MIDI Converter Overview

for v1.6.1

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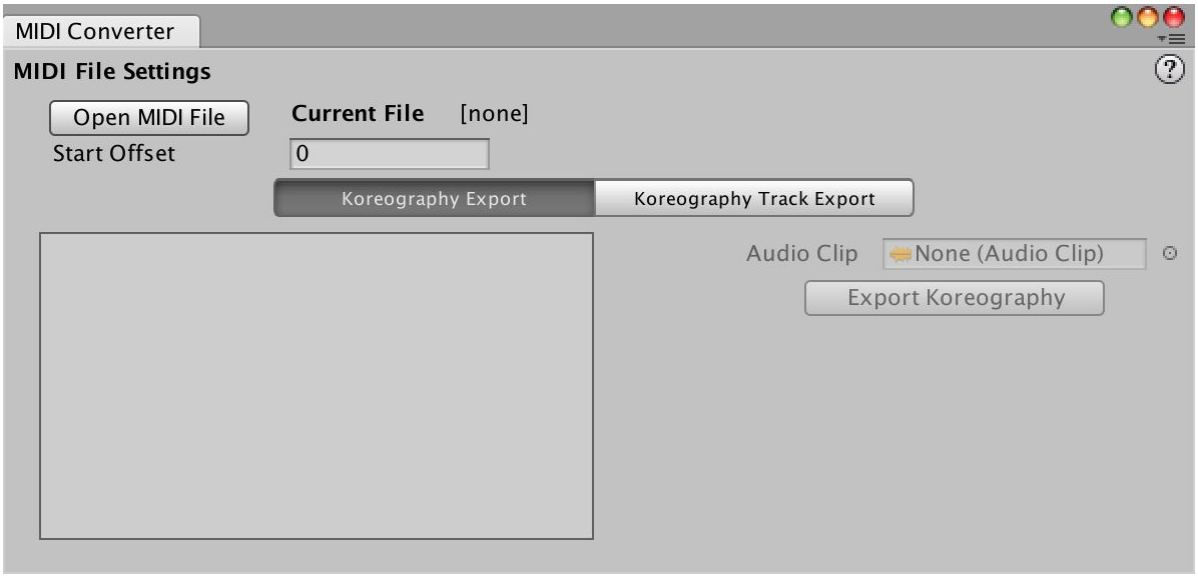
Introduction

Koreographer's *MIDI Converter* is a powerful tool that can enhance your workflow when generating Koreography for your music. The technology works by reading musical information (timing and more) stored in a MIDI[1] file and converting some of it directly into Koreography information and events. Depending on the scope of your Koreography, this tool can potentially save you hours of initial setup.

Overview

Startup

To access the MIDI Converter, select **Koreographer MIDI Converter** from the main *Window* menu. This will open the following window:



The MIDI Converter

The MIDI Converter window is separated into three distinct areas:

1. MIDI File Import
2. Koreography Export
3. Koreography Track Export

These will be discussed in more detail in the following sections.

