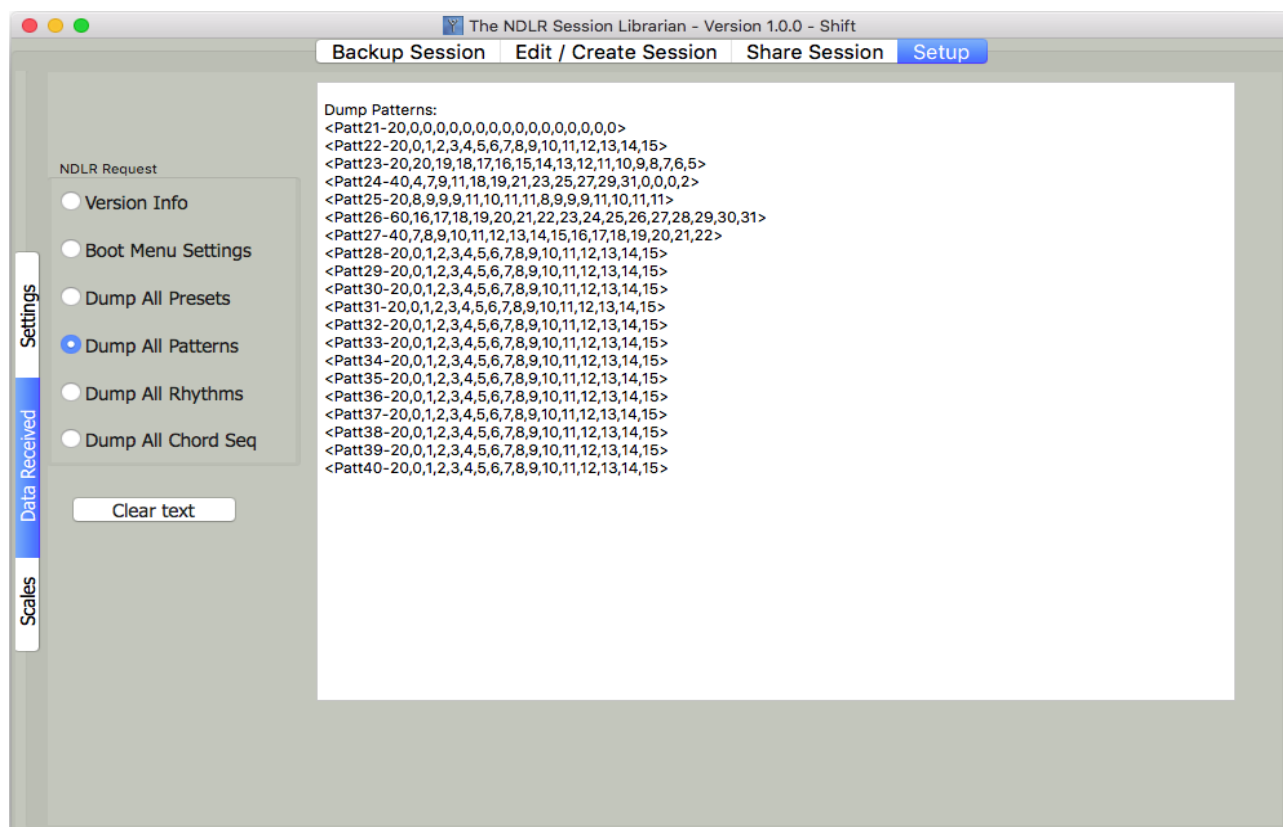
(If no time is allocated then there is no point in displaying the other information.)

Edit this column first and give it a value greater than 1 and the other fields in that line will appear.

Similarly if the '-' is selected in the 'Sect' column of Structure table, the line is not shown.

Setup page EXTRA ...

Data Received. A COM Viewer



Data Received : This tab is just for viewing, testing and trouble shooting communications with the NDLR.

Click on any of the Radio button list on the left to request data from the NDLR.

Scales and Chords: This tab was where I was learning how to code in Pascal in Lazarus

There was some mention of User scales in the Forum, so I thought that scales and chords would be interesting.

Jesse replied that it is highly unlikely, but perhaps it could be useful ???

If you click on any of the radio button lists (like the 'Chords of Mode') or the Scale drop down box you can use the cursor down arrows to quickly move through the list.

The NDLR Session Librarian - Version 1.0.0 - Shift

Backup Session Edit / Create Session Share Session Setup

Seven Tone Scale Builder

'#3','#4','#5','#6' = excessive sharps
'x' = Double Sharp
'#' = Sharp
' ' = Natural
'b' = Flat
'bb' = Double Flat
'b6','b5','b4','b3' = excessive flats

Maj7 = Major 7th
7th = Dominant 7th
m7 = Minor 7th
°Maj7 = Diminished Major7th
ø 7 = Half Diminished 7th
° 7 = Diminished 7th
m#7 = Minor with #7
Aug7 = Dominant 7 with #5
#5#7 = Like Aug7, but #7
b5b7 = Maj with b5 and b7

Display
☒ Note
☐ Interval Steps from the root

Hungarian Minor

	I	II	III	IV	V	VI	VII	I	II	III	IV	V	VI	VII
Interval	0	2	3	6	7	8	11	12	14	15	18	19	20	23
Gypsy Min	Eb	F	Gb	A	Bb	Cb	D	Eb						
Oriental		Eb	Fb	G	Ab	Bbb	C	Db	Eb					
Chord Type			#5#7	-	Maj7	Maj7	-	m#7	b5b7					
7th			D	Eb	F#	G	Ab	B	C					
5th			B	C	D	Eb	F#	G	Ab					
3rd			G	Ab	B	C	D	Eb	F#					
-			Eb	F#	G	Ab	B	C	D	Eb				
-				Eb	Fb	Gbb	Ab	Bbb	Cb	Dbb	Eb			
-					Eb	Fb	G	Ab	Bb	Cb	D	Eb		
-						F#	G	A	Bb	C#	D	Eb		
-						Eb	Fb	Gb	Abb	Bb	Cb	Dbb	Eb	

