Atom Arranger
v1.1

https://github.com/MisplacedDevelopment/AtomArranger

Changelog

1.1 -
> Add REC status to the Track Window!
> Make StreamByter options panel visible by default so the user does not need to manually display it
> Remove the extra 4 emitters in Senode for the 4 track version
> Fix issue where start/stop transport Sysex messages were being interpreted and causing random control messages to be sent out.
> To support adding the REC status, add a StreamByter ChlSnd plugin which automatically tells each controller SB which MIDI channel it should be talking on.

1.0 - Initial version

Concept

> This AUM session demonstrates the use of Senode to sequence Atom 2 instances. It also comes with an optional Loopy Pro interface to try and improve navigation. This is an **iPad only** session I am afraid as Senode is not available for the iPhone.

> Senode lets you graphically arrange nodes and is typically used as a single note or chord sequencer. This AUM session uses each Senode node to drive a different Atom 2 node for a certain number of bars and means that you can use the power of Senode's sequencer to create song structures. For the more adventurous, Senode also has an interesting probability mode which allows you to assign the likelihood of moving from one node to another. In this context, you could set Senode up to play a sequence of musical parts in a loop, but each time around the loop have the chance of it sounding slightly different, depending on which Atom 2 nodes were randomly triggered.

> There is a 4 and 8 track version of the session. If you know that you will not need more than 4 tracks then this version is recommended as it is easier on the eyes and iPad resources.

> I **do not recommend** that you buy any apps just for the purposes of trying this session out unless you can afford to, or unless you can get some use out of them independently from this AUM session.

> The following apps are required:

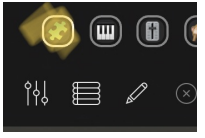
1. Senode (iPad only I am afraid) - https://apps.apple.com/gb/app/senode-graph-sequencer/id1298766877
2. Atom 2 https://apps.apple.com/gb/app/atom-piano-roll-2/id1536259776
3. AUM https://apps.apple.com/gb/app/aum-audio-mixer/id1055636344
4. StreamByter (free) - https://apps.apple.com/gb/app/streambyter/id1398712641

> The following apps are optional:

1. mfxStrip (you do not need this if you have a controller which can easily switch MIDI output channel but you will need to wire it up yourself in AUM!) - https://apps.apple.com/us/app/mfxstrip/id1451194722
2. Loopy Pro (for the user interface, not sure if the free version will work or not) - https://apps.apple.com/us/app/loopy-pro-looper-daw-sampler/id1492670451
3. Tonality (if you care about seeing the musical notes on a staff) - https://apps.apple.com/us/app/tonality-music-theory/id1467552236
4. Viking Synth (used as a demo instrument) (free) - https://apps.apple.com/us/app/viking-synth/id1085274012

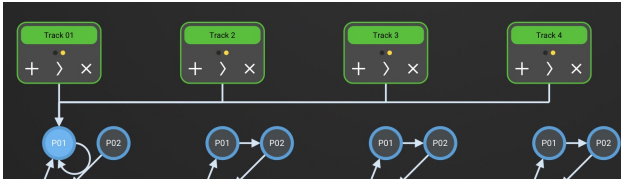
Quickstart

1. Open the 4 track version of the AUM project
2. Hit Play in AUM. You should see all four Atom P01 instances playing.
3. Open the Senode arranger window by clicking here:

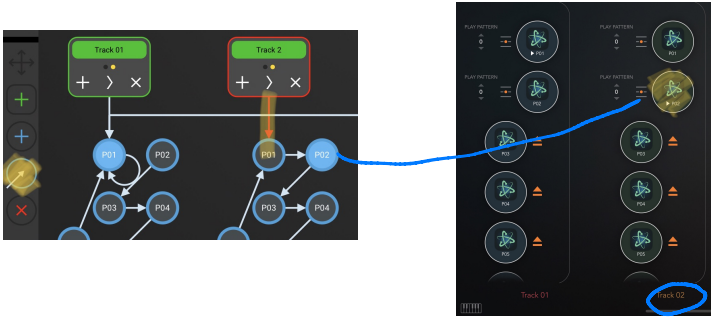


If you do not have Loopy Pro then alternatively open the Senode audio unit directly from the “Controllers” AUM channel.

