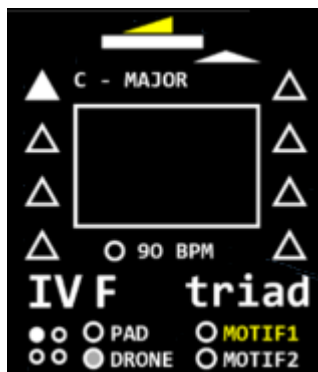


Changes in the NDLR Library Program

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

For saving and loading you should normally have the NDLR on the default page (as below) !



The NDLR Library - V1.0.4 Notes

Bugfix:

1. New range errors in the Preset and Chord Sequence data fixed in the checking routine (thanks Keith)
2. Remedied serial input errors

Feature:

1. **Selection of 'All', every 2nd, 3rd, 4th, 5th, 6th or 7th step in the Pattern or Rhythm.** The 'Reverse' or the 'Inverse' or the SHIFT drag painting of values will on be applied to those steps.
2. **A button with a label, '=Note1' on the Pattern page and '=Vel 1' on the Rhythm page, will set the values of all the selected steps (as above) to the value in step 1. See a fuller explanation and examples added in the manual to the Patterns section.**

The NDLR Library - V1.0.3 Notes

Bugfix:

1. Removed the 'Warning' screen as Steve had fixed both the resetting rhythm length and the Chord Sequencer save function.

Feature:

1. No new features

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.

A lot more testing has shown that the errors in sending data and saving it 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 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.

The NDLR Session Librarian - Version 1.0.1a

Backup Session | Edit / Create Session | Share Session | Setup

D:\Doc...ents\Projects\Lazarus Projects\NDLR Lib\Sessions\Default.ses | D:\Doc...oyce\My Documents\Projects\Lazarus Project

NDLR

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

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

Click here to select

The NDLR Session Librarian - Version 1.0.1a

Backup Session | Edit / Create Session | Share Session | Setup

D:\Doc...ents\Projects\Lazarus Projects\NDLR Lib\Sessions\Default.ses | D:\Doc...oyce\My Documents\Projects\Lazarus Project

NDLR

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

Out Sequence: 2 *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

Clicking on either label will set it back to 'Selected'

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 Manual

Windows version v1.0.4

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 that 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 an infinite (no, sorry, just a very large number) of Rhythms and note Patterns.

Many of the Preset parameters are covered 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 sends the data to the NDLR. It can be saved and loaded to a computer file. Finally, it can be edited.

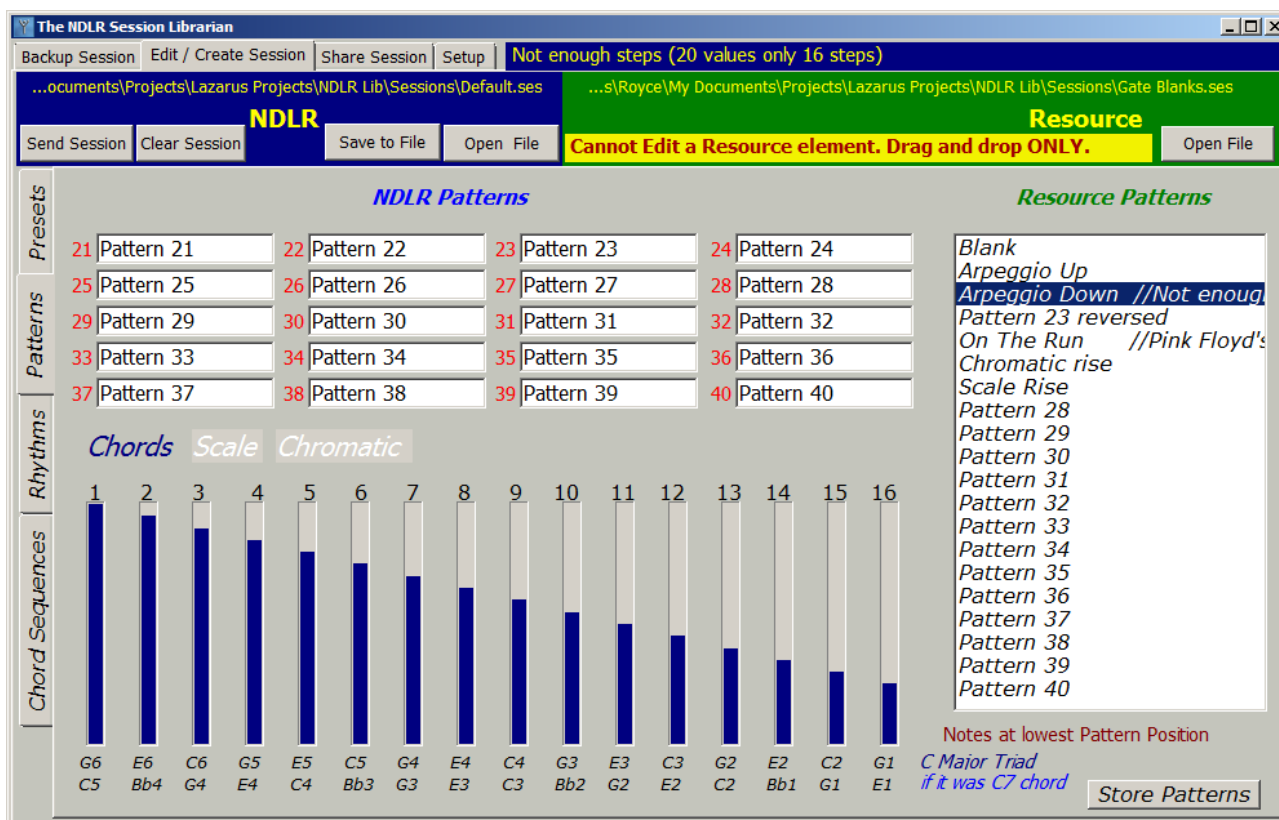
There is another Session in the program and that is called the Resource Session. I can be read from a computer file, but CANNOT be saved (except in a non-standard way in the 'Share Session' area). It CANNOT be sent to the NDLR or be loaded from the NDLR and it CANNOT be edited.

So why have the Resource Session? It is primarily there to drag and drop an elements, overwriting an existing elements from a computer file into the current NDLR Session. Got an idea in th NDLR but want some variations? Fetch it → save it → load it as a resource → drag & drop the idea to a few slots in the NDLR session → send it back to the NDLR with the variations to try out → love the variations send again but this time with a save to flash.

The Resource element's data is displayed when selected and although it looks like it could be edited, it cannot.

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.

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



Resource use example: to rearrange the Pattern order in your NDLR.

Fetch the data -> NDLR Session → save it to a file → load the file into the Resource Session → drag & drop Patterns to the NDLR Session → Save the NDLR Session (for safety) and send-save the NDLR Session back to the NDLR. You can now also drag and drop between the editboxes.

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

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

Inside that directory is a sessions file called Default.ses. Unzip the '**NDLR_Lib.exe**' with the needed **Sessions** directory to a folder on your hard disk. Use Alt+drag on the NDLR_Lib.exe program to the desktop to create a shortcut on your desktop.

That's all there is to the installation. To remove the program delete the program directory with the **Sessions** directory in it and the shortcut.

Setting up the NDLR: Despite being a MIDI machine, the NDLR sends it's internal data via a serial COM device. This serial communication is part of NDLR's single USB connection that also contains its 4 Midi ports.

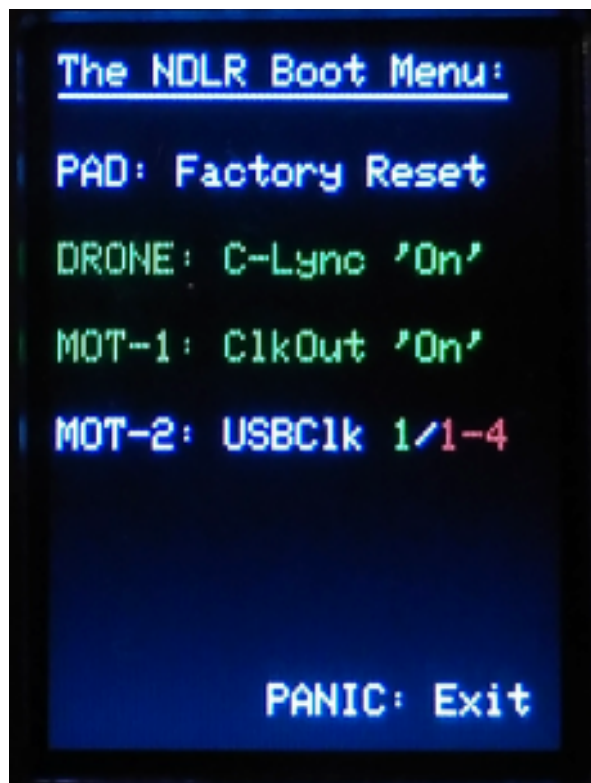
"Unlike a standard Arduino, the Teensy Serial object always communicates at 12 Mbit/sec USB speed." (from pjrc) so it is much faster than MIDI, but..... it can cause some teething problem.

On the PC you need to install the serial driver which you can get from the *teensy* makers pjrc.

https://www.pjrc.com/teensy/serial_install.exe

(although pjrc says it is contained in Win10.)

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.

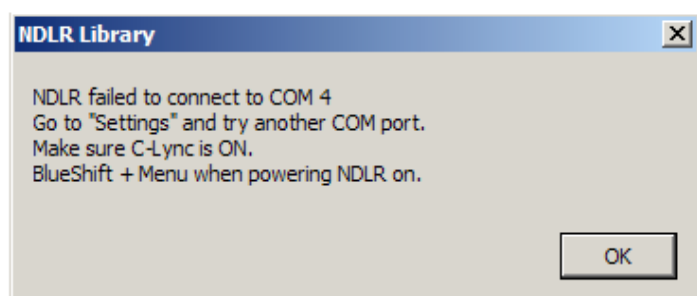
The values are changed by pressing the white 'Play' buttons at the bottom of the NDLR. The C-Lync is the only one we are interested in here.

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

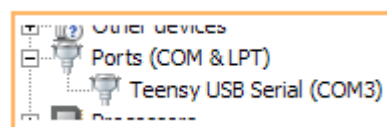
I found that a PC reboot was also needed to sort out the COM.

You can now start the NDLR Library program.

My NDLR serial installation defaulted to COM 3 and I don't have any other COM ports in my computer, so I have made that the default value in the program. If yours is different then changing the COM port can be done in the 'Settings' page of the NDLR Library.



This warning means that the program could not connect to the NDLR's USB COM port.



If you have trouble, then in Windows Device Manager, 'Ports (COM & LPT)' should have 'Teensy USB Serial (COM3)' or what ever COM port it has defaulted to.

With that done you should be able to start the Library program and automatically connect to the NDLR in the Settings page..

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

The program started out as a simple a way to save the contents of the NDLR, so you can start making new things without loosing 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 sessions from 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 **overwriting** what is currently in NDLR flash memory and restoring it back to where it was. 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.

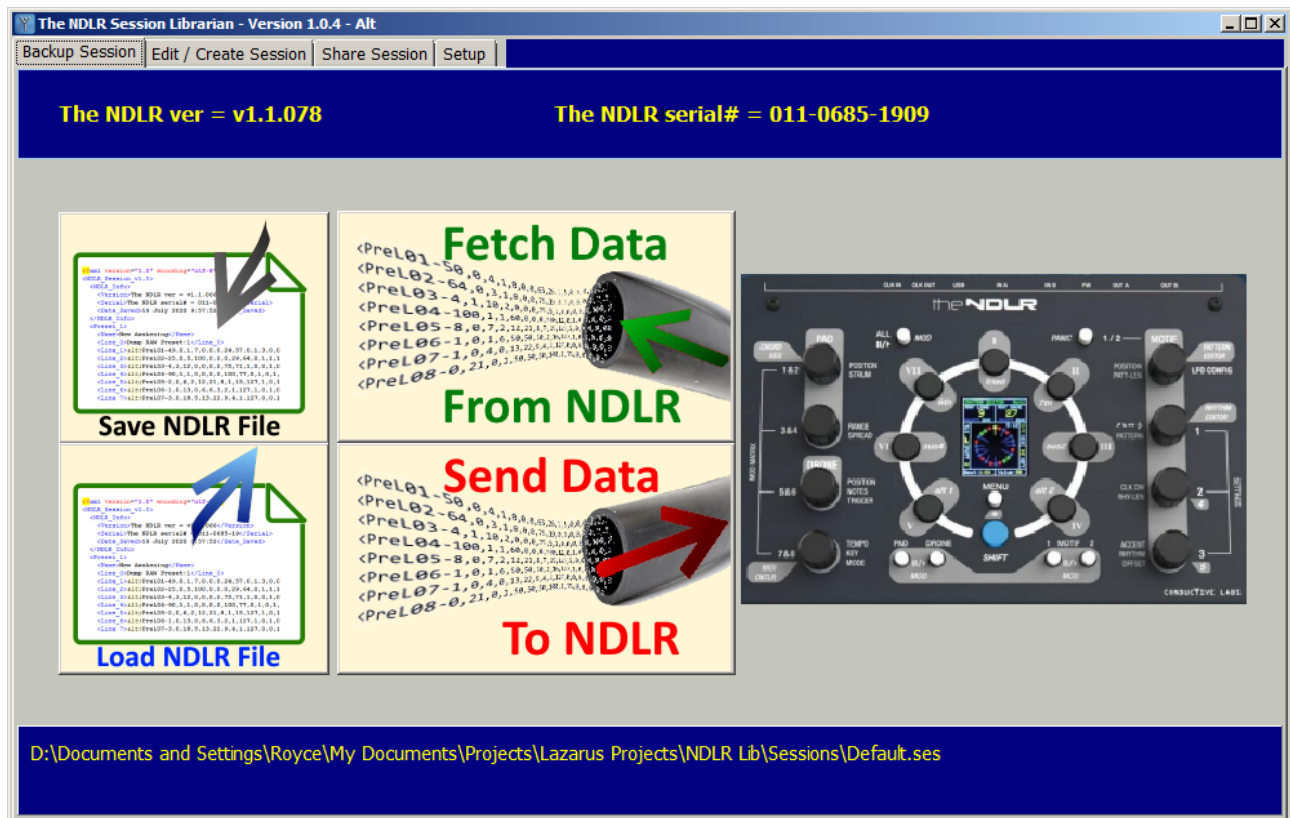
You can name any/all of the session elements and add some notes about it to help you remember what each part was. You can then use this file to build another session file by copying elements across sessions. There is also a page to help you share your session files using the internet.

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 **1.1.078** with the latest fixes from Conductive Labs (get it at their NDLR forum).

The Library version it at the top and the filename at the bottom is 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.

This 'meaningful' filename is what you will use find a certain Rhythms or Patterns or setup.

The 'Save NDLR File' button is automatically clicked for you after a *Fetch Data*. (You can turn this automatic action off in the 'Settings' 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 Menu Settings 3. The twenty Patterns and Rhythms are numbered from 21 to 40 as this is the USER writable memory on 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 a XML format and so can be edited in Notepad 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.