MIDI File Import

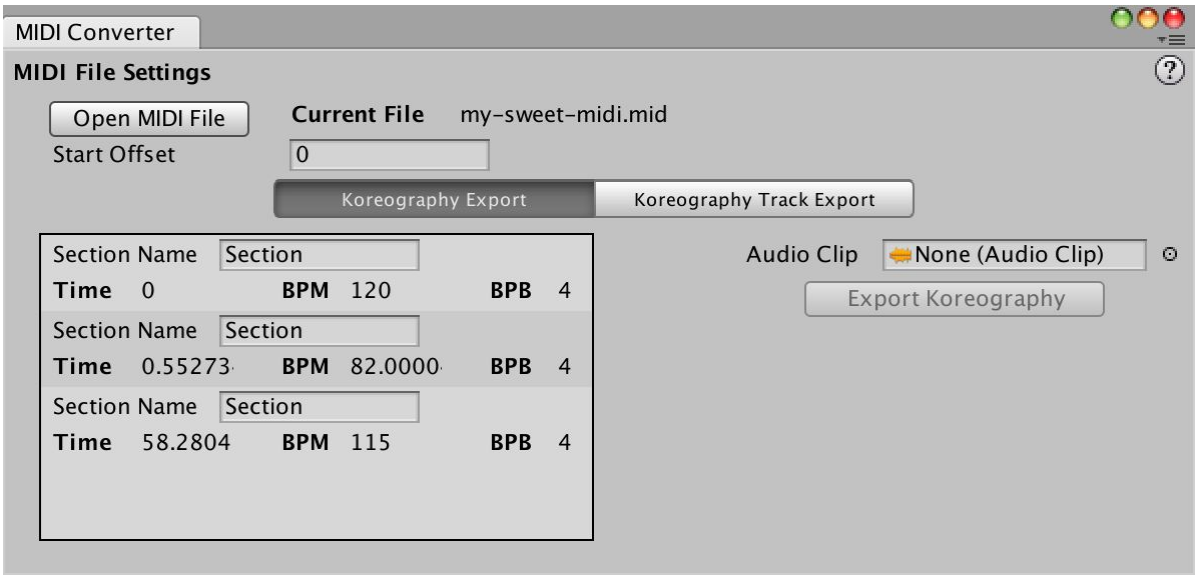
The *MIDI File Import* section allows you to specify the target MIDI file that contains the information you wish to convert into Koreography data.

[1] Musical Instrument Digital Interface - MIDI files are a standardized way for musical sequences to be saved, transported, and opened in other systems.

To begin working with the MIDI Converter you must first import a MIDI file by clicking the **Open MIDI File** button. Navigate to your MIDI file, select it, and press **Open**. The MIDI Converter will open the MIDI file, parse it, and fill in the relevant data sections.

> **Note:** Not all MIDI information is currently recognized by the MIDI Converter. Please see the *MIDI Data Usage* section for details on recognized MIDI information.

Once the file is opened it will be specified in the **Current File** field.



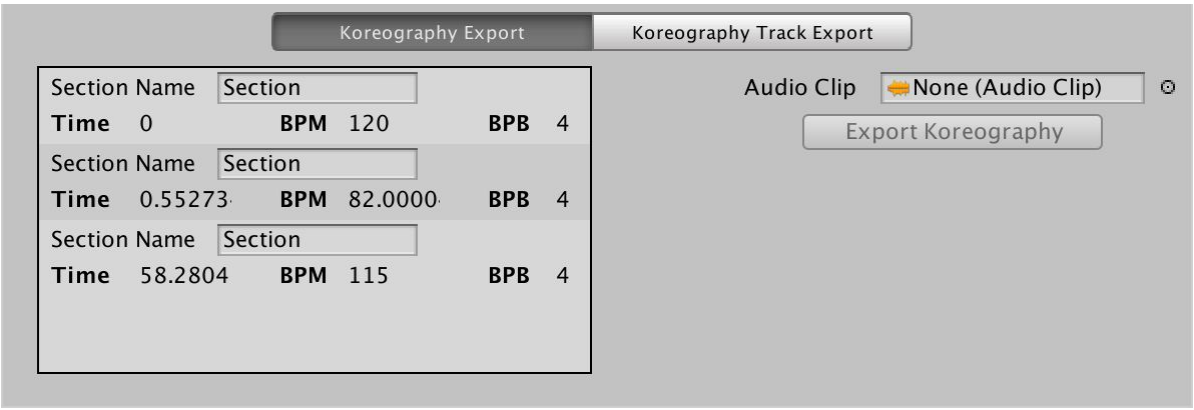
After opening a MIDI file

The **Start Offset** field, visible below the **Open MIDI File** button, allows you to specify a global timing offset for Tempo Sections in the exported Koreography and all exported Koreography Events. This is useful if your music project was exported from your DAW with silence that was *added* during the export process.

