

A quick start guide to  
**INSTACOMPOSER**  
A MIDI generator plug-in

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**InstaComposer** is a MIDI generator plugin designed to procedurally generate melodies, phrases, riffs, chord progressions and other musical elements.

- **Infinite number of ideas:** Never produces the same output twice.
- **Artificial intelligence:** Makes decisions that are not just random. The AI has its own preferences and tries to generate more pleasing rhythms and pick more suitable notes based on the scale, the chords and the note's position in the phrase.
  - **Structuring beats and bars:** Uses different shapes and formats to build interesting combinations of beats and bars. This will add the necessary rhythmic and melodic consistency and a structure we often find in music. A crucial reason why humans enjoy music and art in general is because the brain has evolved to be an advanced pattern recognition machine. When it successfully discovers interesting shapes, patterns and mathematical relationships in its sensory data, it rewards us with positive feelings. And when things seem just random and chaotic, we get bored with if not bothered by it.
  - **Generating patterns and motifs:** Uses small musical ideas that keep repeating or reoccurring throughout the melody.
  - **Adding harmony:** Sometimes adds harmony notes. Often a 3rd, 5th, or an octave above, sometimes other intervals and other times a combination of these.
  - **Following the chords:** Sometimes decides to pick notes only from the current chord. This should bring out the chords underneath and make the melody a bit more in line with the chord progression.
  - **Chord progression generator:** Generates desirable sequences of chords inspired by the most commonly used chord progressions.
  - **Chaos control:** Ensures everything is under control, preventing extreme situations like notes repeating too much, jumping up or down violently or climbing too far in one direction.
  - **User control of the algorithms and probabilities:** Using the available controls users can specify their preferences and get similar results every time. They can tweak anything from chord complexity, note population, structuring beats and bars to pattern generation, adding harmonies, velocity randomization, etc.

- **Time Signatures:** Supports the majority of time signatures using different combinations of number of beats per bar and number of notes per beat.
  - **Beats per bar:** Can be set to any number between 1 and 8.
  - **Notes per beat:** Can be set to any number between 2 and 8.
- **Multi-Mode:** Includes different algorithms for generating different types of elements such as melodies, bass lines, rhythmic patterns, pads and chords. More modes will be added in the future updates.
  - **Melody:** An all-purpose mode that generates a wide variety of melodies and phrases.
  - **Riff:** Similar to melody but with shorter phrases, more repeating patterns and more restrict structures.
  - **Ostinato:** Generates short melodic phrases that keep repeating, often ignoring the chord changes underneath.
  - **Rhythm:** Generates more harmonies, focuses on rhythmic patterns and often picks chord notes. In a way similar to a rhythm guitar part.
  - **Bass:** Generates bass lines that fit and sit under the chords and melodies nicely.
  - **Pad:** Generates longer notes often adding harmonies based on the chords, suited for strings and pads.
  - **Chord:** Generates only the chord notes with options to add a bass note and auto inverse when needed.
- **Multi-Track:** Using the 5 available tracks, each with their own sets of controls, users can generate multiple layers based on the same chord progression.
- **Multi-Channel:** Using separate MIDI channels, each track can be routed to a different instrument making it easier to form a whole song.
- **MIDI editor:** Enables users to edit and make changes to the MIDI files within the plugin.
- **Save as MIDI:** Saves the output as a MIDI file on the drive. Each track can be saved separately.
- **Drag and drop:** Drag and drop the MIDI files directly to your host or file browser.



To infinity and beyond!

No premade MIDI, chord progression or rhythmic pattern is stored in the plugin. Everything is generated procedurally on the fly by the AI and the chances of generating the same output twice is near impossible. You have access to an infinite number of melodies and musical ideas. Every time you push the GO button you will get a fresh output that is only yours.

Keep reading to see how it is done. To make things easier, we are going to refer to the generated output as melody and ignore the specific generation types (riff, bass, pad, etc.).

