Chart Editor Guide v0.1

This editor is for the charting of the rhythm game that I'm developing, hopefully makes the editing process easier and provides a real-time preview of the chart.

This purpose of this document is to introduce the interface and the control of the chart editor. Keep in mind that this app is still under development, so everything is subject to change. I also welcome anyone who tries this share suggestions to help me improve this editor!

Table of Contents

5. Report

Getting Started

Download

For now, you can download the editor via Google Drive (link). Extract the zip file to a location you want and it's all set!

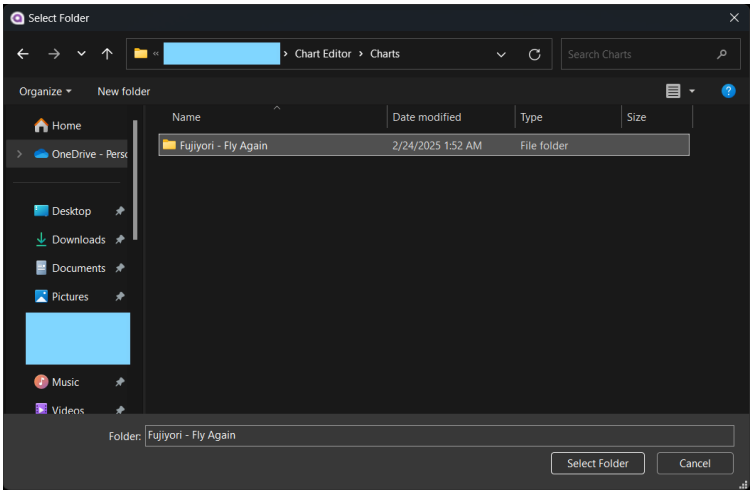
Open the Editor

To use the editor, navigate to the editor folder and execute `Charting.exe`.

Open a Chart

The editor has a sample chart provided. Click ***Load*** and select the `Fujiyori – Fly Again` folder inside `Charts`. The chart should be successfully opened, and we can move on to the next step.

1.1: Click "Load"



1.2: Select "Fujiyori – Fly Again" Folder

1. Basics

Before we get into the actual charting process, you need to know how the game controls the lanes and the notes.

Note

The ***note*** is the core mechanic of rhythm games. It's the thing that the player needs to hit or interact with. In this game, the player hits them with their hand via a ***LeapMotion hand tracker***. This unfortunately means that you cannot playtest the chart you make unless you have the device.

There are 5 types of notes in the game.

> ***TAP*** – Flick / touch the note. The player needs to swipe their hand towards the note to count as hit.
>
> ***TRACK*** – Follow the note trail. You cannot switch hands mid-note.
>
> ***CLAP*** – Clap at the note.
>
> ***PUNCH*** – Hold fist with a forward movement to hit
>
> ***AVOID*** – Avoid the note

Lane

A ***lane*** is a path where the notes follow. In other words, every note needs to be attached to a lane so that it knows its position and speed. This means that we do not set the position of the note from itself, but its assigned lane.

Control Node

A ***control node*** (or simply ***node***) controls the attached lane in its shape and appearance. This basically works like a schedule table that tells the lane to do certain things at a given time. The editor provides 5 types of control node: ***BPM***, ***Position***, ***Alpha***, ***Speed***, and ***Endpoint***.

> ***BPM*** – The beats per minute of the song. This setting is universal.
>
> ***Position*** – The position (x-y) and the shape of the lane at a given beat.
>
> ***Alpha*** – The opacity of the lane. This affects the entire lane.
>
> ***Speed*** – The scrolling speed of the lane.
>
> ***Endpoint*** – This toggles the visibility of the segment of the lane on and off.