4. You will see that there are four Senode emitter nodes, one for each track. They are all pointing at a P01 node and this node has been set to point to itself and nothing else. This causes the P01 node to loop, which matches what you see the Atom instances doing:

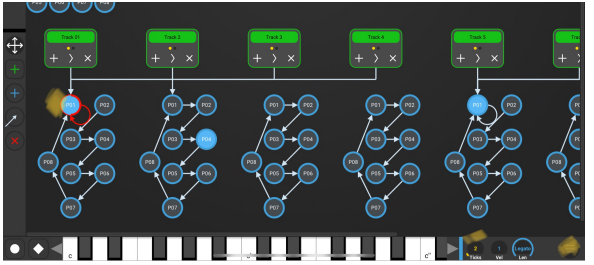


5. Stop the AUM transport and select the edge editor in Senode. Connect Track 2 to the P01 node below it and then press play in AUM. This time you will see P01 -> P08 played on Track 2 in a loop, matching the playing sequence in Senode. Note that Atom nodes P03 -> P08 are by default disabled and so you will need to enable them in order to see the full loop

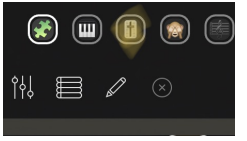


Quickstart continued…

6. Tap on the looping P01 node and open the node properties hamburger. Note the ‘Ticks’ setting in the bottom right. The default setting is 4, which means that the Atom instance will play for 4 bars. Set this to 2 and open the Track 1:P01 Atom instance. You should now see that the instance loops every 2 bars rather than every 4 bars.



7. The Track Window should be open by default but if is not then you can open it by clicking here:



8. Make sure that Track 1 is selected from the bottom of the Track Window and tap on T01 in the top left to display the StreamByter Track Record Controller. The control panel should be visible, but if not then tap the Controls button at the bottom right of the StreamByter window. You will see the REC control for each Atom instance for Track 1:

Quickstart continued…

If you do not have Loopy Pro then alternatively open the StreamByter Audio Unit directly from the “Track 01” AUM channel.

9. Ensure that the AUM transport is playing and then tap REC01 in the Track Record Controller. You will see that the P01 Atom instance will start recording the next time it loops. Hit REC01 again and you will see that REC will continue until the loop ends and REC will not be enabled on subsequent loops.

10. Try double-tapping the P01 button in the Track Window, with the Track Record Controller still visible. You will see that this gesture causes the REC01 button to be enabled. You will also see that one of the REC status indicators in the Track Window will turn red to indicate that the track is ready to record. Double-tap again and you should see that the REC01 button is disabled.

11. Try double-tapping the T01 button in the Track Window, with the Track Record Controller still visible. You should see that this gesture causes all of the RECxx buttons to be inverted in the Track Record Controller.

12. Connect a controller or the AUM Keyboard to the “MIDI In Bus” via AUM’s MIDI Route window:

13. The MIDI channel of the connected controller will determine which track the notes go to, e.g. MIDI channel 2 = Track 2. If you cannot easily change the MIDI channel from your controller (nanoKEY Studio, for example) then the MIDI In Router (discussed later) can automatically transpose this for you.