- The process of generating melodies is divided into 3 steps:
- A. Generating chord progression
  - B. Generating rhythm
  - C. Generating pitch

A. Generating chord progressions

Chords are the foundation that the rest of the music is going to be built on top of. Using a set of rules and the data gathered from training the AI, the algorithm generates chord progressions with chords that are most likely to go well together. Users can also load or make their own chord progressions and the plugin will use those instead.

B. Generating rhythm

The goal is to generate a solid rhythm for the entire loop without worrying about the pitch just yet. This process is divided into 3 steps; building beats, building bars and building a combination of bars

B.1. Building beats

**Database #1:** A massive bank of possibilities and probabilities. Providing the smaller building blocks, a set of rules and valuable data gathered from training the AI that are going to be used to build longer patterns. This includes every combination of notes that can form a beat or a number of beats, accounting for various note lengths and different time signatures. Each possibility has been assigned a probability value based on what the AI has learned. These values are customized for each generation mode (melody, riff, etc.) and also factor in the settings available to the user. The algorithm uses this database to pick favorable blocks more often and build better rhythmic patterns.



B.2. Building bars

**Database #2:** When combining smaller blocks the data here helps the algorithm to structure better bar sized rhythmic patterns. Depending on the type of music we humans tend to repeat the same patterns often, use symmetrical shapes, downbeats or upbeats more, etc. The data stored here reflects that and gives higher priority to those types of possibilities.

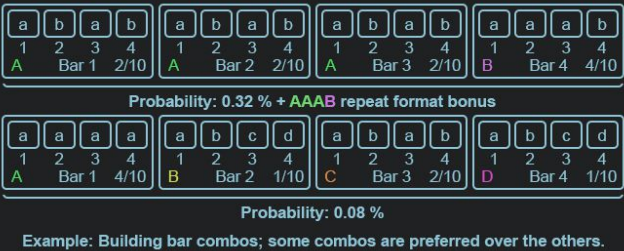


Example: Building rhythmic patterns; some patterns are prefered over the others.

When building bars from smaller blocks we have almost an infinite number of possibilities. But they're not all the same musically. The algorithm uses the database #2 to bring order to the chaos and build a solid bar structure that is more likely to resemble what humans do and find more pleasing.

B.3. Building a combination of bars

**Database #3:** Helps the algorithm structure better combination of bars by providing a set of rules and a probability bank prioritizing more preferable possibilities over the others.



Example: Building bar combos; some combos are preferred over the others.

By combining individual bars generated in the previous step and using the database #3 as a guide, the algorithm generates the final rhythm part for the entire loop. We are now ready to move to the next step.

C. Generating pitch

This is where the algorithm generates the pitch for the notes and cerates the final melody. A lot of possibilities, but picking just random notes is not going to make a nice melody.

**Database#4:** Helps the algorithm make better melodies by providing the necessary rules and a probability bank prioritizing more preferable choices over the others. This includes information about different scales, harmonies, chords and some methods to make motifs, patterns, phrases and sentences. We also have several generation types (riff, rhythm, pad, etc.) each with their own characteristics that are defined and stored in here.

Compared to the rhythm section there are even more steps, rules and data that are used when generating the final melody. The algorithm uses all this information to pick notes that are more likely to sit nicely on top of the chords underneath, fit well with the other notes around and serve a purpose as a whole. There are few post processing steps at the end to check and polish everything and output the result. Using the available controls users can also dramatically alter the behavior and give directions to the AI.

We won't get into more details since some information are considered confidential, but the goal is to use what the AI has learned from training data to generate melodies that are as close as possible to what a human might create. Over time and with new updates we should be able to have and even smarter and more capable versions of the plugin.



# The Main Interface

Click to open the about/authorization page

**Playback Control**  
Start and stop the playback manually. Please note there are few ways to control the playback depending on the settings. Read more about that on the main menu section.

**Track 1**  
Track specific controls

**Select this track**  
Select the track and hit the GO button to generate MIDI for this track. Right click to just switch views without changing the track list for MIDI generation.