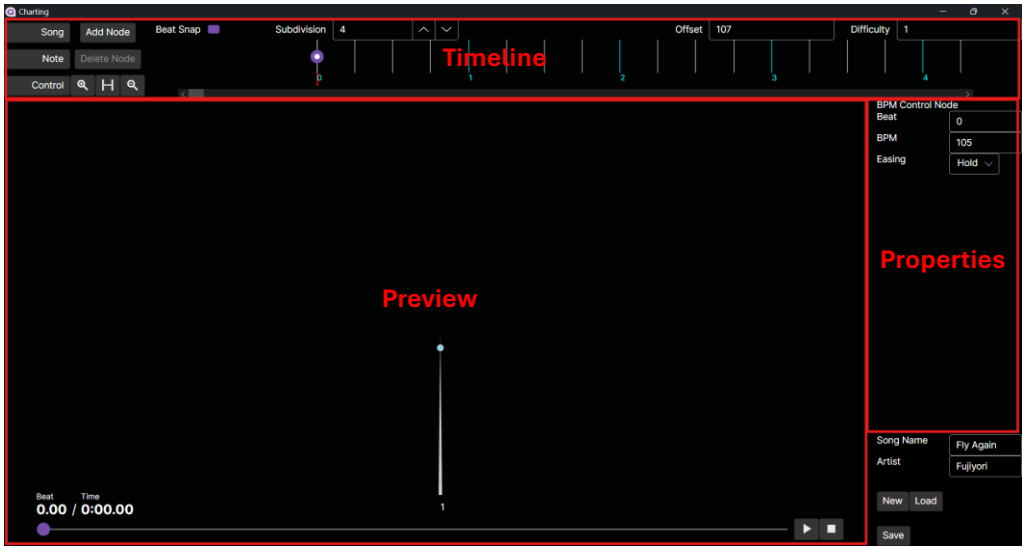
Coordinates

In the editor, the position of the node / note is represented by an **x-y coordinate system** (or Cartesian coordinates). (0, 0) is defined as the center of the gameplay, and the right is the positive x direction, the top is the positive y direction.

2. Interface

Overview

The editor mainly consists of 3 parts: The ***timeline***, the ***preview***, and the ***properties*** panel.



2.1: The Editor Interface

The timeline panel controls the timing of the nodes / notes; the preview panel displays the preview of the chart; the properties panel controls the attributes of the nodes / notes. We will introduce these in detail in the next section.

Timeline

You can place and move the ***control nodes*** in the timeline panel. At the left side is the menu tab, where you can choose to edit different kinds of nodes.

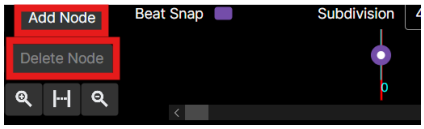
> ***Song*** – Control the ***BPM*** and the offset of the song.
>
> ***Note*** – Control the ***notes*** of each lane.
>
> ***Control*** – Set the ***position***, ***alpha***, ***speed***, and ***endpoint*** nodes of each lane.

The timeline itself is a scrollable window, you can see a chart-like graph inside. The green lines are the beat count of the song at that moment, and the gray lines are the

subdivision of the beat (or sub-beat). Finally, the red line represents the current time of the song.

2.2: The Timeline

To add / delete a node, click “Add Node” / “Delete Node” at the left side of the timeline. Notice that the newly created node is placed at the closest beat / sub-beat near the red line.



2.3: The Add / Delete Node Button

Below those buttons are the ***window scale*** controls. Those are zoom out, default scale, and zoom in respectively from left to right.

If you wish to change the number of sub-beats, you can adjust this from the ***Subdivision*** control at the top of the panel. If you don’t want to align the node to the beat, you can uncheck the ***Beat Snap*** option instead.

