Thanks for trying out my RSS-10 template. Here are a few quick notes to help you get started. Please see the separate "What Do I Need?" document for details on hardware, connections, iPad setup, and RSS-10 setup.

Overview

This template is for the Lemur software running on iOS. I currently own an iPad, so I don't know how well it will run on an Android tablet even though Lemur is now supported on that platform. The template does not completely replace the old Windows/Mac software used to control the RSS-10… at least not yet. This is the initial version and as such more than covers the functionality of the old MCR-8 external controller box. You can use Stationary mode to place Channels A and B somewhere in 3-D space and use Flying Mode to dynamically move the Channel A sound around. To make Flying Mode more fun and more closely approximate what the original software could do, I implemented three LFOs to automate some movements. You can read below for the details.

As far as future development plans are concerned, the goal is to eventually allow you to draw and play back the movements like the original software. Unfortunately, the Roland documentation (including the Programmer's kit code and examples) do not exactly lend themselves to quick and easy implementation or reverse engineering. The quickest way for me to get the movement controls implemented would be to purchase or borrow an old PC or Mac with the appropriate hardware and cabling and then monitor the MIDI data the original program sends out. This will take time and money that I do not have at the moment. It is on the table for sure, but as time and money permits. The same goes for moving it to an Android tablet.

So, enjoy what is here now, provide feedback on the current features and/or suggestions for the future, and stay tuned for additional updates.

Configuration

This template allows you to configure a number of basic settings like MIDI Channel, Lemur MIDI Target, and various device-specific values. The configuration menu is found by pressing and holding a finger down on the battery life indicator in the upper right corner. After a short time, a button will begin to appear and then the configuration menu will pop up.

On the left, the LFO Resolution sets the internal granularity of the LFOs. The LFO modulates smoothly when set to 128 or 256. Note that this resolution also interacts with the Maximum LFO Rate to effectively control the maximum speed of the LFOs. Also, at low resolutions, the LFOs start moving in larger steps and the target control makes larger jumps. It could be an interesting effect, so keep that in mind. Resolution and Rate can be set independently for each LFO.

In the center of the menu there are 3 sliders.

The left slider sets the double tap sensitivity. Two sliders (Elevation A and B) default to a middle value, indicated by a line across the fader. Reset to the default by quickly double tapping anywhere on the slider. If you have issues with the template picking up your double tap, adjust the sensitivity.

For the RSS-10, set the Lemur MIDI Target to the same number where your MIDI interface is configured in the Lemur settings menu (usually Target 0, but it can change). Set the RSS-10 Device ID to the

number on your RSS-10 front panel. Currently, the range of that slider is 1 to 16. At this point, I can only talk to a single RSS-10 at a time.

To the right are the Reset to Zero and Maximum LFO Rate settings.
The 'Stop LFO resets to 0' buttons determine what happens when an LFO is stopped and then restarted without changing the shape or destination. If the reset is off, the LFO will continue from the last value. If reset is on, the LFO will always start from the zero point of the waveform. Note that when One Shot is on, the LFO always starts from the beginning.

The 'Maximum LFO Rate' controls set the nominal maximum BPM. I'm using an internal Lemur MIDI clock triggered on 64th notes to get it moving fast enough at the top speeds. Depending on the model of iPad, you may not see significant differences between 100 and 200. The resulting LFO will not exactly correspond to the tempo since BPMs are usually measured in ¼ note beats. Synchronizing the LFO rates to an external clock is on the eventual to-do list. If you are interested in very slow LFO movement, try using a max rate of 50 or 100 with a resolution of 256.

Across the bottom are a few more important controls.
The 'Which Hand?' buttons determine where the pop-up value slider appears. In order to clearly see the value you are editing, the slider can appear to the left or right of the displayed value. If you are left-handed, select Left here and the slider will appear to the left of the value so your hand doesn't block the number as you adjust the slider.

The OK button exits the Configuration menu.

The 'Init RSS-10' button sends out a basic system exclusive message to reset the RSS-10 to a default state. Currently, this reset does not change things like Reverb Level, Distance, or Azimuth. The values that are reset are: Function Mode = 2 channels Stationary, Output Mode = Speakers, Speaker Angle = 30 degrees, Doppler Mode = Relative (no Doppler effect), Positive Polarity, and Reaching Time = 120 ms. The related controls on the main template page may not correspond to these settings, so keep that in mind. The RSS-10 does not allow software to query its current state and I was reluctant to always blast out a default configuration, so this is the compromise. Note that depending on what was done the last time the RSS-10 was used, you may have to reposition the various controls for Reverb, Floor, and A/B location. Initializing the RSS-10 is not mandatory, but it does set some basic internal parameters to the default values. In the future, I hope to be able to provide individual control over more of these type of internal parameters.