**Drag and drop as a MIDI file**  
Drag and drop this track as a MIDI file directly to the host or another location

**Track mode**  
Choose between different modes such as melody, rhythm, bass, pad or chord. Each mode has its own algorithm and generates different kind of output.

**MIDI Channel**  
Set different channels for each track and route them to different instruments or plugins.

**Scale and Key**

**Chord Progression**  
Generate new chord progression. F: File manager for chord progressions. L: Load chord presets

**Generate Output**  
Generate MIDI notes for the active track(s) based on the current scale, key, chord progression and the track mode.

Select which tracks to generate output for. Choose a single one or any combination of them. Right click to add or remove individual tracks.

**INSTACOMPOSER**

Menu < C-(F-Dm-Gsus4-Dm) > View: Tracks Process Transpose Panic W. A. PRODUCTION

Browse and load presets

Switch between the Track and Editor views.

Enable or bypass the plugin (making it pass through).

Transpose current notes, scale and chords up or down.

Stop the playback and kill off all the active notes.

Link to W.A.Production website

Sync 130.0 bpm

1 Track 1 Drag  
Mode: Chord M S  
Chan: 1 Oct: +1 Vel: 100

2 Track 2 Drag  
Mode: Rhythm M S  
Chan: 2 Oct: 0 Vel: 100

3 Track 3 Drag  
Mode: Bass M S  
Chan: 3 Oct: 0 Vel: 100

4 Track 4 Drag  
Mode: Pad M S  
Chan: 4 Oct: +1 Vel: 100

5 Track 5 Drag  
Mode: Chord M S  
Chan: 5 Oct: 0 Vel: 100

M & S: Mute and solo controls  
Oct: Octave offset  
Vel: Velocity multiplier

Key: C Scale: Major

F New Chord Prog L  
Drag Save Clear

Alternate Rand Velocity

**GO**

All 1 2 3 4 5

Beat/Bar: 4 Note/Beat: 4

Should be able to set to most time signatures using different combination of number of beats per bar and notes per beat. For example:  
2 beat/bar + 3 note/beat = 6/8 | 3 beat/bar + 2 note/beat = 3/4.  
3 beat/bar + 3 note/beat = 9/8 | 4 beat/bar + 3 note/beat = 12/8.  
Please note that bar size is not going to line with host by default. Unless the host's number of beats per bar is set to match the plugin's.

Loop Start

Beat Number

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

**Track Menu**  
Undo note changes (2)  
Redo note changes (1)  
Clear  
Save MIDI  
Copy notes  
Paste notes  
Chords; Use Inversion  
Chords; Add bass note  
Reset settings  
Rename  
Color

**Track Menu**  
Undo and redo note changes: Will not change other settings.  
Clear: Clear all the notes in this track.  
Save MIDI: Save notes as a MIDI file.  
Copy and paste notes: Can paste notes on any of the tracks.  
Chords; Use inversion: When enabled the plugin will invert a chord if it seems to fit better with the other chords around it (only in chord mode).  
Chords; Add bass note: When enabled chords will include an additional root note on a lower octave.  
Reset settings: Resets all the controls to their default values. Note that if controls are linked this will reset them for all the tracks.  
Rename: Lets you rename the track.  
Color: Lets you change the track color.

Save  
Rename and Save  
Save Preset As...  
Load Preset  
Reset Preset  
Copy Preset  
Paste Preset  
Delete Preset  
Open Preset Folder  
Save MIDI  
Default Octave  
UI Scaling  
Show Tooltips  
Warn about unsaved presets  
Show ghost notes  
Sync start/stop to host's playback  
Quantize start (beat synced)  
Follow song position  
About/Authorize