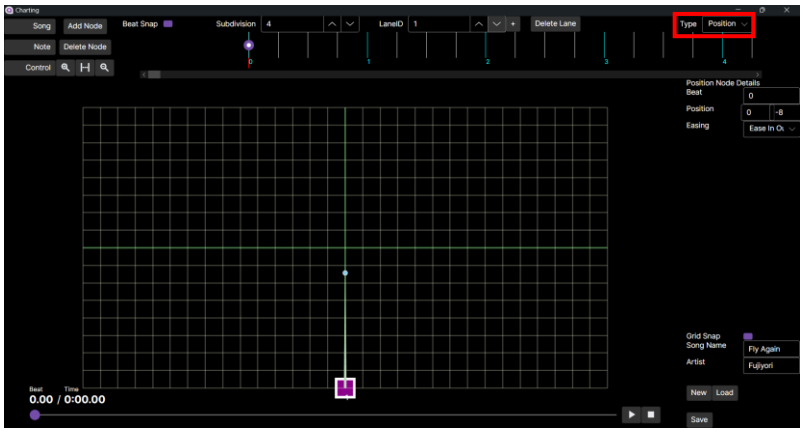
To change the beat of the node / note, click on the desired node and drag it to the left or right. You can adjust the duration of the ***TRACK*** note by **right clicking** and dragging the **head of the note** instead.

In the ***song*** tab, there are two additional settings you can change: ***Offset*** and ***Difficulty***. The offset tells the editor to start the song at that time (in millisecond). For example, an offset of 1250 means that the song starts to play at 1.25 seconds. The difficulty is how hard this chart is. It doesn’t have any effect on the chart itself.

For the ***note*** and the ***control*** tab, there are more things to play with. Since every lane has its own set of nodes and notes, you need to switch between the lanes through the ***LaneID*** control to inspect them. You can delete the entire lane as well by clicking ***Delete Lane****.

*** This action is irreversible and without a warning for now**

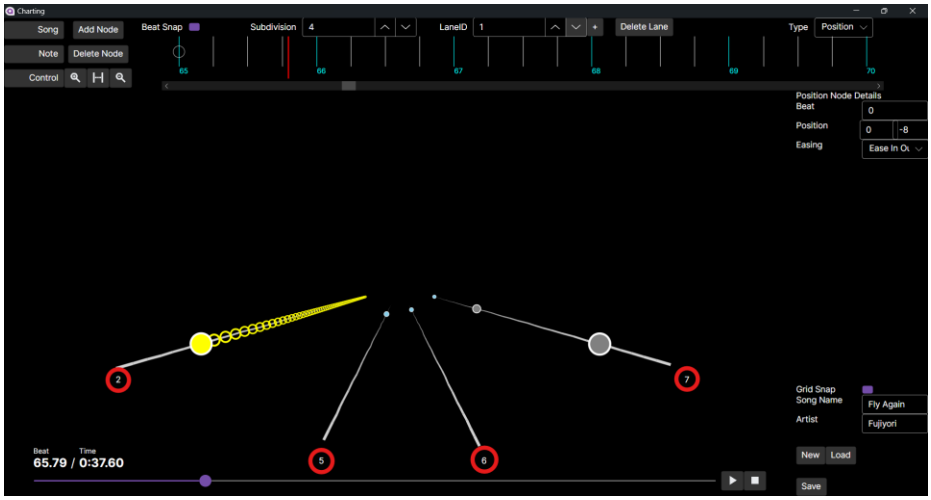
You can pick the type of the node you want to edit by selecting the respective option from ***Type*** at the top-left corner. Noticeably for the position nodes, you can set the position of the node right at the preview panel by dragging the purple square (representing the node).



2.4: The Grid and Purple Squares Appear When Editing the Position Node

Preview

Here you can see the preview of the chart you create. It should look like 3 dimensional paths with notes flying towards you. Each lane is marked with a number at the front to indicate its ID.



2.5: Each lane has an ID indicator

At the bottom of the panel is the song player. Press the play button to begin previewing. You can also see what beat and time the song is currently at by the bottom left corner.