Key
☒ Flat ☐ Sharp

Key
☐ C ☐ Db ☐ D ☒ Eb ☐ E ☐ F ☐ Gb ☐ G ☐ Ab ☐ A ☐ Bb ☐ B

Chords of Mode
☐ I
☐ II
☒ III
☐ IV
☐ V
☐ VI
☐ VII

Help:

On The Mac this sometimes worked, but I couldn't really get it to work properly - sorry

F1 Help key shows a page of Mouse and Key actions and F2 will bring up your PDF reader with this document loaded.

Instead I have added a *Help* page in the *Setup* page

All Pages	Effect	CTRL	SHIFT	ALT	LEFT	RIGHT
Edibox					click	click
Left Click	Select Element - Display that element's data					
Left Click	Send the Element to the NDLR Buffer		X			
Left Click	Send and Store Element in NDLR	X	X			
Click 'Store xxxx' button	Send all visible elements to NDLR buffer and flash					
Click 'Send xxxx to Buf' button	Send all visible elements to NDLR buffer		X			
For Pattern & Rhythm Pages						
Out Pattern' (Rhythm) label	Future Elements will be sent as selected					
Click Editbox Number	Future Elements will be sent as if that number					
Mouse Wheel over Value bar	Increase or Decrease value by 1				+1	-1
Move Mouse over Value bar	Move value to that position ('Paint' values)		X			
Click Rhythm Velocity Value label	Value to : Tie to Rest :					
Randomise						
Mouse wheel 'Min' or 'Max' num	Increase or Decrease value by 1				+1	-1
Mouse wheel 'Min' or 'Max' num	Increase or Decrease value by more than 1	X			>+1	<-1
Click 'Min' Label	Set Min to lowest value		X		Min	Min
Click 'Max' Label	Set Max to highest value		X		Max	Max
Click 'Randomise'	Set each value to number between Min and Max					
Click 'SEND' label	Send to buffer as 'selected' or 'number'					
Roll < >	Move by 1 left/right + add value from front to end					
Roll < >	Big Move left/right + add value from front to end	X				
Inc ^ v Dec	Move by 1 up/down until one value is max or min					
Inc ^ v Dec	Big Move up/down until value is max or min	X				
Inc ^ v Dec	Compress / Expand		X			
Slide 'Gate' Scroll bar	Add/Remove 1 tie to previous note					
Tables						
Double click data cell	Open List box- Drop with V button					
Cursor keys	Move between cells					
Enter	Open List box					
Down Cursor on open List	Drop List box - select with Enter			X		

The 'Read Manual' button will open Preview and load the PDF manual (what you are reading now).

[illegible]

All Pages	Effect	CTRL	SHIFT	ALT	LEFT	RIGHT
Edibox					click	click
Left Click	Select Element - Display that element's data				X	
Left Click Number	Select the number used in renaming data				X	
Left Click Number	Send this Element to the NDLR Buffer		X		X	
Right Click Number	Send and Store this Element in NDLR		X			X
Click 'Store <u>xxxx</u> ' button	Send all visible elements to NDLR buffer and flash				X	
Click 'Send <u>xxxx</u> to <u>Buf</u> ' button	Send all visible elements to NDLR buffer		X		X	
For Pattern, Rhythm & Chord Sequence Pages						
Out Pattern' (Rhythm) label	Future data will be sent as normal				X	
Click <u>Editbox</u> Number	Future data will be sent as if that number				X	
Mouse Wheel over Value bar	Increase or Decrease value by 1				+1	-1
Move Mouse over Value bar	Move value to that position ('Paint' values)		X			
Click Rhythm Velocity Value label	Value to : Tie to Rest :				X	
Randomise						
Mouse wheel 'Min' or 'Max' <u>num</u>	Increase or Decrease value by 1				+1	-1
Mouse wheel 'Min' or 'Max' <u>num</u>	Increase or Decrease value by more than 1	X			>+1	<-1
Click 'Min' Label	Set Min to lowest value		X		Min	Min
Click 'Max' Label	Set Max to highest value		X		Max	Max
Click 'Randomise'	Set each value to number between Min and Max				X	
Click 'SEND' label	Send to buffer as 'selected' or 'number'				X	
Roll < >	Move by 1 left/right + add value from front to end				X	
Roll < >	Big Move left/right + add value from front to end	X			X	
Inc ^ v Dec	Move by 1 up/down until one value is max or min				X	
Inc ^ v Dec	Big Move up/down until value is max or min	X			X	
Inc ^ v Dec	Compress / Expand		X		X	
Slide 'Gate' Scroll bar	Add/Remove 1 tie to previous note				X	
Tables						
Double click data cell	Open List box- Drop with V button				X	
Cursor keys	Move between cells					
Enter	Open List box					
Down Cursor on open List	Drop List box – select with Enter			X		
<i>If you ever find the <u>Mousewheel</u> or <u>Ctrl</u> key or <u>Shift</u> key not functioning , it is usually caused by the <u>Alt</u> key. Tap the <u>Alt</u> key and the other keys and <u>Mousewheel</u> should function.</i>						