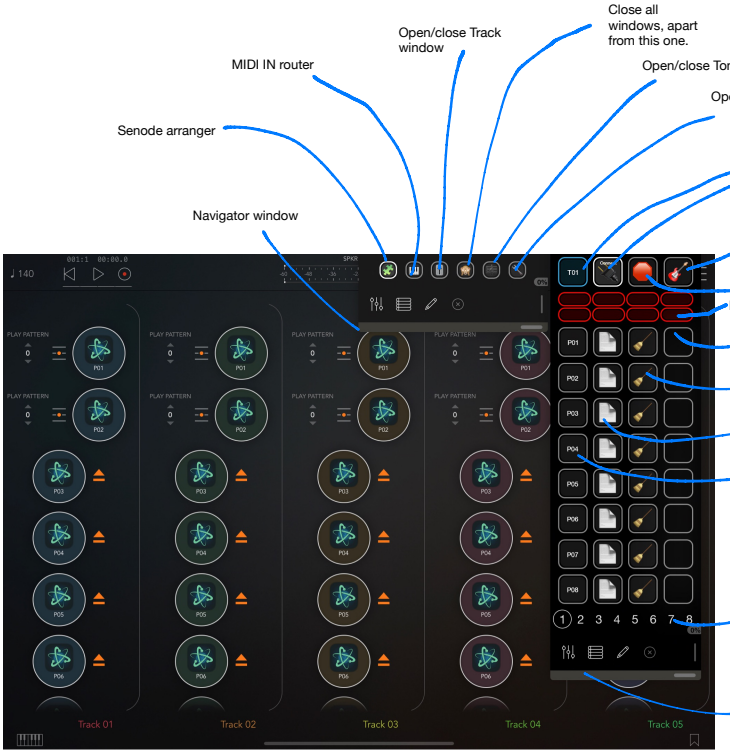
14. Enable REC for Track 1:P01 either via the StreamByter Audio Unit, or by double-tapping the P01 button in the Track Window.

15. The notes coming from the connected controller will now be recorded into the Track 1:P01 Atom instance.

16. Single-tap the P01 button in the Track Window. This will open the Track 1:P01 Atom instance that you just recorded into.

17. That is all for the quick start, see the rest of the documentation for more details!

Widget overview



Senode arranger

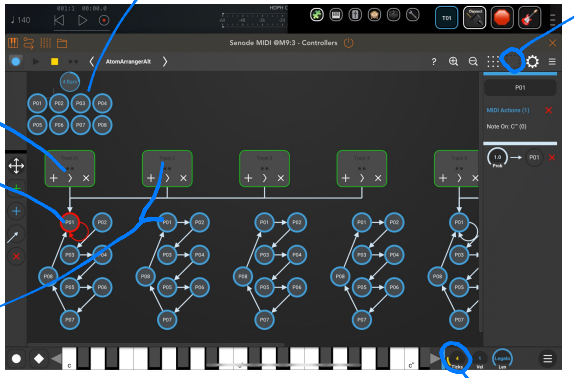
Palette of premade 4 bar nodes to copy/paste.

Good idea to disable this when moving around (single finger scroll). Enable to select multiple nodes

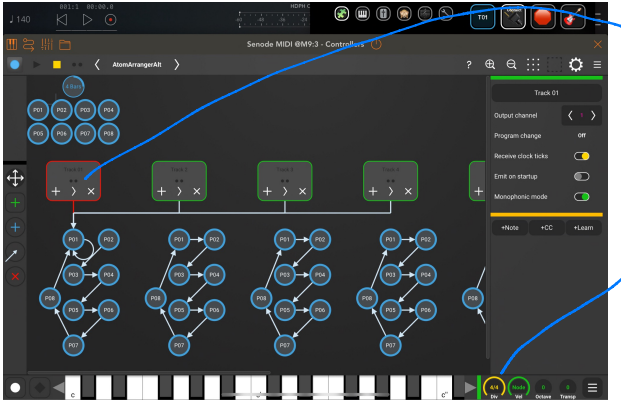
One emitter node per track. Tap > or + to add a 'token' to a track. If there is no loop in the node sequence then you will need to add another token.

This plays Atom instance P01 on tracks 01-04 on repeat. Note that there are no arrows going from P01 to P02 but there is one pointing from P01 to itself.

You could point track 02 at this P01 node to play an independent sequence of Atom instances on track 02



By default, 1 tick = 1 bar. This example shows that this node will play for 4 bars. Edit to suit, up to 16 bars.