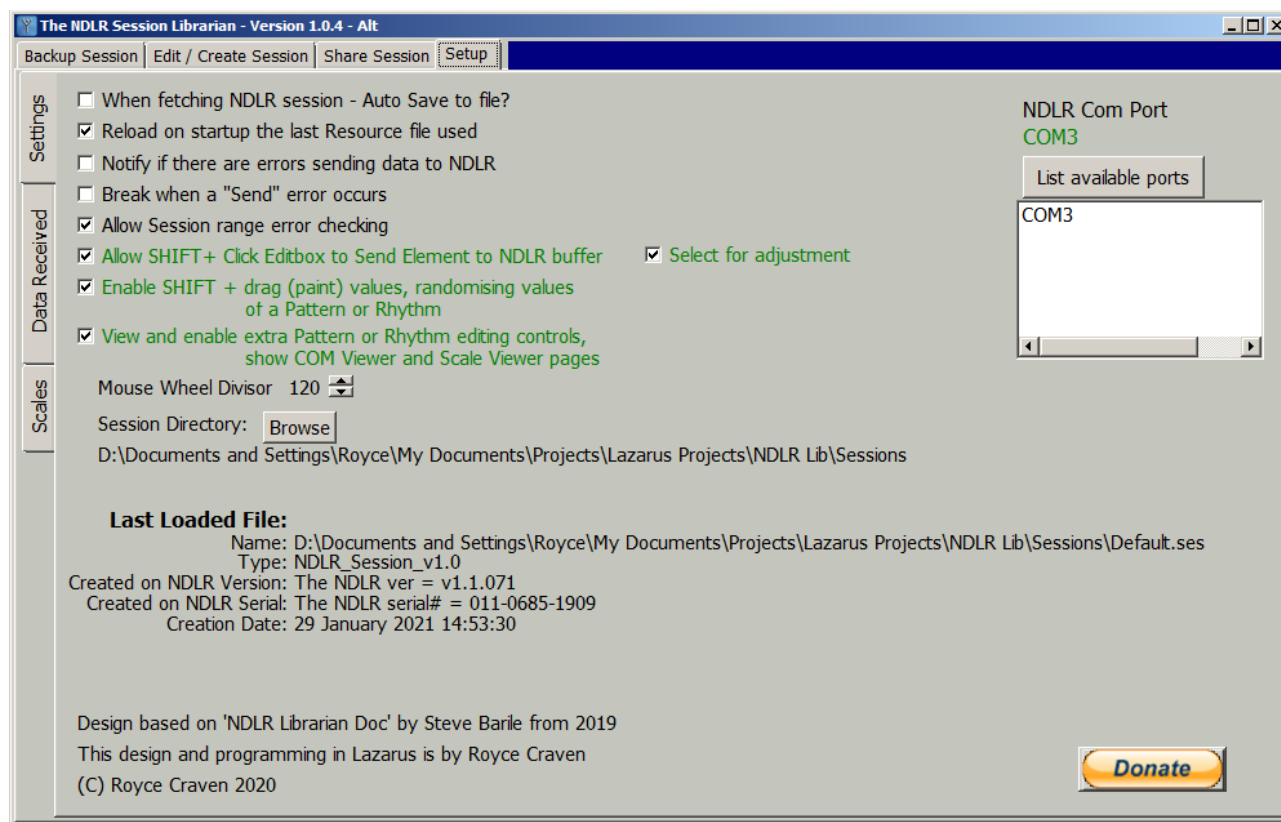
It is also the file that is loaded when the 'Load Default' button is pressed in the *Session Edit /Create* area. This is so you can start with a known data set when you create a new Session from scratch.

If you don't like the one I have included, you can give any session file the name 'Default.ses' and store it in the session directory. So feel free to create something that is more suitable to your needs.

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 COM port for the NDLR.



This is also where you can turn off the '**Auto Save**', as I have, when fetching data from the NDLR.

The **type** of file used in the Library are Session XML files with the file extension of *ses*. Two session files can be loaded at any time. The "NDLR session" is loaded from a file on disk or is the data fetched from the NDLR.

The other file is loaded from disk and called the Resource session. This is used as a source to copy Presets, Patches, Rhythms and Chord Sequences to build or change an NDLR session (which can then be sent to the NDLR 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.

The '**Allow SHIFT+ Click Editbox Send.....**' is about sending elements, like Patterns and Rhythms, to the NDLR as the NDLR is playing. This become the data the NDLR is playing.

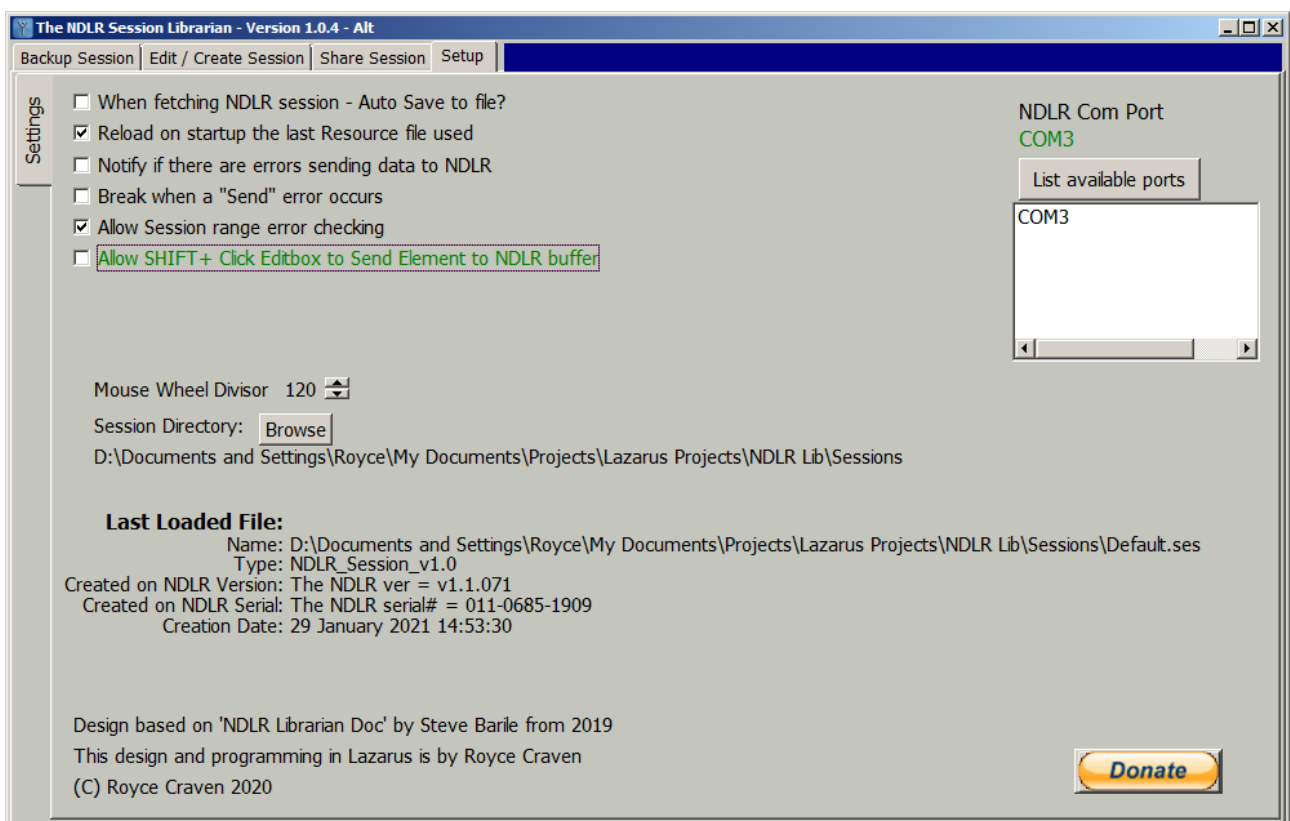
There are a couple of error settings that might be useful if things go wrong.

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 can enable the controls for '**Randomise**' and have **extra Pattern or Rhythm Editing. tools**.

With none selected, the program is in its simplest form (less cluttered) and this is what the first part of the manual will describe. The other features will be discussed later. The **Randomise** checkbox also prevents accidental '**paint values**' with the mouse and SHIFT key. The normal editing with mouse-wheel or cursor keys are always possible.

You can change the default location for the Session file by pressing the 'Browse' button. DON'T FORGET to have a Default.ses file in that new directory otherwise you will get errors in the program.

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 with the NDLR community.

As you know, there are two 'Session' areas in the Library program and up the top you can choose which one you want to send.

The 'NDLR Session' is where the 'Fetch' command puts the data coming in from the NDLR's COM port. When you save the data, it is given a filename and that name is displayed throughout the Library program.

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

The other area is called the 'Resource Session' and it is a read only session that is particularly useful in the 'Edit/Create Session' page. It can contain any one of your saved (*.ses) files. *RandTest.ses* was a file that reloaded on startup here.



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 with a some of the email information filled in.

I would have liked to automatically filled out all the information needed, but unfortunately there is no agreed way to insert an 'Attachment' with the *MailTo* form (at least I couldn't find one in Windows).

So the filename is placed in the clipboard. When your Mail program pops up with the new partially filled out email, click on your Mail's Attachment button and use CTRL+V to paste the file name into the attachment area and press OK.

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 NDLR file into the clipboard. You can then go to an application, such as file explorer, and paste in the file to that directory to copy it.. I thought that this might also be paste-able into a text file, but that doesn't seem to be true.

If you hold down the Control key and press the button, the filename (including the file directory) is put into the clipboard instead. You can then ALT+Tab flip over to a File Manager or internet browser window etc. and CTRL+V paste the name into a text document or use it to up load the file to a forum etc.

Edit/Create Session...

This 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 left.

As you know, the library uses two session areas, the NDLR Session that is writable and the Resource Session that is only readable. To load the Resource session you have to press the 'Open File' button in the top right green area.

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.

The 'Clear Session' button loads the 'Default.ses' file (either yours or mine) into the NDLR area so you can start afresh. **To rearrange the current NDLR Session just (fetch,) save and then load it into the Resource Session area.** You might like to then save the edited NDLR again with a different name.

Drag and Drop – all elements: Dragging can only be FROM the Resource Listbox, on the right, over TO the edit boxes on the left.

New: You can now drag and drop single editboxes (on each page).

eg drag 'Preset 5' to 'Preset 3' and the two will swap places. A quick way to reorganise any elements.

Drag from one elements edit box and the data from that element is SWAPPED with the data in the receiving element.

Hold down the SHIFT key as you drag and the data from the element you grabbed is COPIED over the data in the receiving element. Leaving you with two copies of that data.

The screenshot shows the 'The NDLR Session Librarian' window. It has a menu bar with 'Backup Session', 'Edit / Create Session', 'Share Session', 'Setup', and 'Use the 'NDLR 3' preset in the 'Live Set' page 2'. Below the menu bar, there are two main sections: 'NDLR' (blue background) and 'Resource' (green background). The 'NDLR' section has buttons for 'Send Session', 'Clear Session', 'Save to File', and 'Open File'. The 'Resource' section has an 'Open File' button. On the left, there are tabs for 'Presets', 'Patterns', 'Rhythms', and 'Chord Sequences'. The 'Presets' tab is selected, showing 'NDLR Presets' and 'Resource Presets'. The 'NDLR Presets' section has a list of 8 presets: Preset 1 MODX //l, Preset 2 MODX, Preset 3, Preset 4, Preset 5, Preset 6, Preset 7, and Preset 8. The 'Resource Presets' section has a text area with the following text: MODX Multi //This has NDLR M, MODX & Wavestate //through Mid, 'The Deep' //Title track for 'The D, 'The Deep' //Cut 2, 'The Deep' //Credits, Preset 6, Preset 7, and Preset 8. Below the preset lists, there are several tables. The first table is for 'DRONE' with columns: Midi, On, Octave, Notes, and Trigger. The second table is for 'PAD' with columns: Midi, On, Position, Strum, Range, Spread, Poly, Invert, Quantize, and Velocity. The third table is for 'MOTIF' with columns: Midi, On, Pos, Vel-Hi, Low, Patt, Len, Vari, Rhym, Len, Clk Div, Accent, Vari, and Offset. The fourth table is for 'MOD' with columns: MOD, Source, Mod Amt, Destination, and Dest Val. The fifth table is for 'LFO' with columns: LFO, Shape, Rate, and Probability. The 'Store Presets' button is at the bottom right.

DRONE	Midi	On	Octave	Notes	Trigger
10 - USB 1	Off	4	1 - x - x	●●●● On 1	

PAD	Midi	On	Position	Strum	Range	Spread	Poly	Invert	Quantize	Velocity
09 - USB 1	Off	50	None	10	Rt+Open+Clo	1	On	1/4	127	

MOTIF	Midi	On	Pos	Vel-Hi	Low	Patt	Len	Vari	Rhym	Len	Clk Div	Accent	Vari	Offset
1	11 - USB 1	Off	8	127	75	1	8	--->	1	8	÷4	RhymVel	0%	0
2	12 - USB 1	Off	6	127		2	8	<----	14	8	÷4	RhymVel		0

MOD	Source	Mod Amt	Destination	Dest Val
1	MOD 2	20%	PadPosi	50
2	MOD 3	30%	PadRange	50
3	MOD 5	40%	GlobalKey	1
4	ModWheel	50%	ChrdDegree	3
5	AfterTouch	60%	Mot2Posi	17
6	LFO 1	70%	CC 6	01 - USB 4
7	LFO 2	80%	CC 39	01 - DIN A
8	LFO 3	90%	DroneType	3

LFO	Shape	Rate	Probability
1	Triangle	5.0s	100%
2	Saw	10.0s	100%
3	Square	16 Beats	100%

Click and highlight a line in the Resource Listbox with the left mouse button (remembering to keep the mouse button down) and 'drag' the mouse cursor to the Editbox, on the left, you want to store it to and all the data from that Resource Session element will be copied to the Editbox's element in the NDLR Session.

You can use the SHIFT or the CTRL to select multiple lines in the Resource Listbox (remember to hold the left mouse button on the last click) 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 will be ignored.

Eg Select 'Preset 2' to 'Preset 7' in the Resource and drag them to Preset 6 Editbox.

Then 2 → 6, 3 → 7, 4 → 8 and Resource Preset 5 to Preset 7 don't get 'dropped' anywhere.

Of course, Resource elements can only be dropped to the same type of NDLR elements.

When you click on an editbox or a name in the Resource listbox the contents (or a lot of it in the case of a Preset) is displayed for you so you can see what the 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: Although there are no data names inside the NDLR, in the Library there are editable names for for each Preset, Pattern, Rhythm and Sequence. SO these names only occur in the Session file and it is there to help you remember what each element was used for.