**Main Menu**  
Manage presets and global settings  
Open preset folder: Use to reveal the preset folder in your OS file browser (Win explorer - Mac finder).  
Save MIDI: Save tracks as MIDI files.  
Default octave: This will be saved with the global settings and apply to all presets.  
UI scaling: Change the interface size.  
Show tooltips: Enable and disable tooltips.  
Warn about unsaved presets: When enabled warns you about unsaved changes.  
Show ghost notes: Enable to see ghost notes from other tracks in the MIDI editor.  
Sync start/stop to host's playback: When enabled the playback will start and stop with host's playback. So no need for MIDI input or pushing the play button on the plugin.  
Disable if you don't need the plugin to play every time the host starts playing. Instead add a note with the length of the loop you need in your host's MIDI editor (the plugin's input track). You can also start the playback by holding down a MIDI note on your controller.  
Quantize start: When enabled if the host is already playing the plugin will wait for the next beat to start, making sure its synced even if play is triggered in the wrong time.  
Follow song position: When enabled the plugin will sync its loop position with the host's song position. So if you scroll through your host's song position the plugin will follow that as well.  
This is useful if you want the plugin to be always locked to the host's song position and never go out of sync if you jump or scroll around the song while playing.  
Disable if you want the plugin to start from the beginning of its loop no matter where or when you start its playback.

Double click to open in the editor.  
Drag and drop as a MIDI file to the host or the drive.

C: Copy Chord  
P: Paste Chord  
R: Repeat Previous

Repeated chords  
Chord for this beat

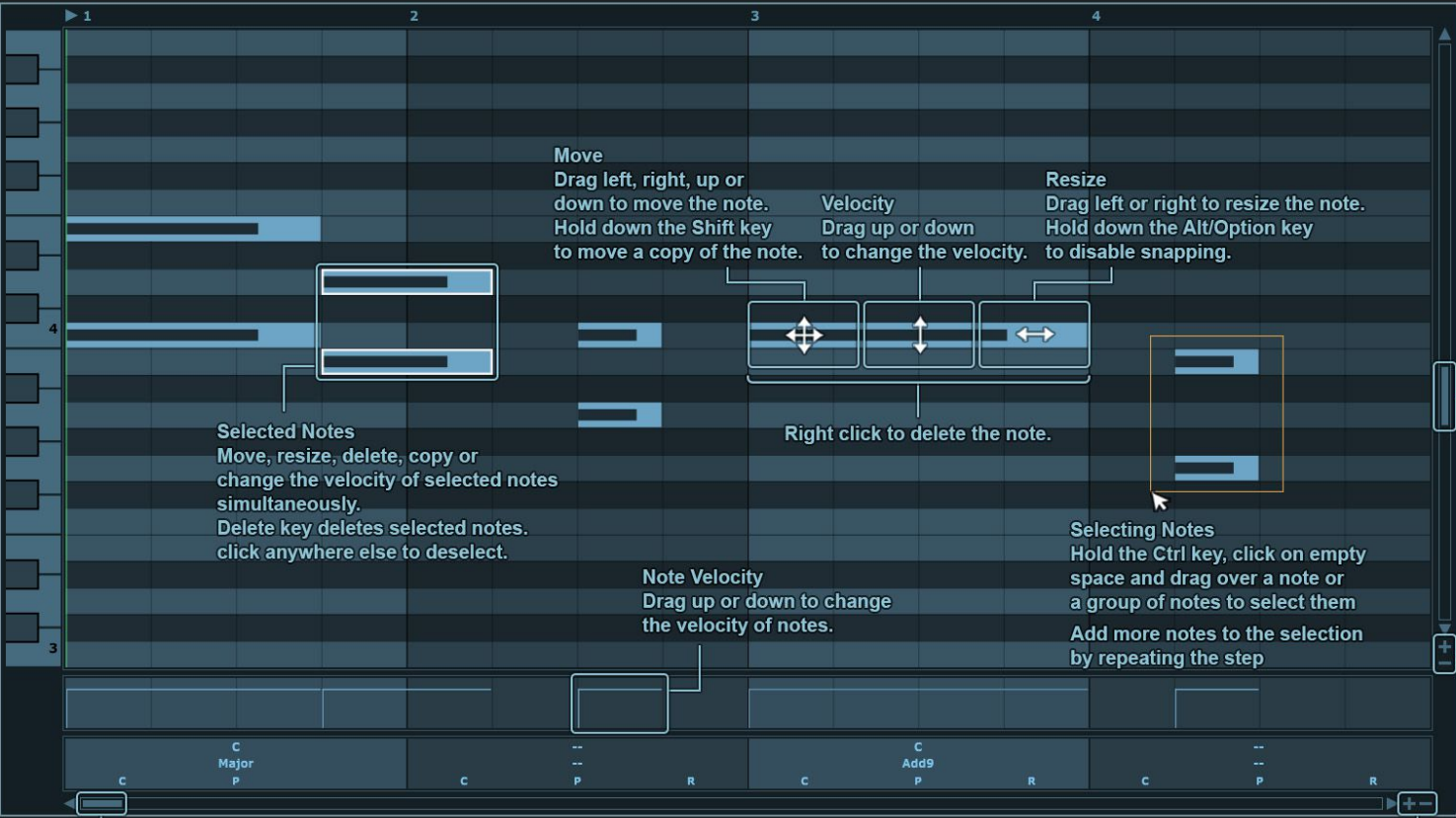
Preset notes  
E: Enable editing.