Layout

If you're familiar with the RSS-10 software, many of the controls should be obvious. Across the top are all the basics. Output level is usually left at maximum. To the right is a small reminder of which Device ID the template is using to talk to the RSS-10. ***If the template is not controlling the RSS-10, check the ID and the Lemur MIDI Target in the Configuration menu***. You should also see the MIDI LED flashing on the RSS-10 front panel. In the center of the top are the main Mode controls. Pressing one of these controls will change the mode on the RSS-10 and also change the template appearance. Only the applicable controls are displayed in each mode. The Speakers/Headphones section is self-explanatory.

The vast majority of sliders have built-in value displays. They indicate the current value of the slider and will shift from one end to the other so that your finger does not obscure the value as you adjust it. In addition, the value ranges of some of the sliders have been adjusted to reflect what the RSS-10 expects, so it may not always show the complete range of 0-127 for the value.

In Stationary mode, the left controls are for input A and the right for input B. The Direct buttons turn on/off the direct source. Set Direct to off if you only care about reverb, on if you're modifying object positioning. The Azimuth controls are represented as circles to more closely correspond to the 360 degrees of panning available. It is assumed that the listener is sitting in the middle of the circle facing towards the top of the screen. To move the location pointer, touch anywhere in or on the circle and drag your finger around it.

The yellow text in the middle of the screen is a debug/status output for clock initialization and incoming MIDI (see the section on External Control).

Below the text is the Absolute/Relative Doppler Mode toggle and the Reverb and Floor controls. At the very bottom is the Bypass button.

In the Reverb/Floor area, some controls are stepped to reflect the mapping I see in the internal tables. Multiple MIDI values map to a single Room size value (for example). I am still in the process of verifying what I have found in the developer documentation. The floor color and wall color slider default to a middle value of level. As you touch/move your finger away from the center, the values are adjusted to the warm or cold settings (absorbent/reflective).

Flying mode only involves the A input, so the B input controls are blanked out and replaced with a set of LFOs.

In the middle of the screen is a Master Sync button and three LFO buttons. The Master Sync button will start and stop all LFOs that have their Sync button enabled. The three LFO buttons bring up a scope type of display so that you can see an LFO's movement graphically. Press the button again to turn off the display. This is especially useful for dialing in new values with the Scale and Offset sliders. Set the LFO rate fast initially so you can more easily see the movement. Set the values to what you want, then readjust the Rate.

To the right are three LFO sections. They are identical and provide the following controls:

- LFO on/off button – starts and stops the LFO
- Sync – allows the LFOs to have a synchronized start and stop using the Master Sync button
- 1 Shot – turns off LFO cycling. The LFO will run through the entire shape once then stop
- Shape – drop down menu of available LFO shapes
- Target – drop down menu of LFO destinations
- Rate – controls the speed of the LFO
- Scale – reduces the range of the LFO. 100% is the full range
- Offset – shifts the LFO up and down. 0 is the default
- PW – sets the pulse width. 50% is a square wave
- Phase – changes the start position in the LFO waveform

The current LFO shapes are: Sine, Sawtooth, Triangle, Pulse, Random, and Downward Sawtooth. Sawtooth and Triangle start at the minimum value, Sine starts at 50% of maximum, Downward Sawtooth and Pulse start at the maximum, and Random is random.

The current Targets are: Azimuth, Distance, Elevation, Reverb Time, Reverb Level, and Clip Area.

Clicking on any of the 5 buttons to the right of the drop down menus brings up a slider that you use to adjust the value.

Rate varies from 0 (stopped) to the maximum rate set in the Configuration menu.

Scale % adjusts the range of the LFO. 100% equals the full range (often 0-127). A setting of 50 for Scale % will reduce the range of the LFO to ½ of the maximum (0-63 for example).

Offset shifts the entire LFO up or down. Note that if the LFO is shifted too much up or down, clipping will occur. The waveform will hit a maximum or minimum value and flatten out. This can be useful for some type of modulation effects.

Normally, offset is 0 and Scale % is 100. This gives you the full LFO across the entire range of the target. If you adjust Scale % to 50 and set Offset to 50, then the LFO will modulate the target from half way to maximum (64 to 127 for example). If the absolute value of Offset + the value of Scale % is less than or equal to 100, you will get the entire waveform applied. If the total is greater than 100, some clipping (as described above) will occur. The best way to see the effects of changing Scale % and Offset is to bring up the graphic window for the LFO, start it, and then adjust the values and observe the changes in the waveform.