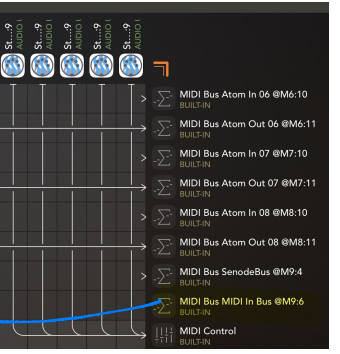
Selecting a track Emitter node lets you change the length of each 'tick'. By default 4/4 is selected, which is one bar.

You could, for instance set this to 2/4, which would make each node tick count for half a bar and allow you to play, e.g. 1.5 bars if a node was set to 3 ticks.

TIP: You can expand the canvas downwards by dragging a node to the bottom of the screen and zooming out

MIDI IN router

This determines the track that the instrument is routed to. You can also change this by tapping the 'Connect' button from the Track window.



Connect your controller, or onscreen keyboard, to "MIDI In Bus". Your controller will then be automatically routed to the selected track. Useful for controllers such as nanoKEY Studio which make it difficult to switch channels.

Global Settings

Insta-REC: When you enable or disable REC for a track then it happens immediately rather than being tied to the next "play" action of a node.

DisableREC: Ignore any REC settings and only play nodes. This disables the REC injection code which defers play and REC and will make playback more reliable.

Use this option if you are sequencing by hand and not trying to record from controllers.

ToggleQuantise: Toggle Atom's quantise option for all **active** Atom nodes. Inactive nodes will not be affected and so you should make active all nodes that you wish to be affected by this option. Nodes have Quantise enabled by default.

Click here to open the options pane if it is not already open.

Track Record Controller

TAP: Open Track Record Controller
DOUBLE-TAP: Toggle REC for all Atom nodes on this track

This reflects the REC status for each Atom instance on this track (read-only)

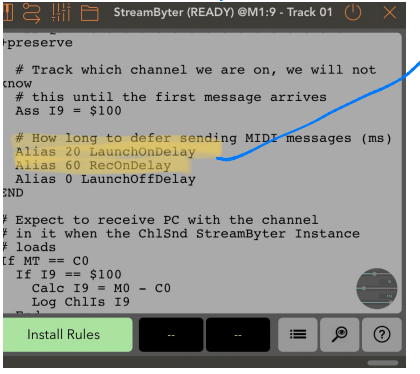
Toggle REC for this instance, e.g. REC01 = P01.
When the node next plays then REC is automatically engaged a few milliseconds after the node starts to play and REC ends automatically when the clip stops playing.

When you double-tap on a P0x button in the Track Window then this toggles the REC state seen here.

If Insta-REC is enabled in Global Settings then REC is enabled immediately even if the node is not playing. In this case, the node may get stuck in playing state so you can cancel all playing tracks using the “Stop all patterns” button.

Click here to open the options panel if it is not visible. If you tap twice then there is a second page of options but at the moment only first page of 8 nodes are active.

The StreamByter plugin should be named “READY”. If it is named “?” then REC state will not be sent. Open the CHLSND plugin on the Controllers AUM channel and click “Install Rules”. The name should change to “READY” a few seconds later.



These values can be edited to adjust how long the launch command is delayed and how long the REC is delayed.

If the LaunchOnDelay is too small then the next play command may arrive before the note-off of the last launch and mess up the launch state. If it is too large then you may struggle getting the output to sound in sync with other synced apps.

If the RecOnDelay is too small then Atom may not have had time to process the Launch On and the REC may be ignored. If the value is too large then you will miss a certain number of milliseconds of record time from the start of the bar, and so may miss controller input.