Control options  
Link controls for all tracks. When enabled track controls will be linked.  
Reset all the controls for selected track (all tracks if controls are linked).

Options  
General  
Patt/Vel  
Harm/Time

General  
Basic Exotic  
Chords  
Less More  
Population  
Zero More  
Chromatic  
Scale Chord  
Notes  
Random Smart  
Bar Struct  
Random Smart  
Bar Combo  
No Yes  
Fill In

Preset info.



**Horizontal Scroll**  
Hold down the Shift key and use the mouse wheel to scroll left or right.

**Horizontal Zoom**  
Hold down the Ctrl key and use the mouse wheel to zoom in or out.

**Vertical Scroll**  
Use the mouse wheel to scroll up or down.



**Vertical Zoom**  
Hold down the Alt/Option key and use the mouse wheel to zoom in or out.



**Probability controls**  
These controls alter the decision making process by changing the probabilities.

**Chromatic Notes**  
Controls the probability of adding chromatic notes that are not necessarily in the selected scale.

**Bar Structure**  
With lower values the probability of generating more random combination of beats increases.  
With higher values the probability of structuring bars based on patterns and repetition increases.  
Random: Different beats, so more complex and chaotic bars.  
Smart: More intelligently structured combination of beats.



**Fill In**  
This is a secondary step that fills in the gaps between generated notes.  
No: No extra notes will be added.  
Yes: Will fill in all the gaps.

Option	General
General	0.5
Patt/Vel	0.5
Harm/Time	0.0
Basic Chords	0.5
Exotic	1.0
Less Population	1.0
More Zero Chromatic	0.0
More Scale Notes	0.5
Chord	1.0
Random Bar Struct	1.0
Smart Bar Combo	0.0
No Fill In	Yes


Log.

**Chord Complexity**  
(Used by chord progression generator)  
With lower values the probability of picking more basic chord shapes like Major or Minor increases.  
With higher values the probability of picking fancier or less commonly used chords like 11th increases.

**Note Population**  
With lower values the probability of generating less notes increases.  
With higher values the probability of generating more notes increases.

**Note Selecting**  
With lower values the probability of picking any note from the scale increases.  
With higher values the probability of picking notes just from the chord increases.

**Bar Combination**  
With lower values the probability of structuring more random combination of bars increases.  
With higher values the probability of structuring bar combos based on patterns and repetition increases.  
Random: Mostly different bars.  
Smart: More intelligently structured bars that produce similar or repeating bars.

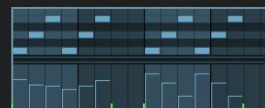


**A set of notes and ideas that keep repeating and occurring through out the melody, possibly getting slightly altered each time.**

With lower values the probability of generating smaller number of repeats increase.  
With higher values the probability of generating larger number of repeats increase.