Properties

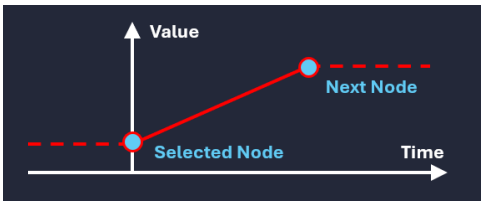
The properties panel is where you can set the attributes of the nodes / notes. A node / note mainly consists of 3 attributes: ***Beat***, ***Value***, and ***Easing***.

Beat – The beat where the node / note is at.

Value – The value or type of the node / note. The name of this property varies between each type of node. For instance, notes have a ***Type*** attribute to set the type of the note, whereas position nodes have ***X*** and ***Y*** attributes to control the position of the lane.

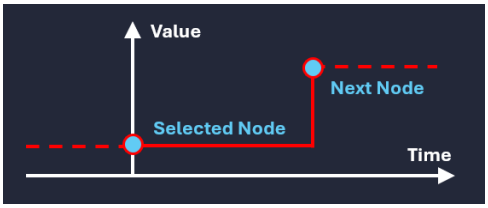
Easing – How the value transforms from one node to the next. This only exists in ***BPM***, ***Position***, ***Alpha***, and ***Speed*** nodes. How this works is by taking the values of the selected node and the next node and plugging them into an easing function. For most types of nodes, there are only two kinds of easing you can choose:

Linear – The value changes through a straight line.



2.6: The graph for linear easing

Hold – The value stays the same as the selected node for the duration of the segment.

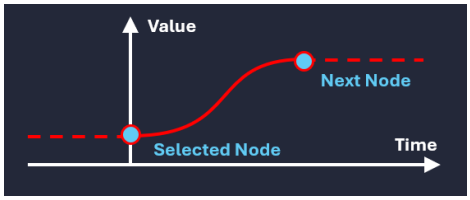


2.7: The graph for hold easing

There are more choices* for the easing of position node.

*** As of this editor version (v0.2), there's only one extra easing (Ease In Out) for the position node**

Ease In Out – The value changes through a smooth transition.



2.8: The graph for ease in out

If the selected node is the last one in the lane, the easing wouldn't have any effect, and it would be ignored.

One additional thing to note is that **the lane is drawn from the first position node to the last one**, so make sure to have more than two position nodes to make the lane show up!

3. Chart Storage

Every chart is stored in a folder called Charts. It's a folder that contains 2 files: ***chart.json*** and ***song.mp3***.

> ***chart.json*** – Contains all chart information.
>
> ***song.mp3*** – The corresponding song for the chart.

For most cases, you don't need to manually modify these files, and it's recommended not to make any changes by yourself since it may cause the chart to not load properly.

Create New Chart

To create a new chart, click ***New*** at the bottom left corner of the editor. A file picker should be opened, and you can browse any song (**mp3**) you want to make a chart for.

Once you select a song, a chart folder should be automatically created inside Charts, with a single lane inside.

Save Chart

Once you finish your chart or want to save progress, you can click ***Save*** to save.

In addition, the editor automatically saves the chart for you every 5 minutes in the Autosave folder. This way, you won't lose much progress when anything unexpected happens (such as crashes).

If you want to recover your chart, navigate to the chart folder inside Autosave and copy chart.json to the chart folder inside Charts.

Load Chart

To load an existing chart, click ***Load*** and select the chart folder. Make sure that the files inside the selected folder match the structure said above or the editor would show up error.

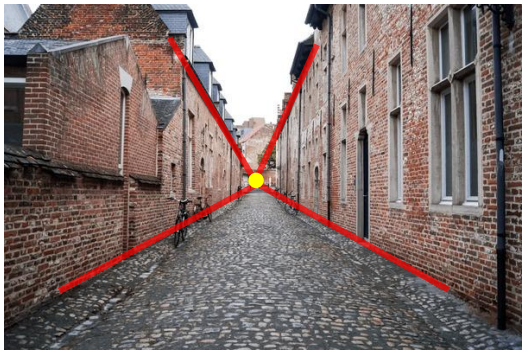
4. Design Principles

Since it's difficult for you to playtest your own chart, I will try to write down the tips and principles as detailed as possible to give you a general direction.