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

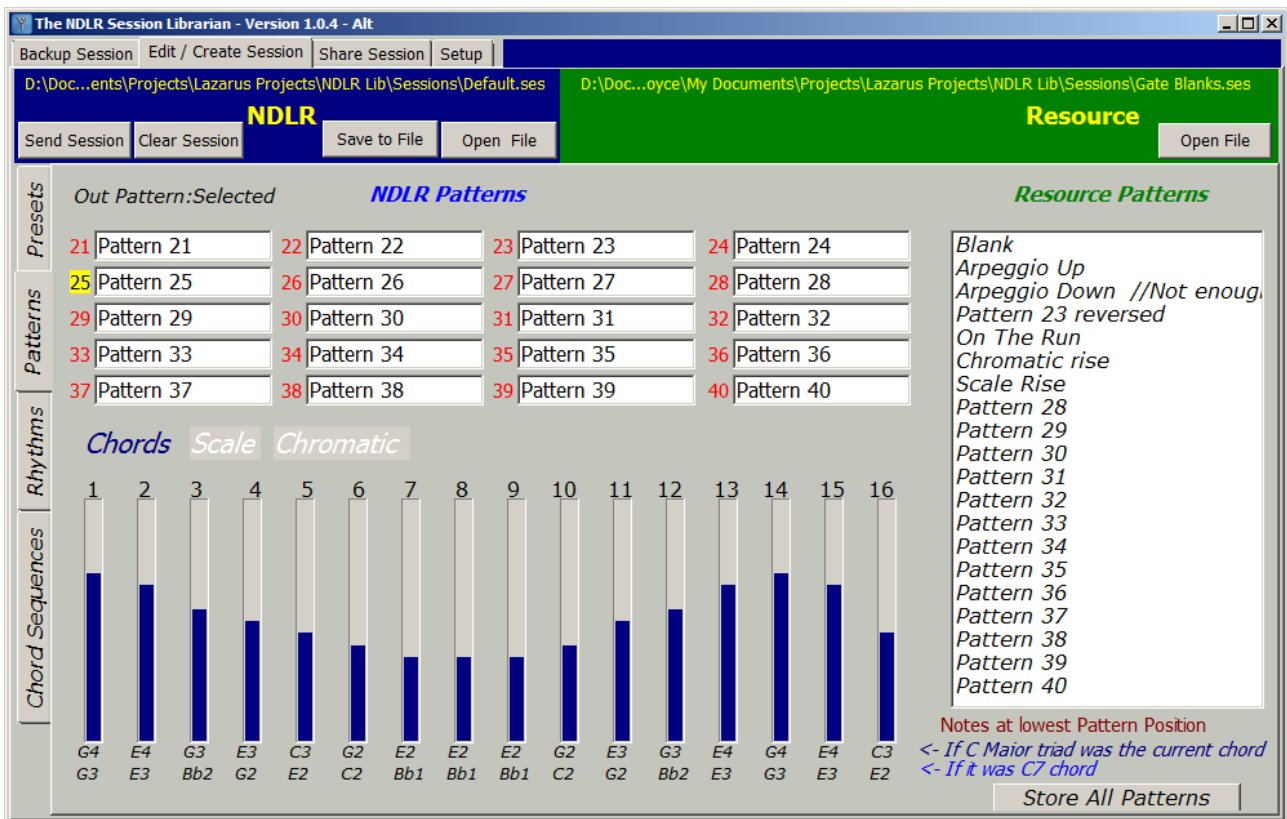
Adding two forward slashes '/' anywhere in the name will display everything coming after it in the blue message area at the top of the screen. *See above 'Use the NDLR 3' preset...' in Preset 1*

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

Clicking on either an edit box in the NDLR area or an entry in the Resource Listbox brings up the extra information from the element's data.

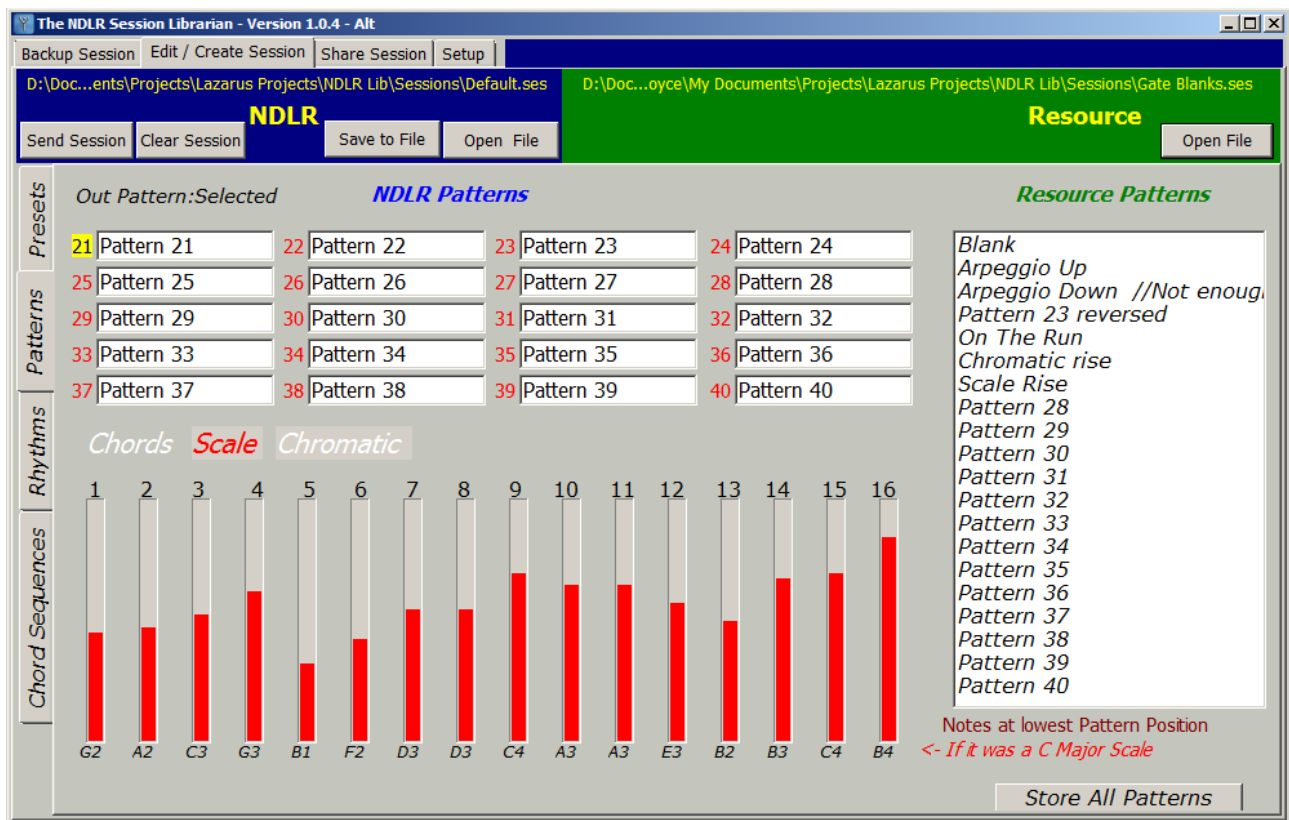
This first stuff applies to the Pattern & Rhythm pages

Patterns page: Showing the detail of the steps allows you to easily see what the Pattern is that you clicked on, 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 of 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, just as a guide, I have used the notes of a C7 chord to show what happens if you are playing a 4 note chord as well as a label with one of the 3 notes if it was a C Major Triad.



Above is a picture of a Scale pattern from the currently loaded Resource 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 and although unaffected by mode it is still affected by Key and Position.

The NDLR Session Librarian - Version 1.0.4 - Alt

Backup Session | Edit / Create Session | Share Session | Setup

D:\Doc...ents\Projects\Lazarus Projects\NDLR Lib\Sessions\Default.ses | D:\Doc...oyce\My Documents\Projects\Lazarus Projects\NDLR Lib\Sessions\Gate Blanks.ses

NDLR | **Resource**

Send Session | Clear Session | Save to File | Open File | Open File

NDLR Patterns

21 Pattern 21	22 Pattern 22	23 Pattern 23	24 Pattern 24
25 Pattern 25	26 Pattern 26	27 Pattern 27	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
- Pattern 23 reversed
- On The Run
- 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

Chord Sequences

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
F#3	Eb3	A 2	F#2	Eb2	C 2	A 1	A 1	A 1	C 2	F#2	A 2	Eb3	F#3	Eb3	Eb2

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

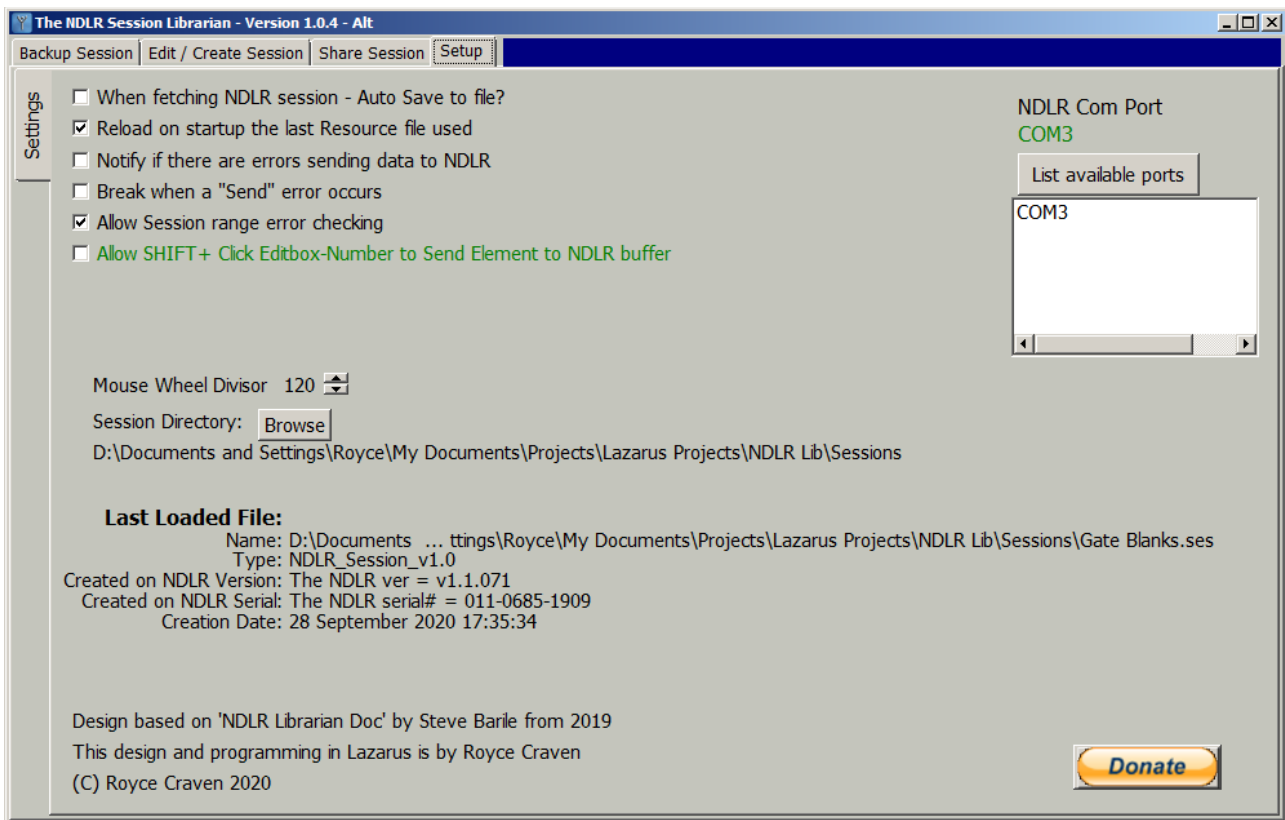
Store All Patterns

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. This is because the Resource is read only and the displayed data is locked.

Sending the separate Elements back to the NDLR

Goto the Setup tab and click the 'Allow SHIFT + Click Editbox-Number....' checkbox to enable this feature.



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

If you click on the button while holding down the SHIFT key you send all 20 User Patterns, **ready to use, but they aren't saved to flash so they are lost when power is removed.** This is good when you are testing things or adding Patterns during performance

You can send any of the NDLR session patterns to the NDLR buffer by HOLDING the SHIFT and clicking in the **editbox-number** of the pattern. Left click sends it to the buffer but **doesn't save** it. Clicking with the right button sends it to the buffer **and does save it to flash.**

In both cases it re-names sends the data as if it can from whatever the **Out Pattern** destination (top left) is set to.

If all this SHIFT and CTRL stuff is hard to remember, hold down F1 to display a list.

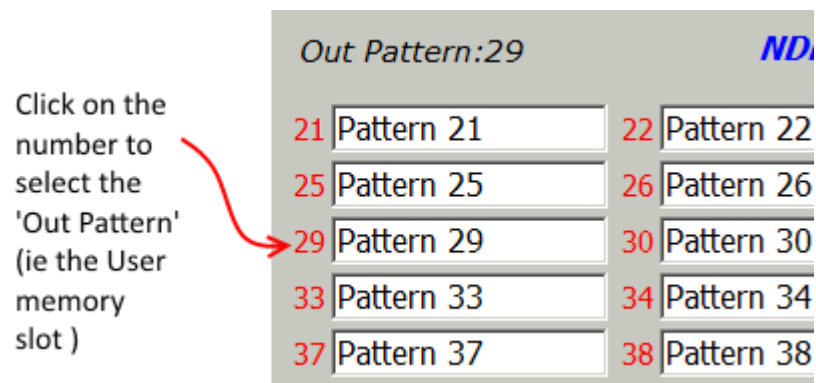
If it is in 'Selected' mode (click on the 'Out Pattern' label to make it 'Selected') the number is the selected Editbox number. *See above 25 is selected, so it goes to Pattern 25 on the NDLR.*

The 'Out Pattern' number can be an editbox number by left clicking (with NO keys down) the red label beside the editbox.

This is a quick way to put an element in any slot around on the NDLR.

For example, if Pattern 29 is selected and playing on Motif 1, selecting Out Pattern to be 29 means

that any Pattern number you SHIFT + Left click will be renamed as Pattern 29 and overwrite the buffer and Motif will switch to playing that Pattern.



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

EDITING Element Data

As a lot of the NDLR's data is displayed in the Library, it seems a pity not to be able to edit it.

Basic Pattern Editing : Over the vertical bars the editing controls are mouse based as I find a mouse with a centre wheel is particularly good for editing controls. You can use left (+) or right (-) mouse button click instead of the mouse wheel if you don't have a wheeled mouse.

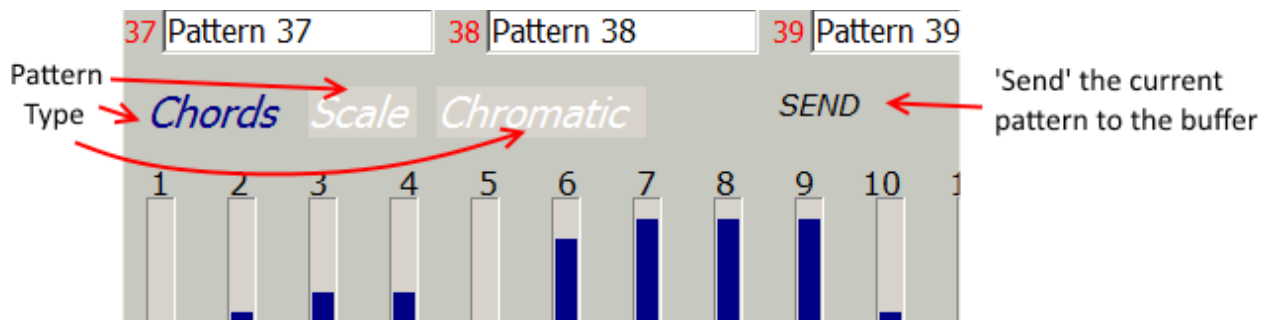
Hovering over a bar and rolling the middle mouse wheel (or + and – keys) will change the value of that step by 1 per detente click of the middle wheel (you may need to go to the Settings page to adjust the MouseWheel setting).