With lower values the probability of generating variable velocity values decreases.  
With higher values the probability of generating variable velocity values increases.

If the algorithm have generated repeating patterns, velocity values can follow the same patterns as well. With lower values the probability of following patterns decreases. With higher values the probability of following patterns increases.



No Follow      follow

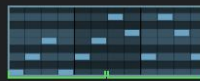
With lower values the probability of adding patterns decreases.  
With higher values the probability of generating patterns increases.



**A 4 note pattern repeating 4 times**

With lower values the probability of generating shorter patterns increases. With higher values the probability of generating longer patterns increases.

With lower values the probability of generating more than one pattern decreases. With higher values the probability of generating more than one pattern increases.



Pattern 1    Pattern 2

With lower values the probability of generating wider range of velocity values decreases.  
With higher values the probability of generating wider range of velocity values increases.





**Small Range      Wide Range**

With lower values the probability of linking velocity values for all the harmonies increases.  
With lower values the probability of generating different velocity values for each harmony increases.



Same Velocity      Random Velocity





No Variation

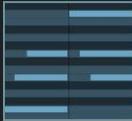
With Variation

**Variation**

With lower values the probability of generating variable number of harmonies decrease.  
With higher values the probability of generating variable number of harmonies increase.  
No: fixed number of harmonies.  
Yes: variable number of harmonies.

**Offset Time**

With lower values the probability of generating shorter offsets increases.  
With higher values the probability of generating longer offsets increases.



Strumming notes in both directions

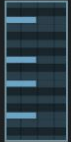

**Strumming**

With lower values the probability of strumming the stacked notes decreases.  
With lower values the probability of strumming the stacked notes increases.

Option	Harmony			Time			Strum			Strum Occurrence				
General														
Patt/Vel														
Harm/Time														
	<div><div>0.2</div></div>	<div><div>0.5</div></div>	<div><div>0.5</div></div>	<div><div>0.2</div></div>	<div><div>0.2</div></div>	<div><div>0.1</div></div>	<div><div>0.2</div></div>	<div><div>0.2</div></div>	<div><div>0.2</div></div>					
	No	Yes	Less	No	Yes	Less	No	Yes	No	Yes	Short	Long	Less	More
	Add	Number	Variation	Humanize	Offset	Sync Harm	Add	Length	Occurrence					

**Add Harmony**

With lower values the probability of adding harmonies decreases.  
With higher values the probability of adding harmonies increases.



Harmonies: 1

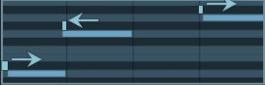
Harmonies: 3

**Number of harmonies**

With lower values the probability of adding less harmonies increases.  
With higher values the probability of adding more harmonies increases.

**Humanize Timing**

Slightly offsets notes in time.  
With lower values the probability of adding offsets decreases.  
With higher values the probability of adding offsets increases.



Notes with offsets

**Sync Harmonies**

With lower values the probability of syncing offsets for harmonies decreases.  
With higher values the probability of syncing offsets for harmonies increases.  
No: Each harmony will have its own offset.  
Yes: Harmonies will have the same offset.



Synced

Not Synced

**Strum Length**

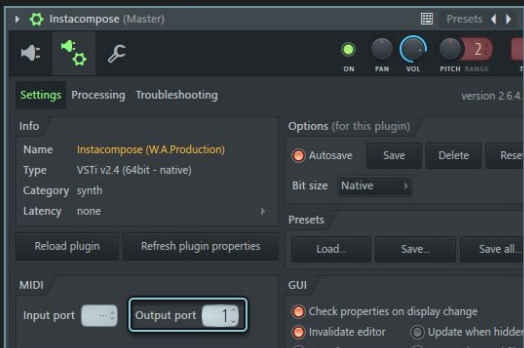
With lower values the probability of generating shorter strums increases.  
With higher values the probability of generating longer strums increases.