Koreography Export

The *Koreography Export* section allows you to convert tempo information found within the MIDI file to Koreography tempo information and associate it with an Audio Clip.

Once the MIDI file is opened any *Tempo Map* information (Tempo and Time Signature) found will be presented as a scrollable list (the scrollbar will only appear if needed).

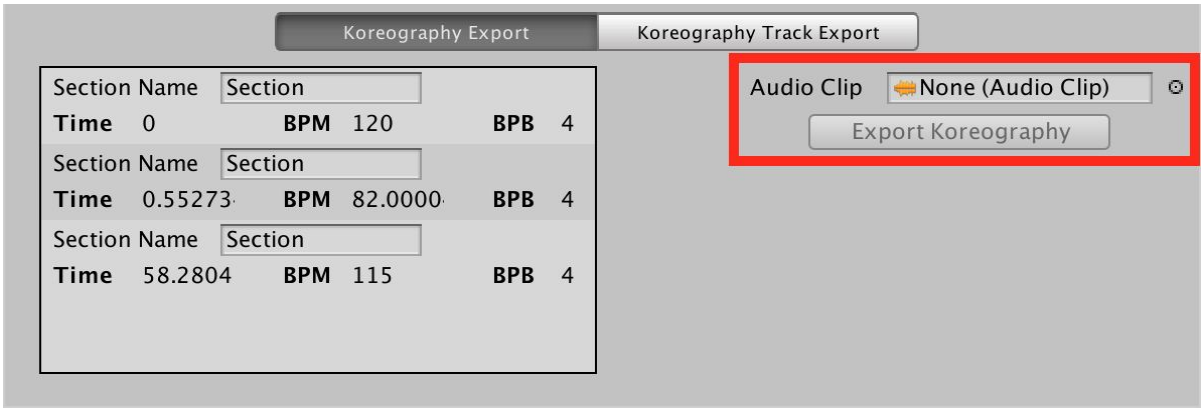


The Tempo Map and Koreography settings

Upon export the *Tempo Map* information will be converted into Koreographer *Tempo Sections*. A new section is created any time either the tempo (Beats Per Minute) or time signature (Beats Per Bar) change. Prior to export you may modify the name of each tempo section.

> **Note:** Tempo Sections created during the MIDI conversion process do not use Koreographer's **Start New Measure** feature. This setting is deliberately disabled to better match how tempo changes work with MIDI. The setting may be manually enabled in the **Koreography Editor**.

In order to export a Koreography asset, you must specify the **Audio Clip** that the loaded MIDI file is associated with. This is required because the export process uses the sample frequency specified in the AudioClip object to calculate the sample timing of each of the exported Tempo Sections.



The Audio Clip field and the Export button

Once the Audio Clip is specified, the **Export Koreography** button will become enabled. To export Koreography:

1. Click the **Export Koreography** button.
2. Specify a name and location for the new asset.
3. Click the **Save** button.

You may now open this Koreography in the **Koreography Editor** and modify the Tempo Sections or add Koreography Tracks.

Koreography Track Export

The *Koreography Track Export* section allows you to specify which of the supported MIDI musical event information you would like to convert into Koreography Events (which are contained within a Koreography Track).

Once the specified MIDI file is opened and parsed any *Note* information found within MIDI Tracks and their channels will be presented as a scrollable list.