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 if it is in Chord, Scale or Chromatic mode). [These changes are written back to the NDLR Session in the computer memory. Don't forget to save the Session.](#)

A '**SEND**' label appears when anything is changed. Clicking on the SEND label will send the freshly edited Pattern to the NDLR buffer. That is, it **won't** be saved inside the **NDLR's Flash** memory, but it will be played by the NDLR. Then the 'Send' label vanishes so you know there is nothing new to send. Again this is great for a small tweak that you can test **without stopping** the NDLR playing.

If the NDLR Motif is playing, the changed pattern will take over from the old one and play on the currently selected (visible) Motif. Nothing permanent has changed inside the NDLR memory. If you turn encoder 6 back and forward it will reload the old pattern from memory. So you can test out all your experiments in real time.

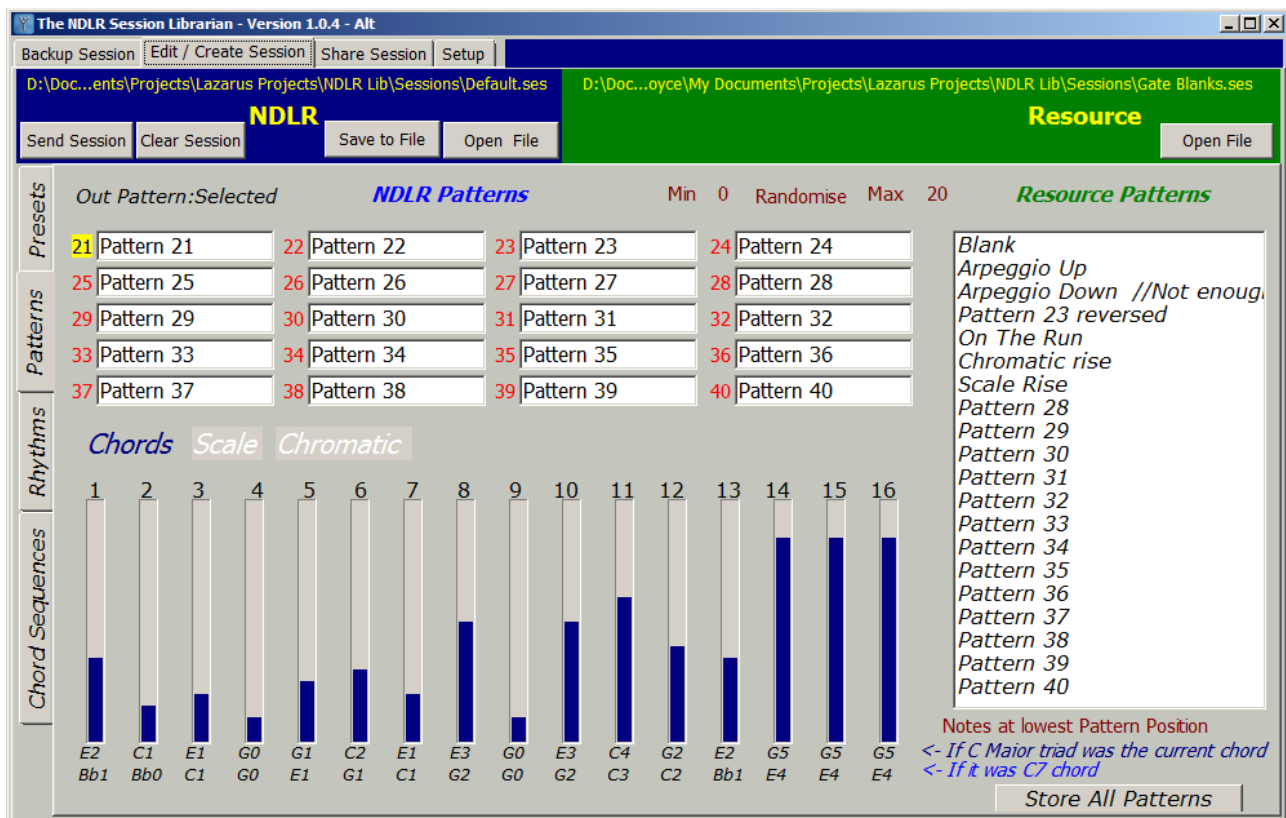
Pattern Type Change: Click on the light coloured words, 'Chord', 'Scale' or 'Chromatic'. You can change the type of pattern from Chord to Chromatic to Scale and back again. This will take the current step values and scale them so the contour is the same (looks the same) in the new Pattern type and sends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



Adding Extra Editing Tools

Now for some of the extra elements, goto the Setup page. You will remember when you clicked the first Green checkbox in the Setup page another checkbox line appeared. You will need to make sure you have selected both the first two **GREEN** options. The second one turns on the Randomisation and SHIFT + drag 'painting' functions.

Here is what appears when you do select it.



Paint a Pattern: Position your mouse cursor over any step's vertical bar. When you hold the SHIFT key, if you move the mouse a bit the bar will jump to the position of the mouse cursor. Good for quick big change, then you can fine tune it with the mouse wheel or left or right click.

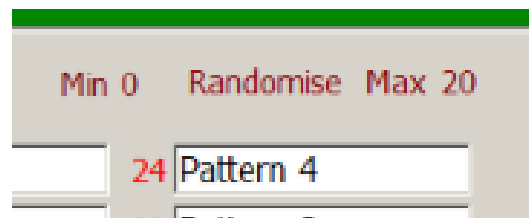
Because you are NOT making a change to all the steps, the SEND label appears rather than being auto-sent. Click the SEND label to hear the change with a playing Motif.

If you position the cursor to either side of the step 'bars', **hold** the SHIFT key down and then drag across the bars, the Step values will jump to the mouse cursor as if the cursor is a magnet or, perhaps, painting a line of new values.

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.)

You may need to make some fine tuning so this 'painting' action is 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 sets 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).

I would say that a small range would be the normal setting, but try it at different ranges to see what works for you.

This action changes all the steps so the Pattern is auto-sent to the NDLR buffer (no flash save) after each randomisation.

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

Click on 'Min' (or 'Max') to reset to 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.*

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: *Although there are hundreds of thousands of writes possible to flash memory it will eventually wear out. As, as far as I understand, the buffer memory isn't flash memory, there is no reason why you can't do lots this Pattern / Rhythm creating during a performance on stage or in your bedroom studio while recording without wearing out the NDLR.*

Of course, you could use this to just extend the number of User Patterns and Rhythms during a performance.

There are some things you need to know though:

Sending a Pattern or Rhythm to a NDLR as it is playing will make the visible Motif respond.

Say Motif 2 is selected (visible in the box) and you send a 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 also read the newly filled buffer.

Eg Set the different Motifs to different User Patterns. Motif 1 = 21 and Motif 2 = 22.

Now you can send a new Pattern to 21 for Motif 1 to play and send a Pattern to 22 for Motif 2.

This is one use of the 'Out Pattern' number. Click the Editbox-Number 21 to set the Out Pattern to 21 for Motif 1 or or 22 for a new pattern for Motif 2 to play.

Or Just swap between them using the 'Panic 1 / 2' white button remembering that the now hidden Motif is playing the Pattern number you just sent.

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

- 1) Select pattern 21 for Motifs1 then swap to Motif 2 with the white button.
- 2) Click the label next to Editbox '21' and the 'Out Pattern' number will be 21 and start making changes (and click 'Send' if it doesn't have auto-send) with Type change, Painting, Mouse wheel or Randomisation.

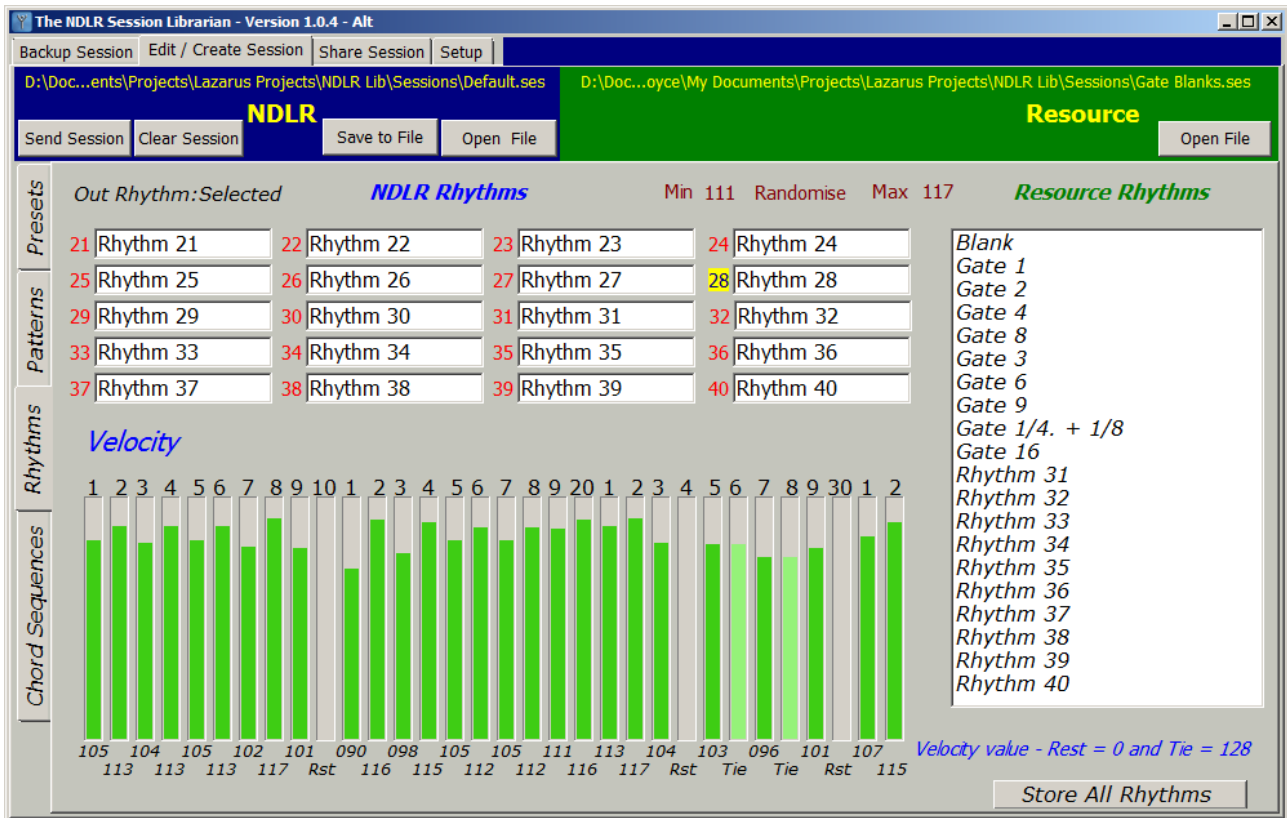
'Selected' makes the 'Out Pattern' to be the selected Editbox you clicked in. Click on the 'Out Pattern' label to reset it to 'Selected'. It is a bit confusing reading about it but you will get the idea once you have tried it out.

You can change things like the pattern length or playback type or time etc on the NDLR even though both Motifs are using the same pattern.

Rhythm page:

This is similar to the Pattern page (see above), but here are some differences.

Click on the number below the bar to move the value to a 'Rest' (0) or a 'Tie' (128).



Of course, the Randomisation function is for the Velocity value of the note.

You will remember that the velocity value for a Tie = 128 and the Rest = 0.

So that you don't miss out on random rests and ties during randomisation with a reduced range, if the generated value = Min a rest is written and when the generated 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 velocity.

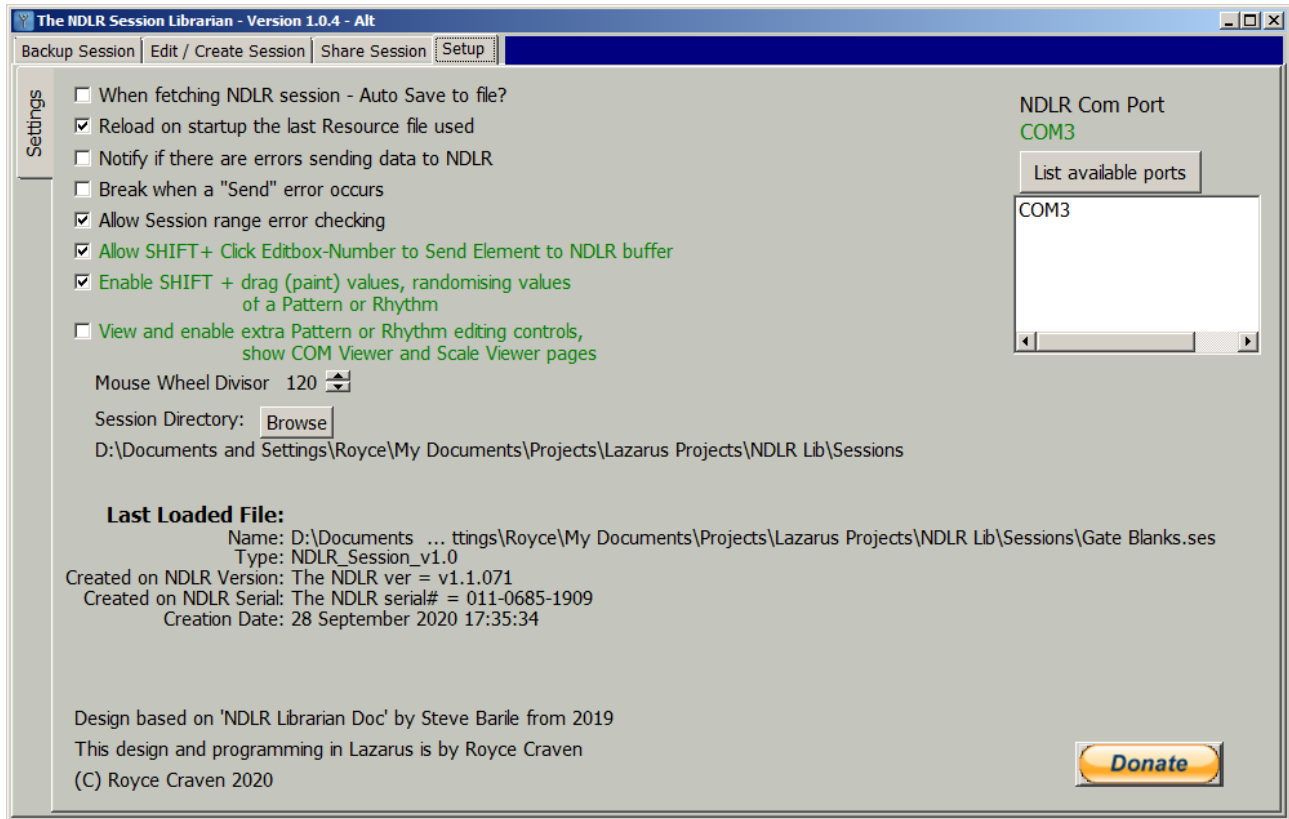
For example, if you want a loud velocity range, say between 100 and 120 then set the Min to 99 and the Max to 121. Every time the random value is 121, a tie (128) is substituted for the value and every time 99 is randomly produced a rest (0) is substituted for that 99 velocity.

SHIFT + mouse move at the desired velocity to remove the tie or rest if one is in the wrong spot.

'Extra Motif Editing'

This Applies To The Pattern & Rhythm & Settings Pages

In the Settings page there is a **GREEN** checkbox called '...enable extra Pattern or Rhythm editing...'. It is for the Pattern and Rhythm pages, but also adds some data viewing pages to the Settings area.