### FL Studio

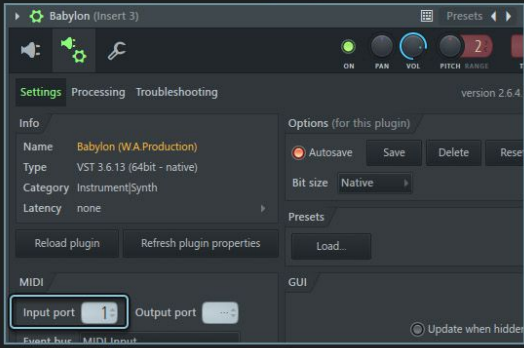
1. Load the plugin as a VST instrument and navigate to the wrapper settings.



2. Set the MIDI output port to one of the available ports.



3. Set the MIDI input on the target plugin to the same port.



### Pro Tools

1. Add the plugin as an instrument track.
2. Add the target instrument.
3. Add a MIDI track.
4. Use the MIDI track to route the MIDI I/O.



### Ableton Live

1. Add the plugin on a MIDI track.
2. Add the target instrument on a second MIDI track.
3. Set the MIDI input option on the target instrument to receive MIDI from the InstaComposer.
4. Set the Monitor on the target instrument track to IN.
5. Arm the InstaComposer track.



### Cubase

1. Add the plugin as an instrument track.
2. Add the target instrument.
3. Set the MIDI input option on the target instrument to receive MIDI from the plugin.



### Logic Pro

1. Add a target instrument on a new track.
2. Insert InstaComposer as a MIDI effect plugin.



### Reaper

1. Add the plugin as an instrument track.
2. Add the target instrument.
3. Set the send option on InstaComposer to send MIDI to the target instrument.



There are similar ways to use MIDI FX plugins in other DAWs. Please refer to your host's manual to see how to route and use MIDI FX plugins.



To get the most out of the plugin, you can connect each track to a different instrument or number of instruments.

A. With A Single Plugin

Using a multi-channel plugin like Kontakt (or any other similar plugins), you can load multiple instruments and route them to different MIDI channels. Notice that some DAWs like Ableton might not natively support multi-channel MIDI routing. Please make sure this is possible in your DAW. In most cases there are workarounds depending on the host.

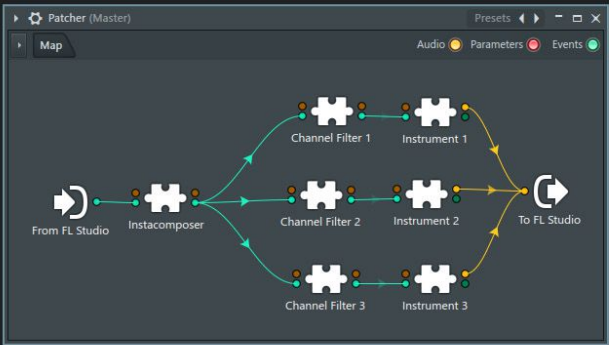


B. With Multiple Plugins

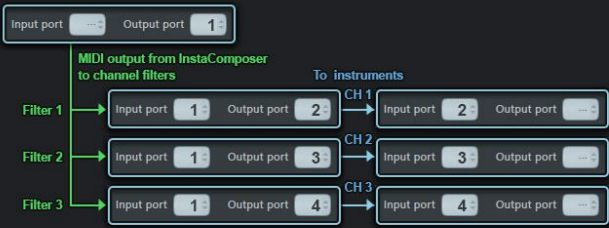
There are few ways to connect the plugin to multiple instruments. The details will depend on the host and the plugins used, but the goal is to route each MIDI channel to a different instrument track.

If neither the host nor the target instrument had a feature to specify a MIDI channel to use, we can use a channel filter plugin to do the job. We're using FL Studio in our example, but the concept is the same and there should be similar routing mechanisms in most DAWs.