Adding more tracks

It is now much easier to duplicate AUM tracks but there are still some parts that need to be wired together after duplicating. Here are the rough steps required to create a new track and wire it in:

1. Duplicate existing track
2. Rename the busses to “Atom In xx” and “Atom Out xx”
3. Add “Senode MIDI BUS” to StreamByter MIDI IN
4. Add a channel filter to StreamByter MIDI IN so that it ignores all channels but the one the track is on, e.g. Track 09 only listens on MIDI channel 9.
5. Send StreamByter MIDI OUT to “MIDI Control”
6. Send StreamByter MIDI OUT to “Loopy Pro AU (NAV)”
7. For “Atom In xx” MIDI IN - add “mfxStrip”, also add a channel filter like you did for the StreamByter node.
8. For “Atom In xx” MIDI OUT - send to synth on track xx and also to Grand Staff (Tonality), if you are using it.
9. Use the “Set MIDI Channels” option for the track to set all of the MIDI channels used to the new track, e.g. set it to 9 for Track 09.
10. For each of the Atom nodes, set the “Quantize” MIDI controller to respond to Chl 1, PC 120. Step (8) will have set this to the wrong value.

General Comments

> Base CPU use is higher than I would like. The AUM DSP node stats show this is likely to be mostly caused by the resting state of the instances of Viking Synth. Most of the Atom instances are paused by default which should help with the overall CPU cost.

> The Loopy instances are not a necessary part of the environment as there are alternative ways of accessing the function that it provides, but hopefully it does help speed up some aspects of navigation.

> Why are there 16 bars defined in each Atom node? This is the maximum number that can be defined for a Senode node (16 'ticks') and so it made sense to create 16 empty bars so you did not have to think about expanding them. I don't know how much this adds to the state size so you may want to change this default.

> Recording is not continuous since Atom will automatically disable recording when the launch state changes. This means that if you have REC enabled for two consecutive nodes then there will be a gap in recording between the end of one node and the start of the next. You cannot therefore hold notes between nodes.

> You might want to consider reserving a "blank" Atom instance on each track to use as a padding 'silent' node for when a particular track is not meant to be playing anything. For example, track 01 plays 16 bars of drums and track 02 plays 8 bars of synth followed by 8 bars of the padding track.

> The timing is not yet perfect when REC is enabled. You may find that after recording to a node for the first time that it fails to stop where it should do, but does pick up correctly the next time it is triggered. I have not yet worked out what is causing this but it seems to stabilise after the first occurrence. You **may** find that this becomes more reliable by reducing the number of active bars in Atom so it matches whatever your Senode node is playing. I suspect this extra reliability comes from the end of the loop being hit and a hard stop being added by Atom.

> It may be useful to map your controller to activate the Loopy widgets and/or some of the other MIDI controller values that I set up.

> If any StreamByter nodes are modified and "Install Rules" is used then the nodes will have a name "?". There is a node which tells each node which channel it is on that activates during AUM startup but reinstalling a node after this will cause it to forget which channel it should be sending on. To work around this then open the CHLSND StreamByter node and then "Install Rules". This will re-run the MIDI teaching step and 5 seconds later you should see the StreamByter node go from ? to READY.

> The navigation window is by default at the top of the screen so that you can use it to easily access the different views. It contains a seemingly random control on its own at the top. This is to help scale the lower controls.

> A Tonality instance is included which listens to all Atom MIDI out busses to assist people who prefer this view of the music being played.

> AUM session is large. It is already over 4MB in size for the 8 track version so if you do not need 8 tracks with 8 nodes each then feel free to trim away tracks/nodes to create a smaller base state, or use the 4 track version which is half the size.

> You could use the "Add Atom pattern" option to create multiple takes and then manually remove the one(s) you do not need.

> **Be careful** when using the "Clear pattern contents" button. There can be a difference between the Atom pattern that is playing and the one that has focus. It is the one that has focus that gets cleared, so double-check which pattern has focus before using this button when you have multiple patterns.

> SAVE OFTEN! There are a number of moving parts in this AUM session and they have not been battle-tested

> Should be expandable to 16 tracks/16 nodes per track. I tried to ensure that I left enough space in the number ranges I used to allow up to 16 tracks (1 per MIDI channel) to be used. This would take quite a bit of work to extend the Loopy interface to cover 16 tracks. Could just create a second instance of the track window and have a Streambyter script to transpose the incoming MIDI channels to use the 9-16 range.