This is what appears when you check the checkbox the 'View and Enable Extra Pattern or Rhythm editing controls...'

Start with a scale Pattern...

Roll: This is not like an aeroplane 'roll', but comes from a computer term that really means to slide along – backwards or forwards.

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 out of phase. The Mousewheel can be used over the arrow buttons.

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

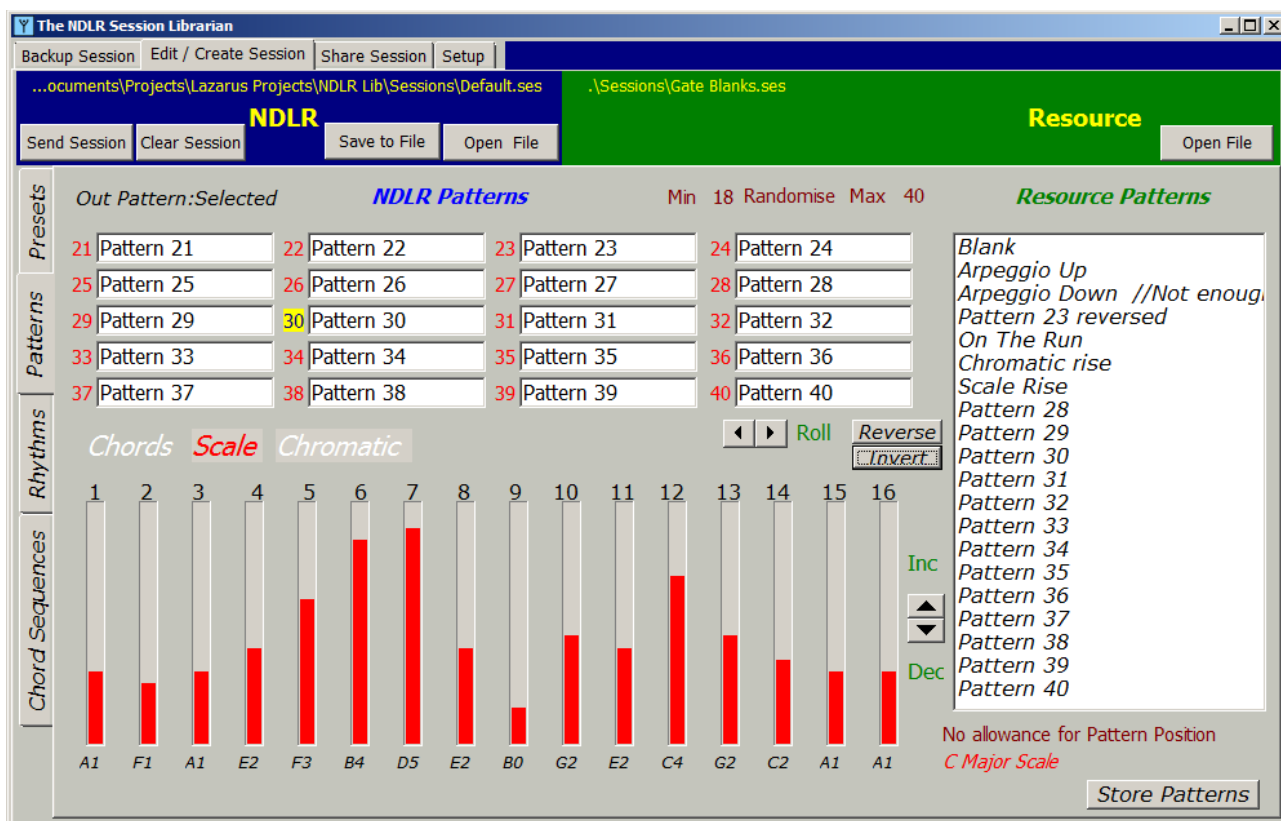
The screenshot shows the 'The NDLR Session Librarian' window. The top menu bar includes 'Backup Session', 'Edit / Create Session', 'Share Session', and 'Setup'. Below the menu, there are buttons for 'Send Session', 'Clear Session', 'Save to File', and 'Open File'. The main area is divided into several sections:

- NDLR Patterns:** A grid of 40 patterns (21-40) is displayed. Pattern 30 is highlighted in yellow.
- Resource Patterns:** A list of patterns on the right side, including 'Blank', 'Arpeggio Up', 'Arpeggio Down', 'Pattern 23 reversed', 'On The Run', 'Chromatic rise', 'Scale Rise', and 'Pattern 28' through 'Pattern 40'.
- Chord Sequences:** A bar chart showing 16 chords. The chords are: C4, C4, A3, D3, A1, F3, D3, B4, F3, G0, B0, E2, F3, C4, E4, C4. The bars are red, and the chart is labeled 'Chords', 'Scale', and 'Chromatic'.
- Roll Action:** A 'Roll' button is visible, along with 'Reverse' and 'Invert' buttons.
- Inc/Dec:** 'Inc' and 'Dec' buttons are located near the chord sequences.
- Store Patterns:** A button at the bottom right.

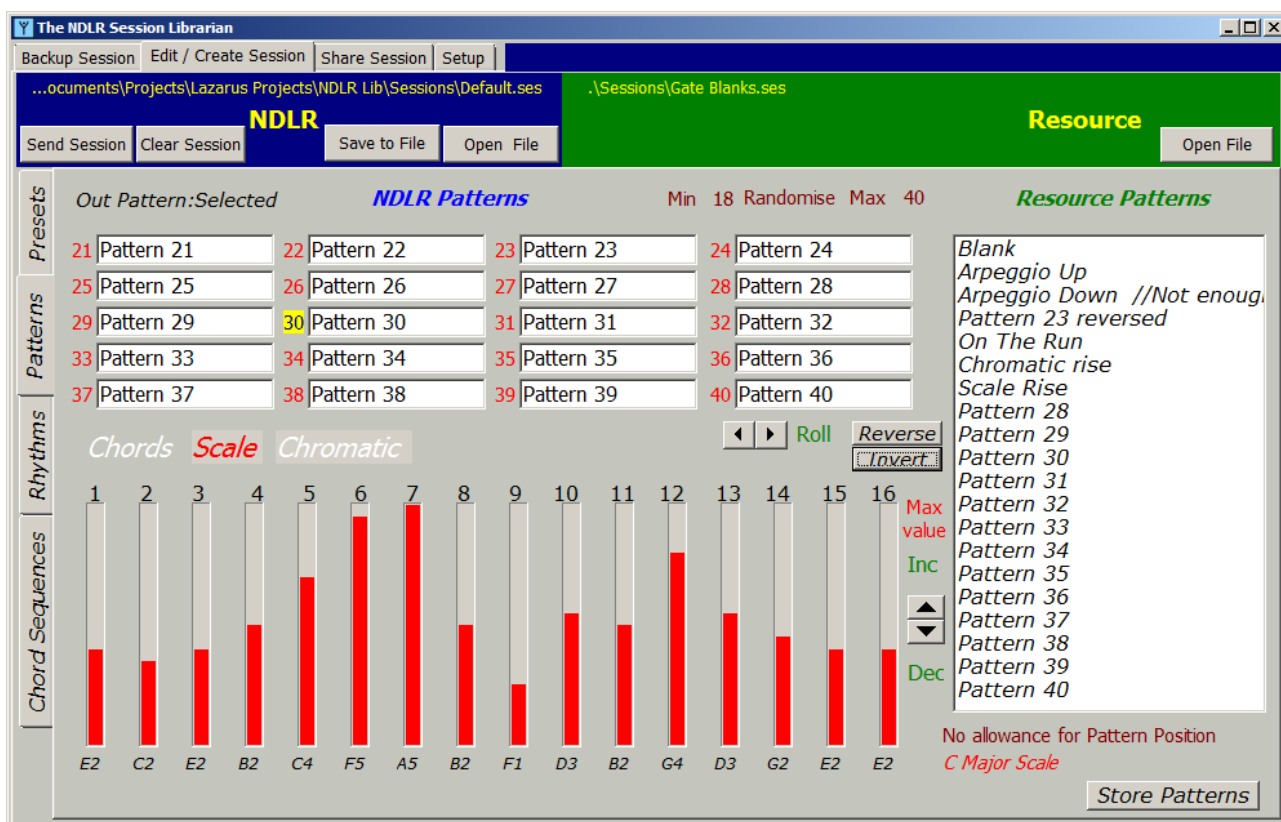
Reverse: Playing the Pattern/Rhythm backwards. Standard counterpoint technique. 1 and 16 swap. 2 and 15 swap ...etc

This screenshot is similar to the one above, but it shows the 'Reverse' action applied to the pattern. The 'Roll' button is now disabled, and the 'Reverse' button is active. The chord sequences have changed to: C4, E4, C4, F3, E2, B0, G0, F3, B4, D3, F3, A1, D3, A3, C4, C4. The 'Inc' and 'Dec' buttons are still present, and the 'Store Patterns' button is at the bottom right.

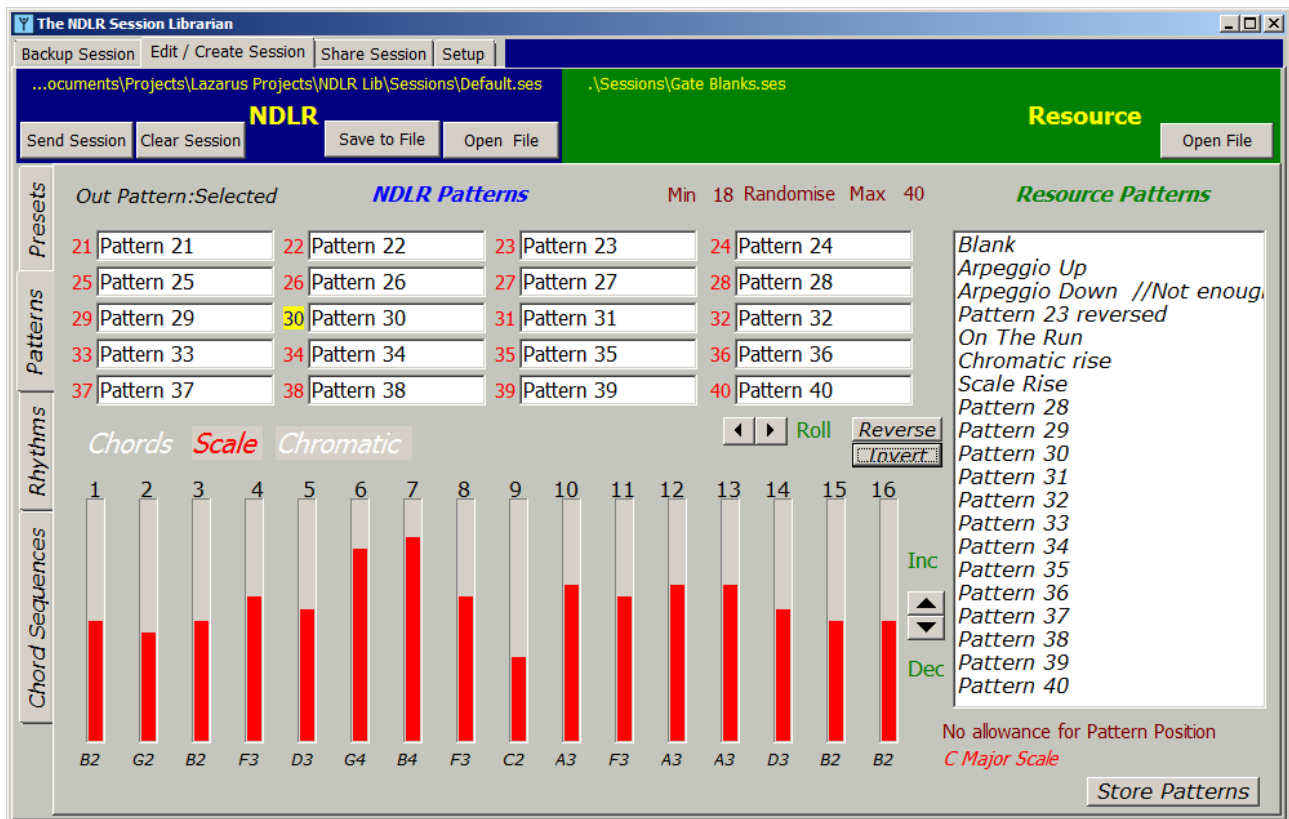
Inverse: Reflecting the pitches in a horizontal axis. Another standard counterpoint technique



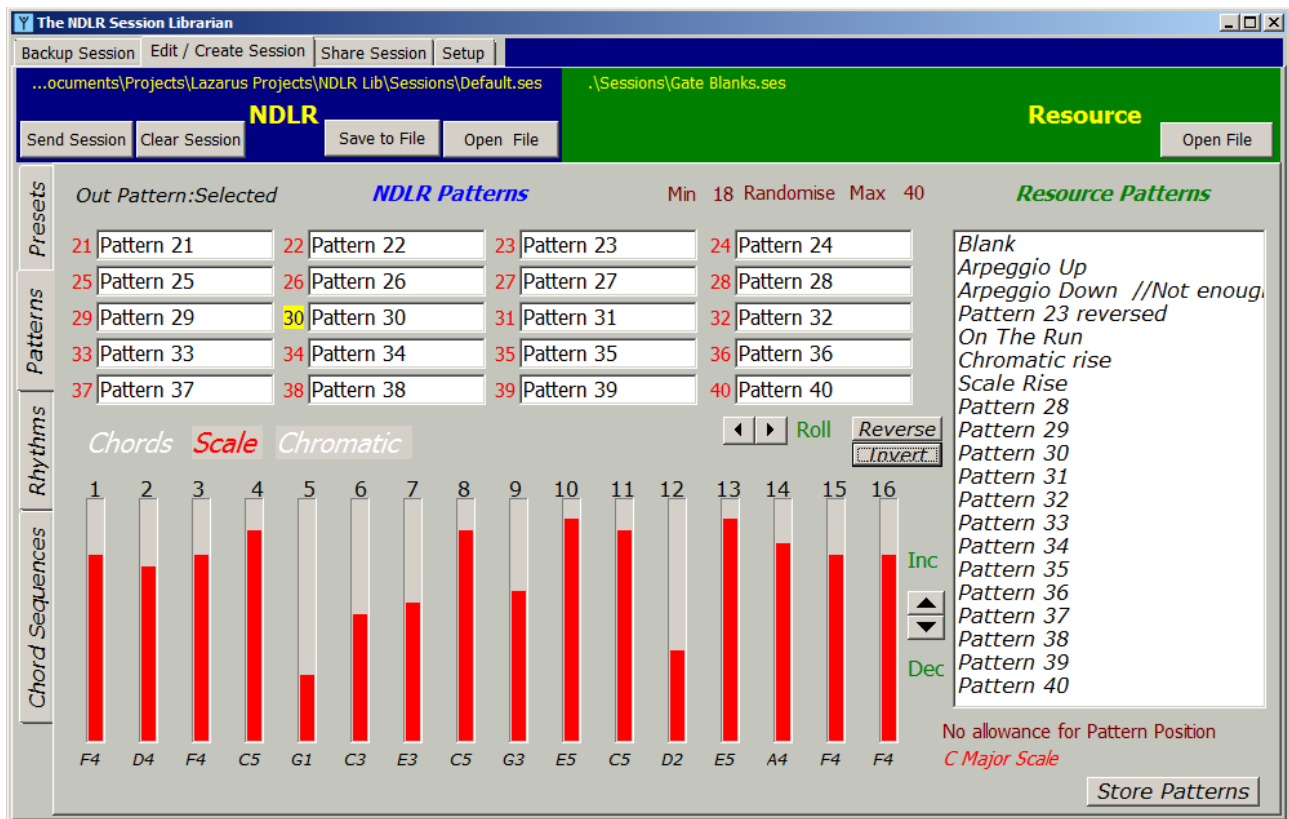
Increment and Decrement: This is like the 'Position' control on the NDLR for Patterns. You can also use the Mousewheel over the buttons to speed the change up.