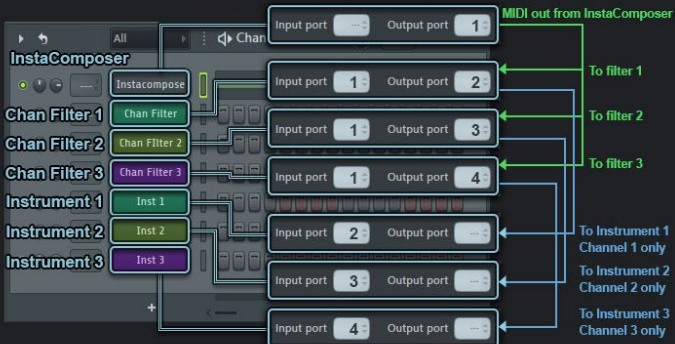
In the example below we're using the Patcher tool inside FL Studio, which should help visualize the connections a little bit better. You can see how we have connected InstaComposer to 3 different instrument plugins. We're using a channel filter plugin before each instrument. They all receive the same MIDI data but only allow a certain channel to pass through and reach the target instrument.



Don't forget to set the MIDI ports as well.



We don't actually need a tool like Patcher to set things up (except when working with native FL plugins). In this example we have loaded all the instruments the usual way and set the MIDI ports like the previous example.





### System Requirements

- Windows. Check the product page at [waproduction.com](http://waproduction.com)
- MacOS. Check the product page at [waproduction.com](http://waproduction.com)
- CPU: Multicore 2GHz or higher
- RAM: 2GB or higher
- Display Resolution: 1920x1080 or higher

The plugin can be used with VST, AU and AAX host applications and it comes with both 32 and 64 bit versions for Windows and universal and ARM versions for macOS. Please refer to your host's manual to see how to load a third party instrument plugin.

**Note:** Running on older systems might be possible but is not guaranteed. Please try the demo version before buying the plugin to make sure it's compatible with your system.

### Installation

Run the installer and follow the instructions to install the plugin.

#### Common locations on Windows:

VST 32bit: 'C:\Program Files (x86)\vstplugins'  
VST 64bit: 'C:\Program Files\vstplugins'  
VST3 32bit: 'C:\Program Files (x86)\Common Files\VST3'  
VST3 64bit: 'C:\Program Files\Common Files\VST3'  
AAX 32bit: 'C:\Program Files (x86)\Common Files\Avid\Audio\Plug-Ins'  
AAX 64bit: 'C:\Program Files\Common Files\Avid\Audio\Plug-Ins'

#### Common locations on macOS:

VST2: 'Library/Audio/Plugins/VST'  
VST3: 'Library/Audio/Plug-ins/VST3'  
AU: 'Library/Audio/Plugins/Components'  
AAX: 'Library/Application Support/Avid/Audio/Plug-Ins'

**Note:** InstaComposer creates a folder named 'WAProduction/Instacomposer' inside application folder when loaded the first time.

**Note:** AU Version is not an instrument plugin like the VST version. It's a MIDI effect plugin and can only be used by hosts like Logic Pro that supports the type. In hosts like Ableton Live and Reaper that support both AU and VST plugins, use the VST version.

**Note:** Make sure your VST host supports MIDI routing for third party plugins.

### Installing Presets

**WIN:** The presets will be installed with the main installer.

Use the "Open Preset Folder" from the menu to reveal the preset folder in the Windows explorer and manage them manually.

**MAC:** Run the preset installer to install the presets. If the presets didn't come with an installer, you can copy and paste the presets into the plugin's preset folder manually. Use the 'Open Preset Folder' option from the plugin's menu to reveal the correct folder.

### Demo Version Limitations

The plugin will not to load presets and saved settings with the projects. Only 10 melodies can be generated before having to reload the plugin. Only the C Major scale is available and only two tracks can be used.

### Authorization

If you have purchased the plugin and finished the payment process, you'll receive the information you need to get the full version.

Please contact [info@waproduction.com](mailto:info@waproduction.com) if you have any questions.

### Credits

Code and graphics by Rahman Fotouhi

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Email: [info@rfmusic.net](mailto:info@rfmusic.net)

Version 1.0.0 released in September 2021.

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