Pulse width adjusts the duty of the ON portion of the Pulse wave. The larger the PW %, the more time the LFO spends at maximum value.

Phase adjusts the starting point of the LFO waveform. This can be used to turn a Sine wave into a Cosine (set phase to 90) or invert the triangle wave (set phase to 180). Again – using the graphic display to see your changes can be very helpful.

Note that you can select the same Target for multiple LFOs. You can use this to create unusual movement by setting one LFO to something normal like a Resolution of 256, a Max Rate of 200, and a Shape of Sine wave and then a second LFO with a Resolution of 16, a Max Rate of 50 and then playing with the scale, offset, and rate sliders to generate a mostly smooth movement with the occasional glitch.

Demonstration Mode

I made a conscious decision to exclude Demo Mode controls. If there is sufficient demand, I can put them back in. Eventually I hope to implement full control similar to the old Windows 98/Mac application.

External Control

This template controls the RSS-10 by sending it MIDI System Exclusive messages and MIDI Continuous Controller (CC) messages. In addition, the template can be controlled by using MIDI CCs to allow you to automate and sequence certain operations. The complete list of MIDI CCs used by the template and by the RSS-10 are included as an Appendix. This section will focus on using MIDI CCs to control template functionality.

The main purpose for providing external control is to give you additional options when using the LFOs in Flying Mode. This template recognizes incoming MIDI CCs 50 to 59 (hex values 0x32 to 0x3B). The incoming MIDI CCs are used to turn on and off Master Sync, LFO 1/2/3 on/off, Sync, and 1 Shot buttons. Sending a value of 0 turns off the button, anything else (1 to 127) turns it on. The buttons are mapped in order starting with the Master Sync (50), followed by LFO 1 on/off (51), LFO 1 Sync (52), LFO 1 One Shot (53), etc.

If the RSS-10 is set for ID 1, a typical MIDI message to turn on LFO 1 would look like this (using hex values): B0 33 01

Where –

- B0 is the CC message start (B) on MIDI channel 1 (number sent is 1 less than displayed)
- 33 is the CC number for LFO 1 on/off (51 decimal = 33 hex)
- 01 is value indicating On

Similarly, B0 33 00 would turn off LFO 1.

The yellow text in the center of the template (remember to turn off the LFO graphic display) will show the incoming MIDI messages to help you debug the remote commands.

Questions/issues, please email me - tom@oldgearguy.com.

Thanks,
Tom

Appendix

This is a list of the MIDI CCs that the template and the RSS-10 recognize.

The iPad template recognizes:

32h (50) - Master Sync On/Off (0 = off, 1-127 = on)
33h (51) - LFO 1 On/Off
34h (52) - LFO 1 Sync On/Off
35h (53) - LFO 1 One Shot On/Off
36h (54) - LFO 2 On/Off
37h (55) - LFO 2 Sync On/Off
38h (56) - LFO 2 One Shot On/Off
39h (57) - LFO 3 On/Off
3Ah (58) - LFO 3 Sync On/Off
3Bh (59) - LFO 3 One Shot On/Off

The RSS-10 recognizes:

48h (72) - A Azimuth
49h (73) - A Clipping
4Ah (74) - B Azimuth
4Bh (75) - B Clipping
4Ch (76) - Reverb Wall Color
4Dh (77) - Reverb Flavor
4Fh (79) - Reflection
50h (80) - Floor Color

00h (00) - A Direct On
22h (34) - B Direct On
07h (07) - ABS
52h (82) - Speaker

28h (40) - A Direct Off
5Ah (90) - B Direct Off
2Fh (47) - REL
53h (83) - Headphones

40h (64) - A Distance
41h (65) - A Elevation

42h (66) - B Distance
43h (67) - B Elevation
44h (68) - Reverb Level
45h (69) - Reverb Size
46h (70) - Reverb Time
47h (71) - Floor Distance
51h (81) - Output

09h (09) - Flying
12h (18) - Stationary
17h (23) - Transaural

Demo control:
0Ah (10) - 1
0Bh (11) - 2
0Ch (12) - 3
0Dh (13) - 4
0Eh (14) - 5
0Fh (15) - 6
10h (16) - 7
11h (17) - 8
18h (24) - 9
19h (25) - 0
1Bh (27) – Enter
08h (08) - Demo Off
13h (19) - Rewind
15h (21) - Stop
16h (22) - Play
14h (20) - Demo On

1Ch (28) - Bypass Off
1Dh (29) - Bypass On