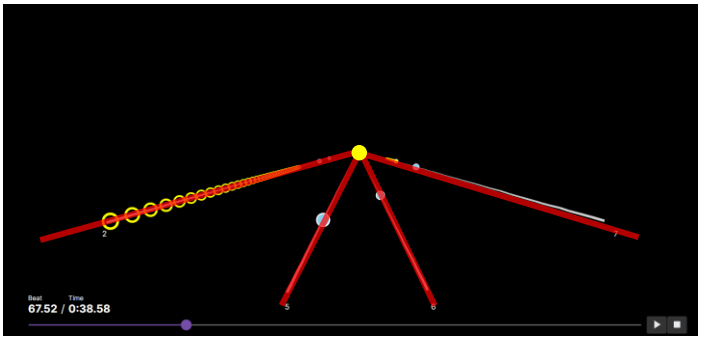
3D Perspective

As you can see from the preview, this rhythm game is played in a 3-dimensional space. However, since **the location of the player is static**, they can only feel the sense of space / depth through perspective.

Like a one-point perspective drawing, the preview panel also has a vanishing point at **(0, 0)**. That is, the objects approach (0, 0) as they move further away from you.

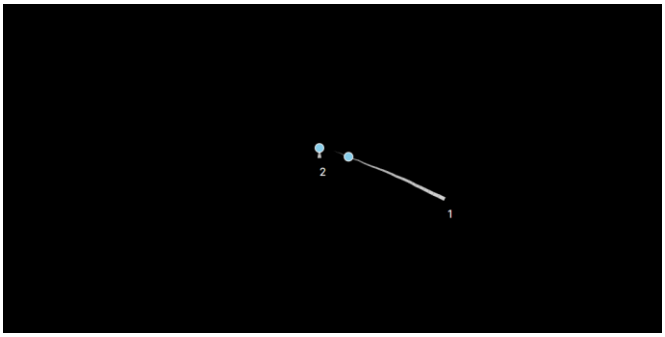


5.1: A photo demonstrating the one-point perspective. The yellow dot is the vanishing point



5.2: The one-point perspective of the preview. The yellow dot is the vanishing point

This means that if the x-y position of a point is near or right at (0, 0), the effect of perspective can become not so obvious, and the player may lose the sense of the note's distance.



4.3: Two lanes with a TAP note at the same beat.
Lane 1 is set to position at (5, -2) and Lane 2 at (-0.5, 0).

Device Restriction

The hand tracker Leap Motion 2 has a fairly wide field of view (around 160°x160°), but it still has a limit of capture angle. For this reason, you should avoid placing the notes outside of the grid.

Furthermore, because the tracker is essentially a camera, it cannot see the hand that is obscured by the other. Therefore, try not to make players do a cross-hand motion that may cause the hands to overlap with each other.

Hand Movement

You should keep in mind that the hands are attached to the arms, and one arms' pose could block the movement of the other hands. Hence, players may not be able to make movements that you expect them to do.

Even though it's not ideal, you can try to "playtest" the chart by looking at the preview and play along. This way, you can sort of feel which kind of gameplay is doable and which one is physically impossible.

Gameplay

A chart can be made difficult, but you must make sure the player thinks the gameplay is **fair**. A sudden speed change or high-speed note should be given a sign or warning in advance.

Moreover, every note should have a "guideline"(an additional lane segment) before it so the player can see clearly where to hit the note.

Of course, these are just a general suggestion, you can always, and are encouraged to, be creative and build some experimental and gimmicky charts!

5. Report

Crash Log

Although the editor has been tested many times, there may still be bugs that we did not catch. If a crash does happen, the crash log would be created in the CrashLog folder. The file name has the format (Log***YYMMDD-hhmmss***.txt) so that you can quickly find the correct log.