Increment and Decrement + SHIFT: This compresses/decompresses the pitch range maintaining the melodic shape. It uses a horizontal line at the median with some values increasing and some reducing.

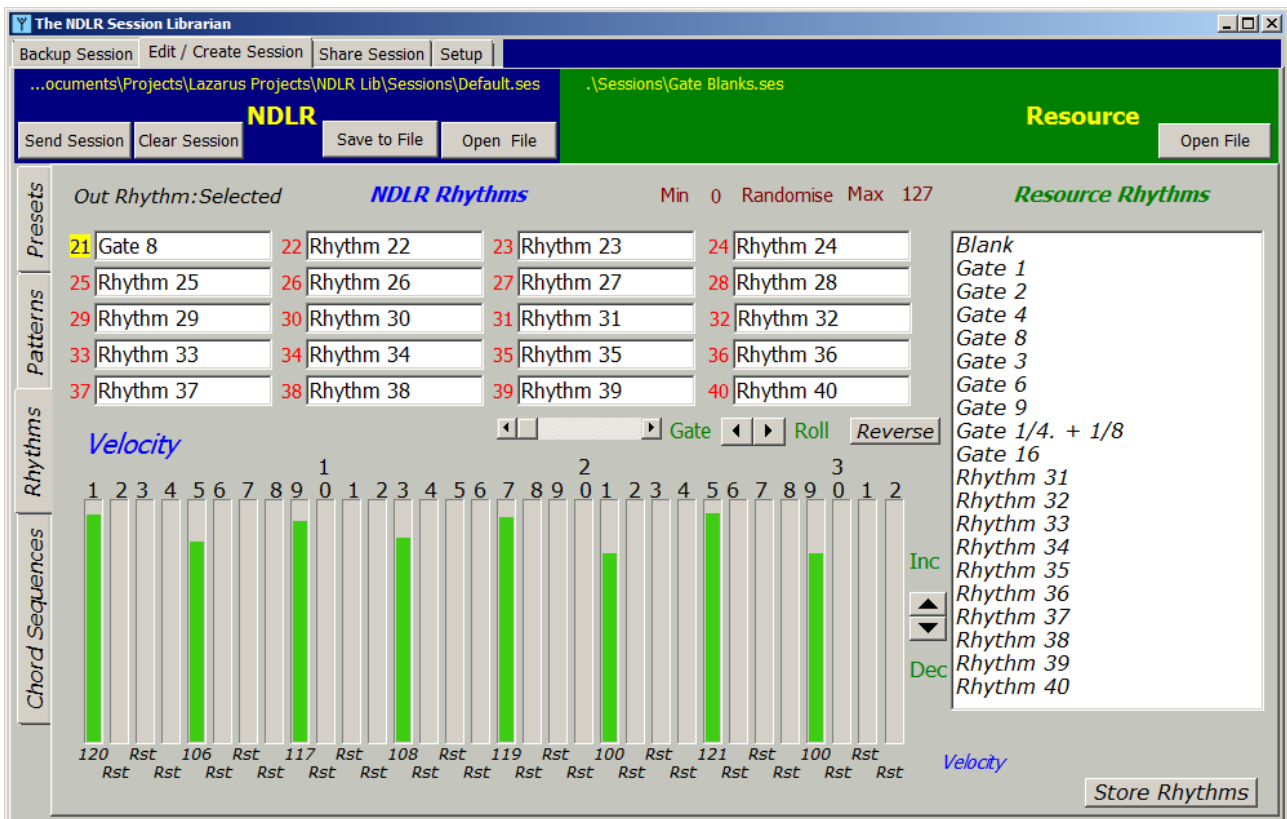


As it keeps going past the median it creates a new contour.

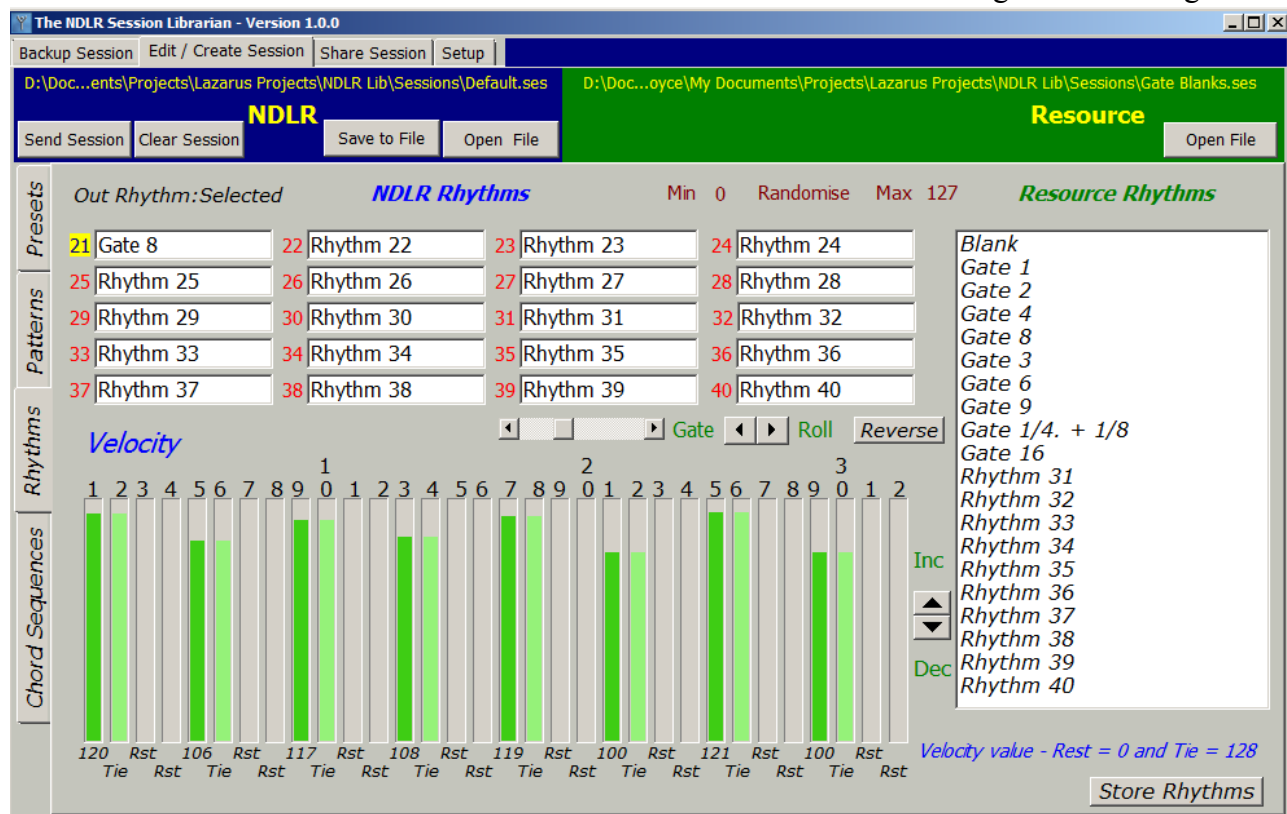


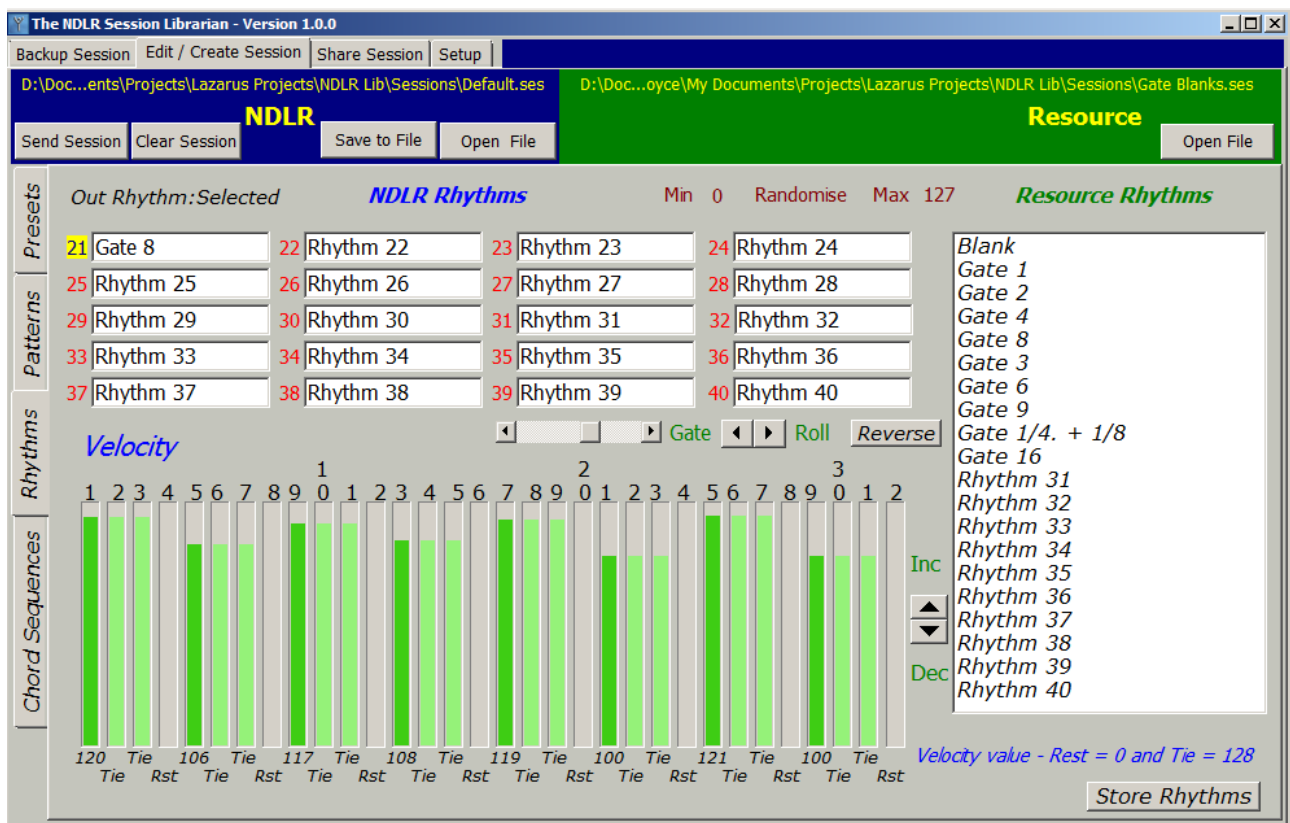
This is of most use on the pitches in the Patterns, but also interesting to compress/decompress the velocity.

Rhythm Only: There is no inverse button in the velocities

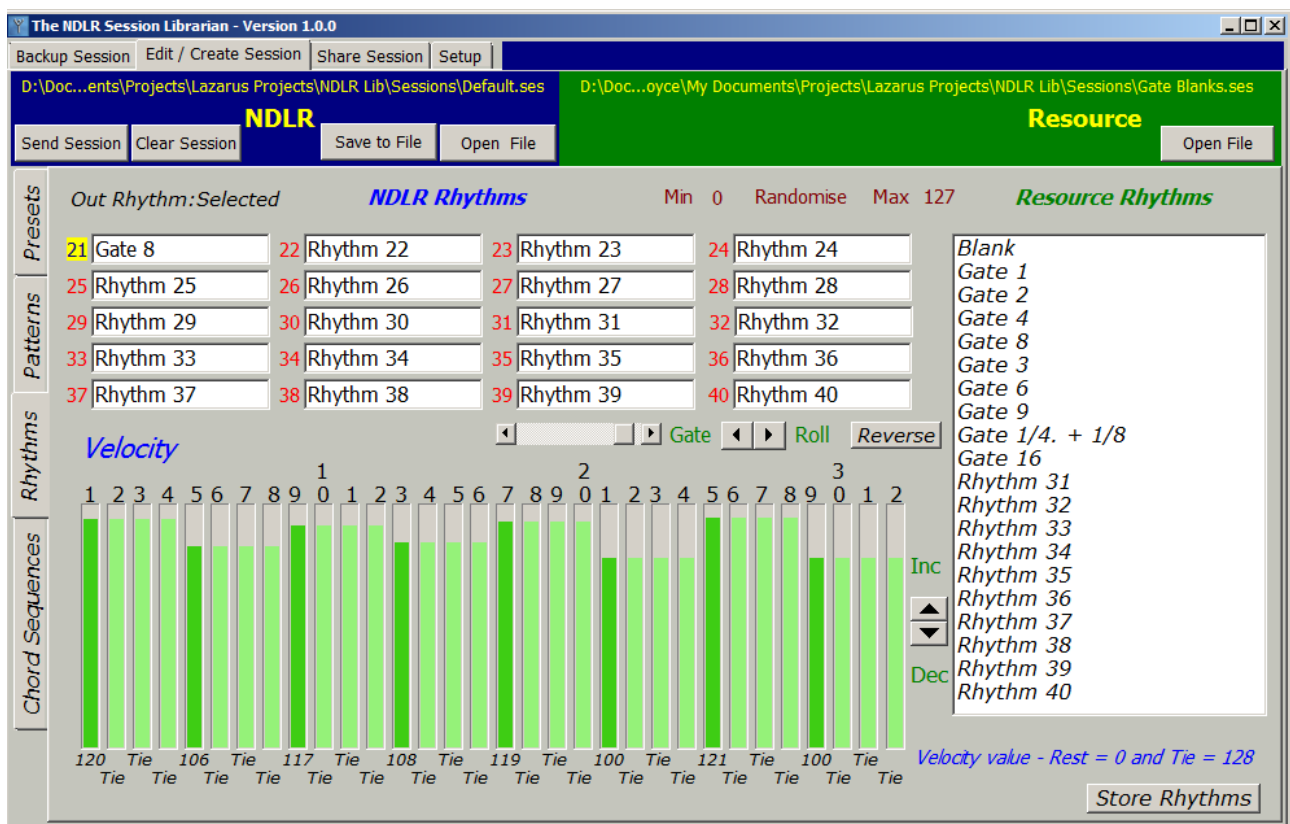


Creating a Gated Note: A gated note is an electronic music term that means shortening the duration of a note, like staccato, but staccato is generally not a precise term and has varied through time and between styles. Some say it is 'half the value of the note' but it is very different from a note of half the value and a rest', which has me scratching my head. Gate values are more precise. Here is the traditional staccato of 1/8 notes in 4/4 time. The Gate slider is moved right for more legato.





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



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.

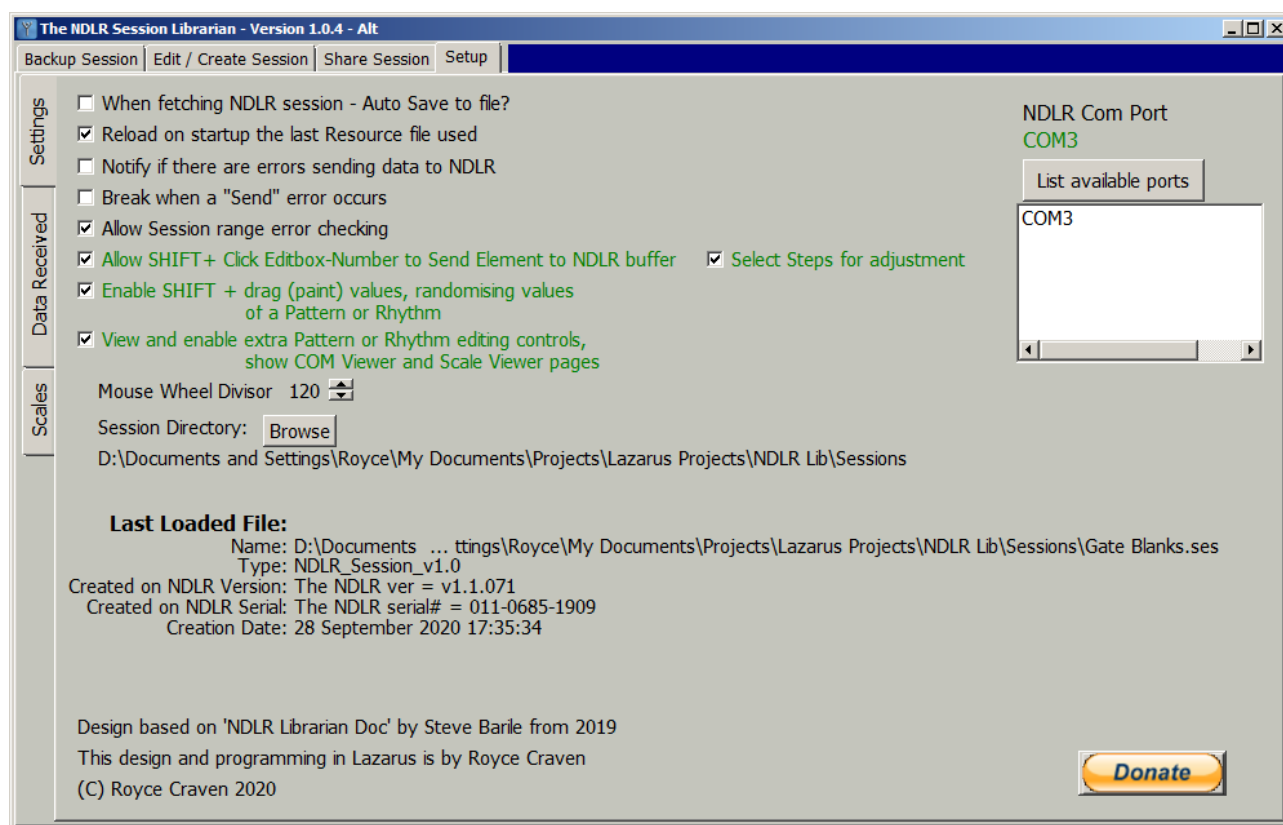
÷4 would be the note plus 3 ties and 4 rests.

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

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

New Feature in v1.0.4 – Edit Selected steps

Go to the Setup page and select the green checkbox 'Select Steps for adjustment'

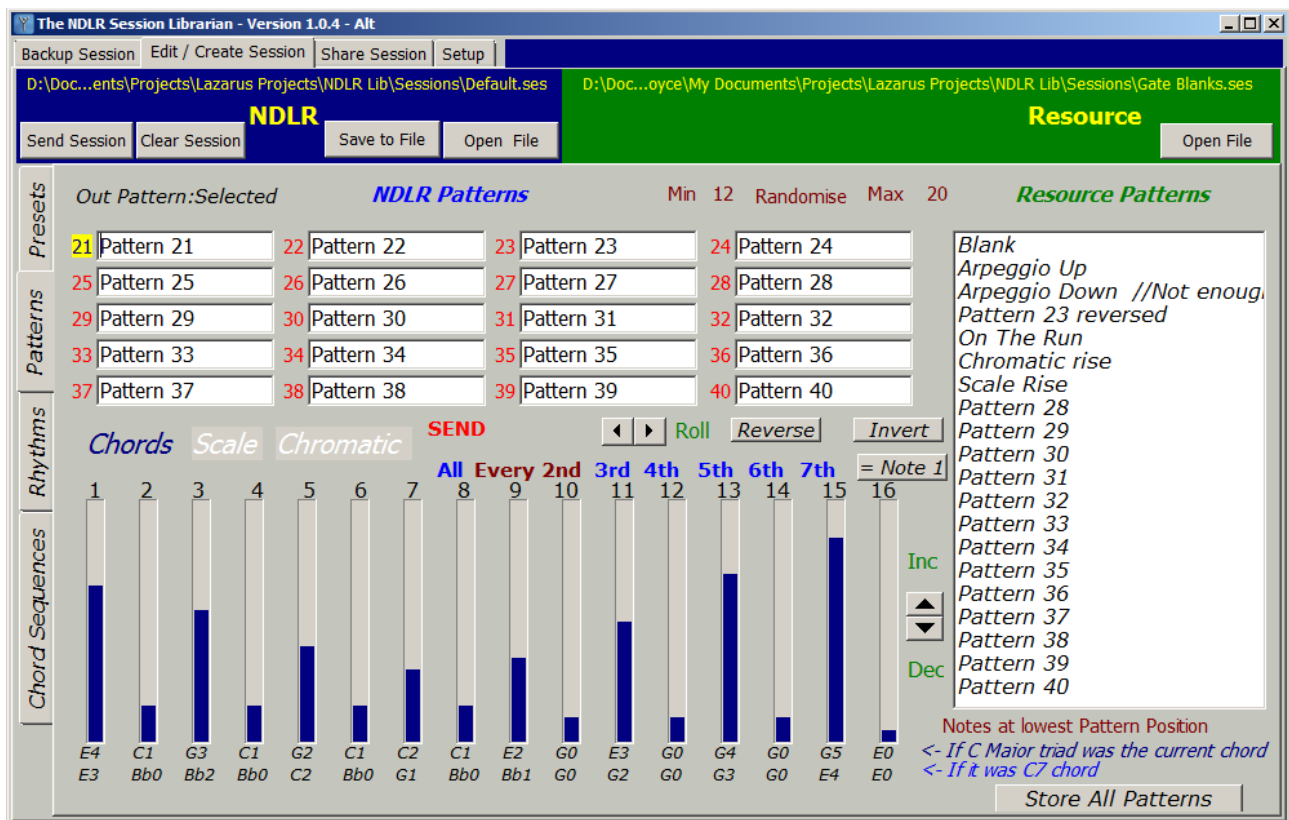


You select a group of steps, perhaps every 2nd step, and the edit actions are applied to only those steps.

The pattern in the picture below was created by SHIFT+mouse moving (painting) values, then clicking Roll left button once to move the odd steps to even steps and then painting those values.

You can always roll it back a step to the right.

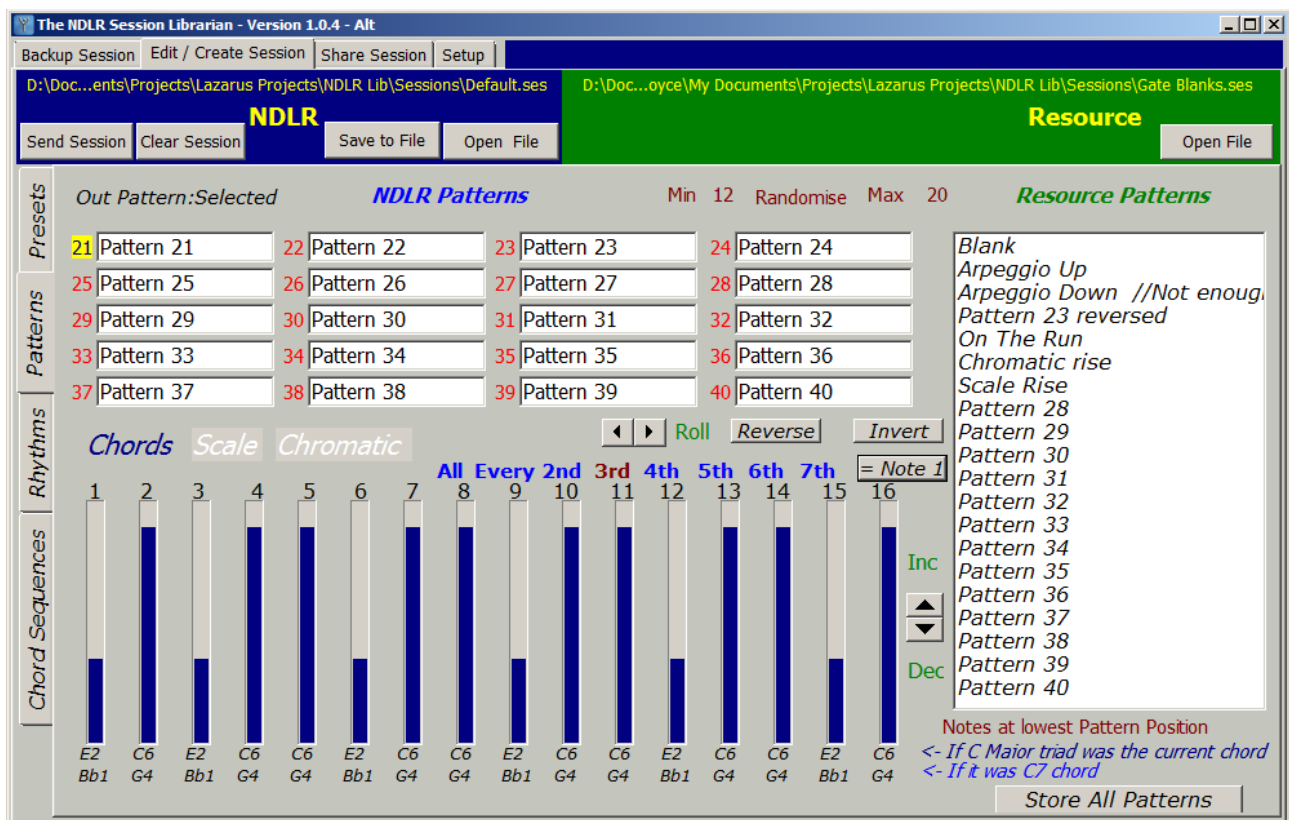
THE SELECTION ONLY APPLYS TO 'Painting' "Invert", "Inc", "Dec" and "=Note1" buttons.



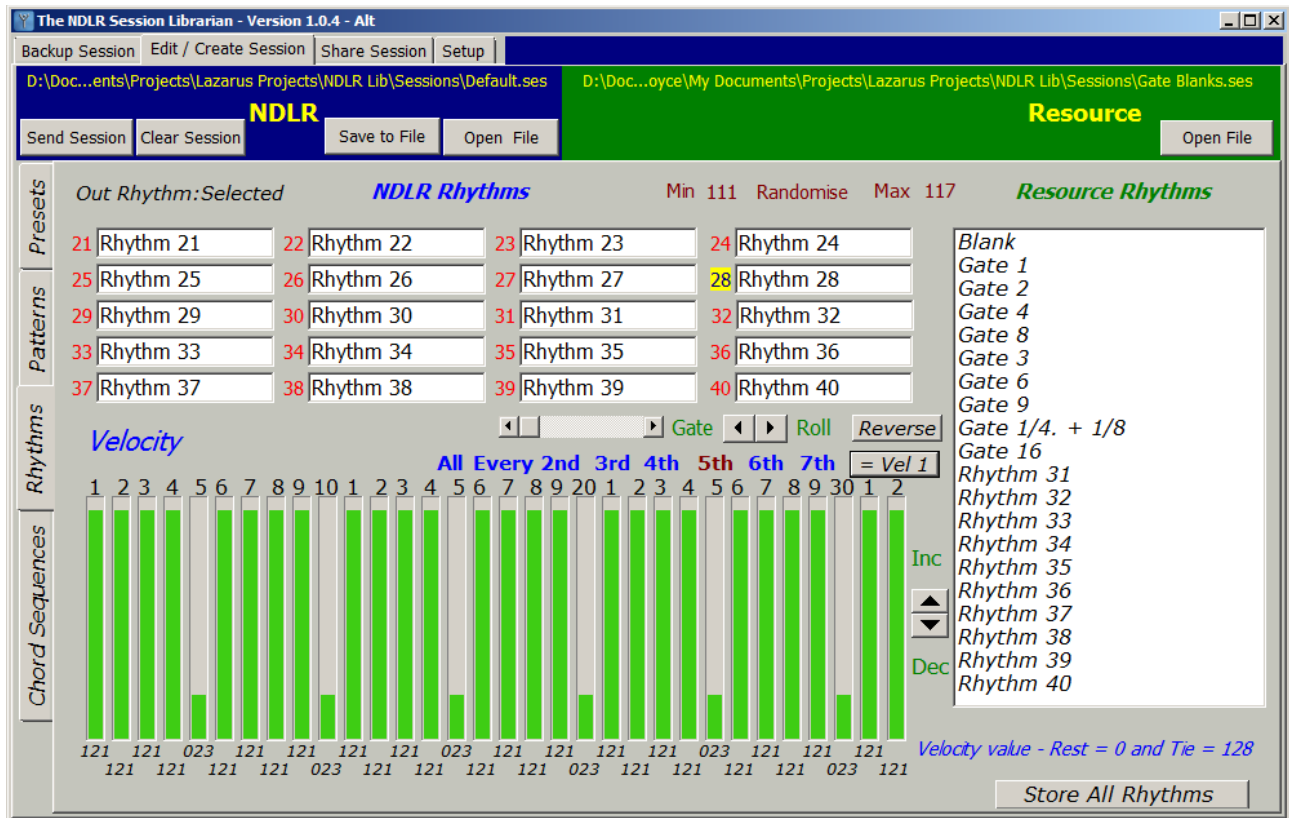
The '=Note 1' button simply sets all the selected steps to whatever value you have in Step 1.

Below I set Step 1 to C6, selected to 'All' then clicked '=Note 1'.

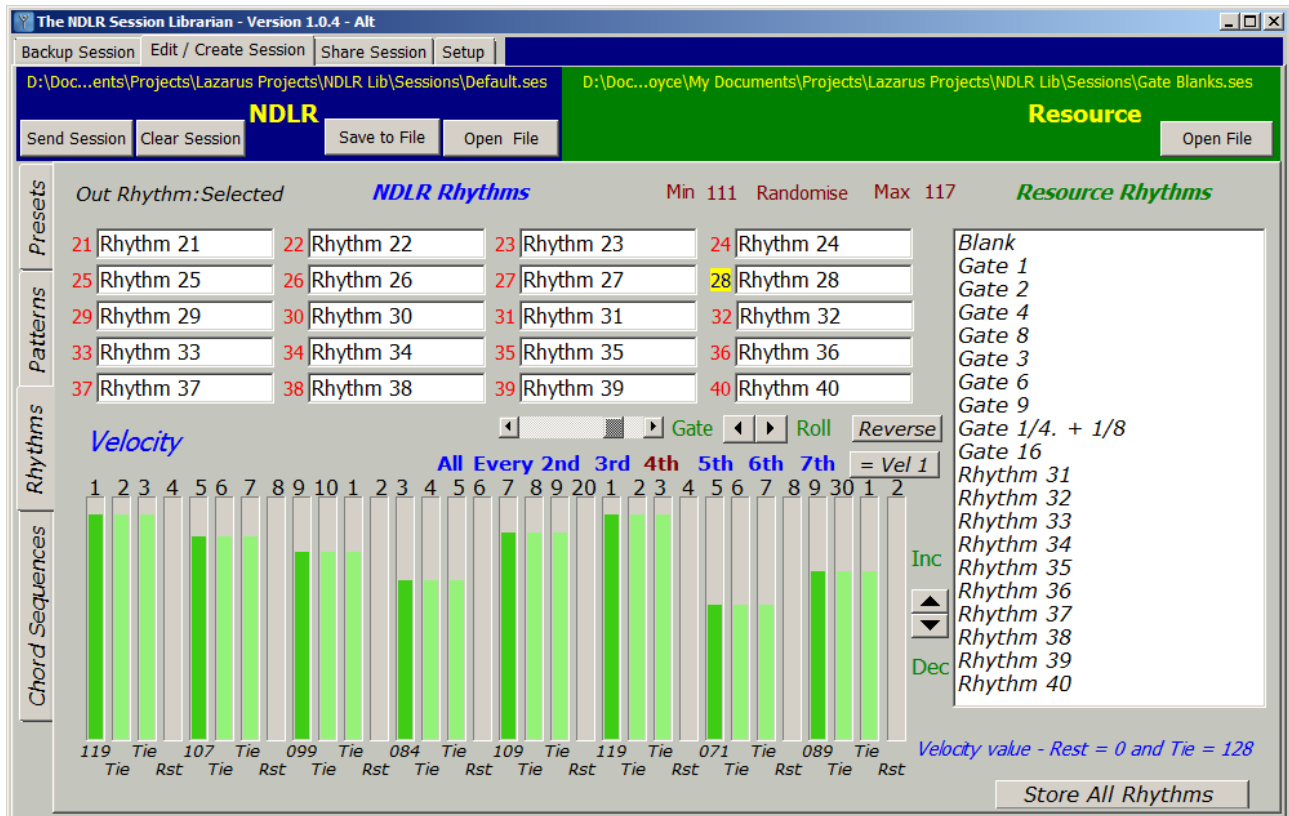
Set Step 1 to E2, selected every '3rd' step then clicked '=Note 1'.



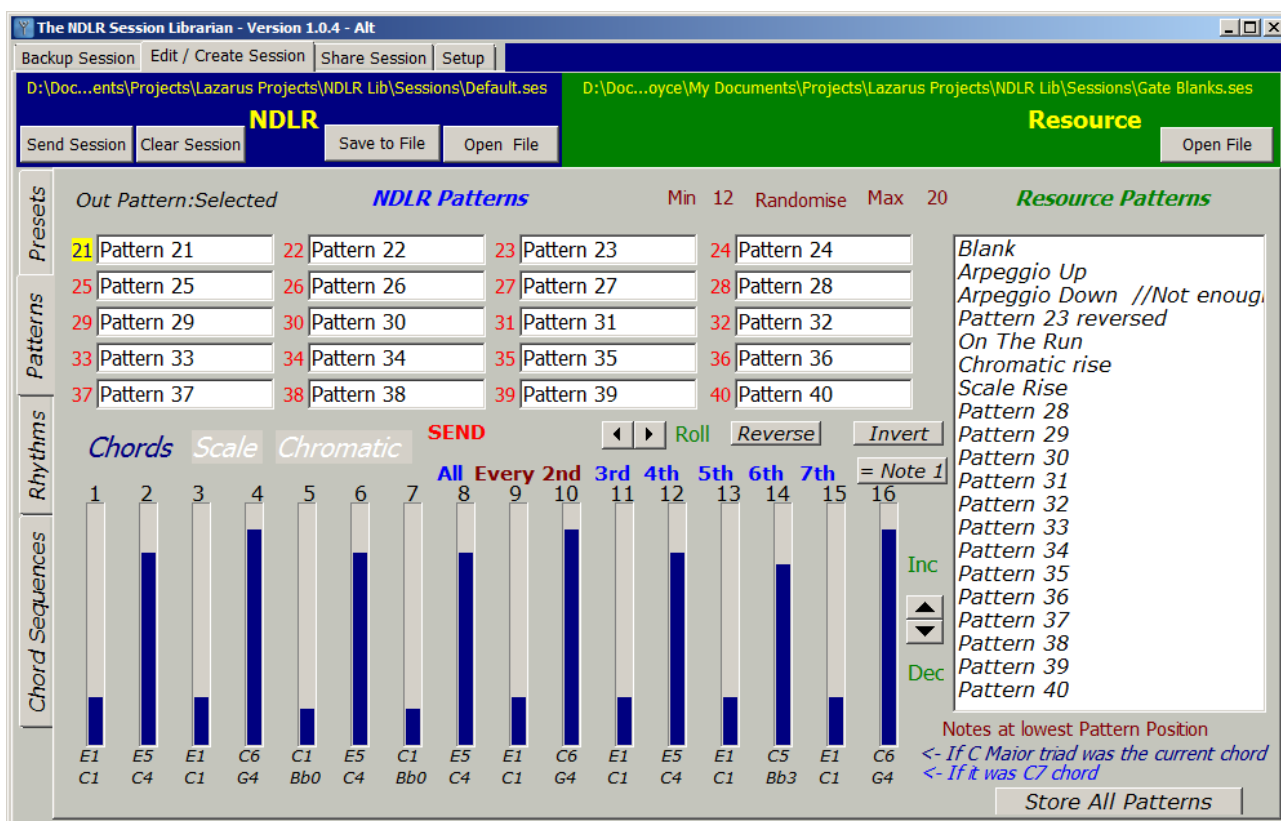
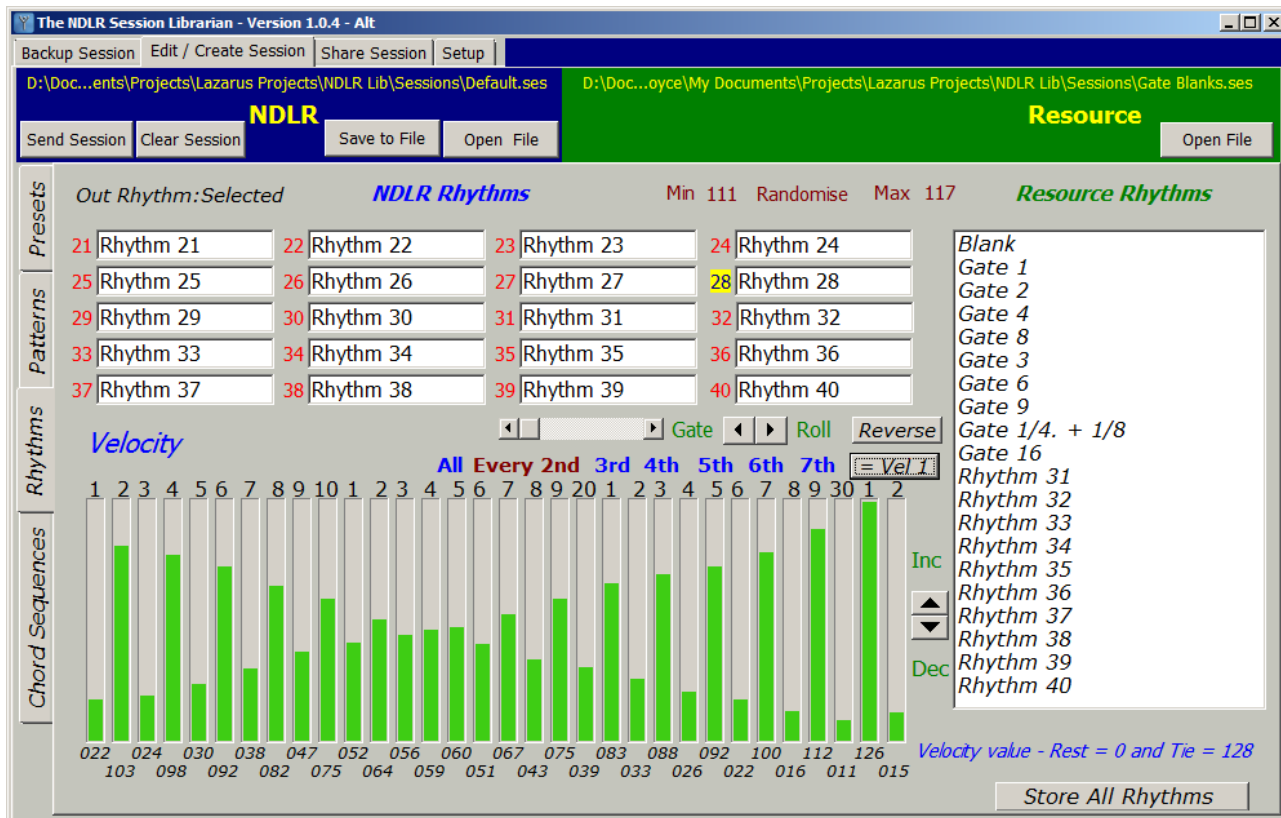
I like to use the 'select step' function for 'ghost notes' and rhythmic weirdness.



I use the Roll and the Select to set up rhythms for the Gate function



Or opposing crescendos and decrescendos along with notes in two or more ranges.



Having a length difference of 1 in the Pattern and Rhythm swaps the articulation from one group to the other as it loops around.

Chord Sequencer page:

The NDLR Session Librarian - Version 1.0.4 - Alt

Backup Session | Edit / Create Session | Share Session | Setup |

NDLR Session fetched, but file not saved. Auto Save is OFF. D:\Doc...oyce\My Documents\Projects\Lazarus Projects\NDLR Lib\Sessions\Gate Blanks.ses

NDLR Resource

Send Session | Clear Session | Save to File | Open File | Open File

Out Sequence: Selected NDLR Chord Sequences

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

5 Chord Sequence 5

Chord Changes

		Key	Mode	Degree	Type	1/4 Notes
A	1	F	Tonic 6ths	ii	Triad	12.0
	2	G	Dorian	vii	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#	Locrian	I	Triad	4.5
	2	Db	Gypsy Min	I	Triad	4.0
	3	Ab	Harmonic Minor	ii	6ths	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	B	: 2
8	C	: 2

Store All Sequences

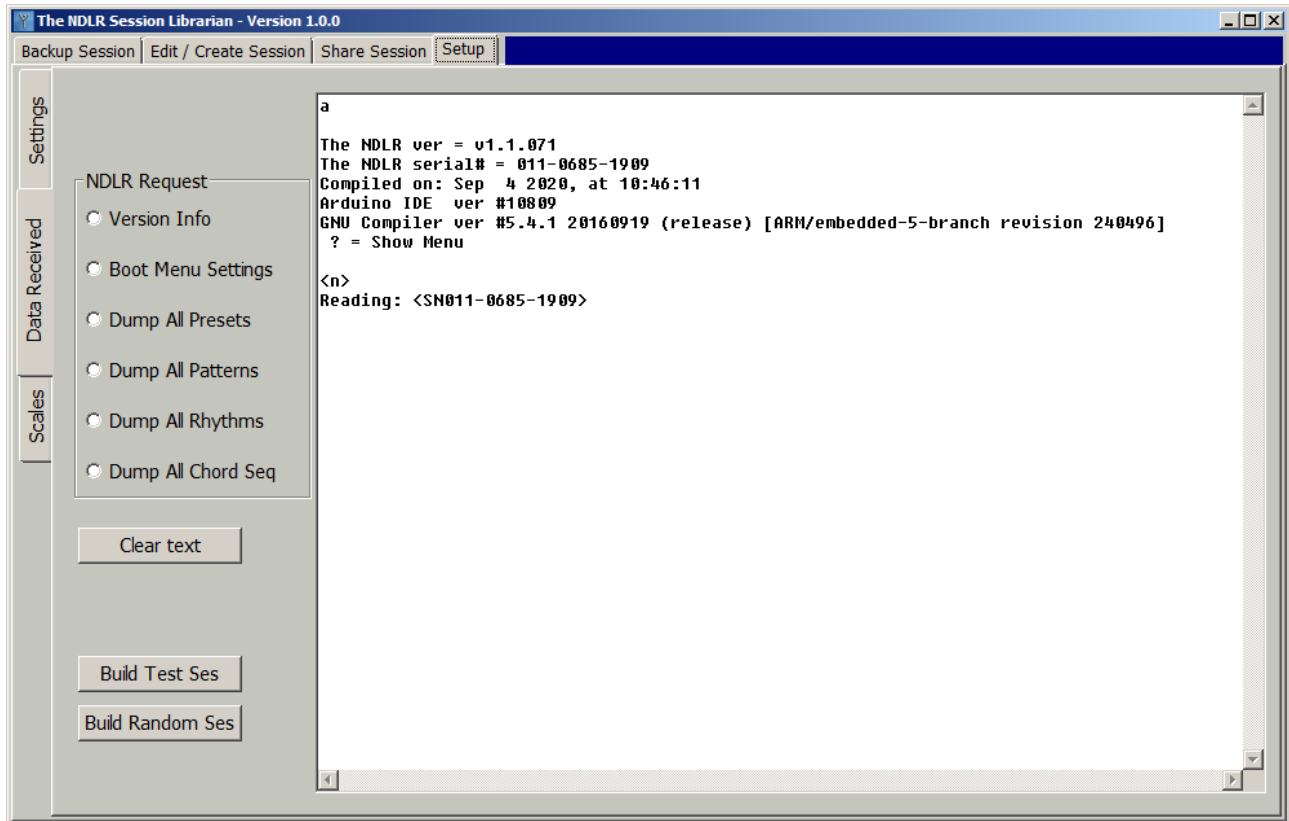
TIP : If a line is blank in the table then then the '1 / 4 Notes' entry is 0.

(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.

Note: the program uses hovering over labels, vertical bars etc then rolling the mouse wheel. If you accidentally press the ALT key in Windows it will stop working. Just click on the label or bar to refocus.

Settings page EXTRA ... COM Viewer and Scale Viewer



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

There are also buttons used to generate complete NDLR Sessions that were used for testing – perhaps they are still useful. PRESSING EITHER WILL OVERWRITE THE NDLR SESSION in the Library program (NOT in the NDLR)..

Scales and Chords: This tab was where I was doing some programming experiments developing scales and chords. - 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

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

Major (Ionian)

	I	II	III	IV	V	VI	VII	I	II	III	IV	V	VI	VII
Interval	0	2	4	5	7	9	11	12	14	16	17	19	21	23
Chord Type	Maj7	m7	m7	Maj7	7th	m7	ø 7							
7th	B	C	D	E	F	G	A							
5th	G	A	B	C	D	E	F							
3rd	E	F	G	A	B	C	D							
Major-Ionian	C	D	E	F	G	A	B	C						
Dorian		C	D	E	F	G	A	Bb	C					
Phrygian			C	Db	Eb	F	G	Ab	Bb	C				
Lydian				C	D	E	F#	G	A	B	C			
Mixolydian					C	D	E	F	G	A	Bb	C		
Minor-Aeolian						C	D	Eb	F	G	Ab	Bb	C	
Locrian							C	Db	Eb	F	Gb	Ab	Bb	C

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

Key
☒ Flat ☐ Sharp

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

F1 Help key shows a page of Mouse and Key actions

CTRL+F1 will bring up your PDF reader with this document loaded.

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