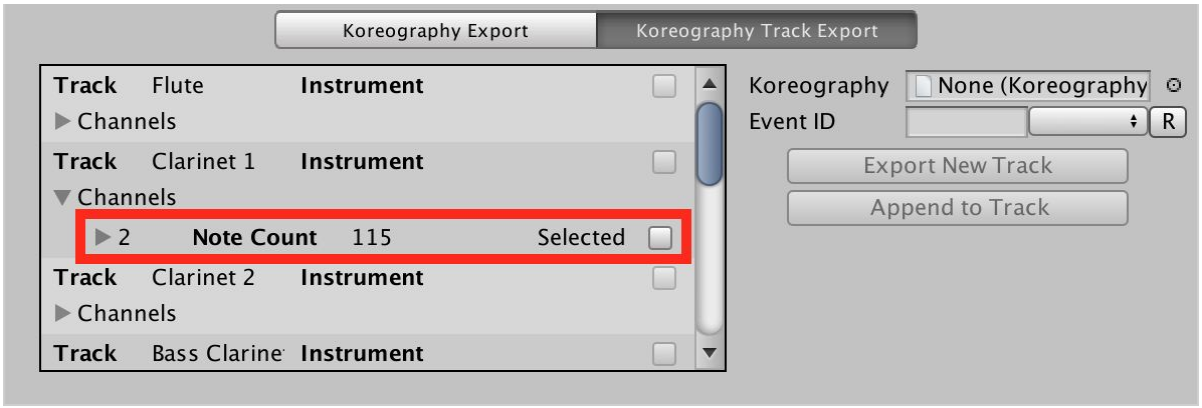
MIDI Track info and Koreography Track settings

Depending on the environment that generated the MIDI file, the **Track** and **Instrument** name fields may or may not have any content in them (or they may be identical). In this example, no instrument name was included in the loaded MIDI file.

> **Note:** The MIDI **Track Name** and **Instrument Name** data is not currently exported in any way; it is for informational and organizational purposes only.

The non-interactive checkbox that appears to the right of the **Instrument** shows if content within the given track has been selected for export or not (see below).

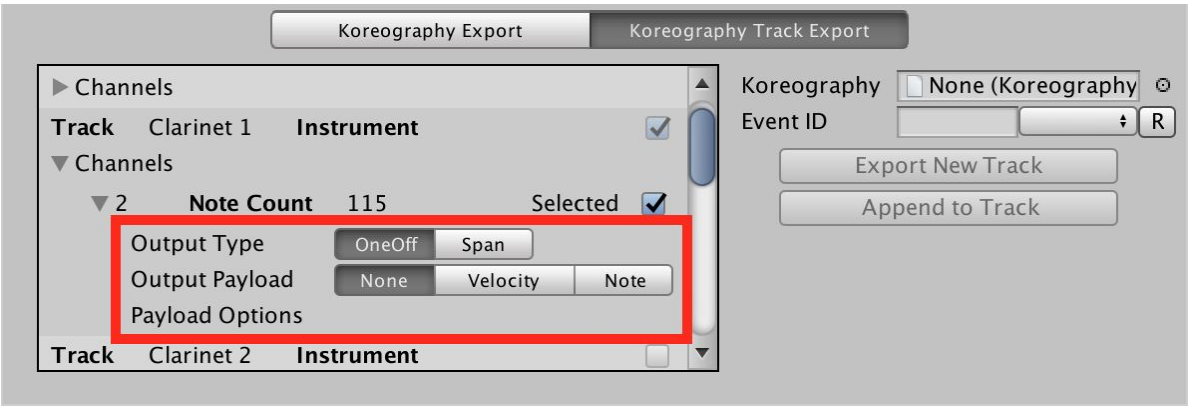
Each MIDI Track may contain up to 16 discrete channels of music event information. Click the dropdown (▸) to display the channels found in a given track.



Displaying MIDI channel information for a track

Each channel shows the MIDI channel number, the number of notes detected in the channel (based on MIDI **Note On**/**Note Off** event information), and whether or not the specific channel is selected for inclusion during the Koreography Track export process.

You may specify how the MIDI Converter converts MIDI note information to Koreography Events on a per-channel basis. To do so, click the **Selected** checkbox and then the dropdown (▸) to the left of the channel you would like to export.



Per-Channel note conversion settings

There are three separate settings that you can adjust for event conversion:

1. **Output Type:** Whether events will be converted to *OneOff* or *Span* Koreography Events.
2. **Output Payload:** Whether or not to include a payload and, if so, which MIDI information to include (*Velocity* or *Note*). Currently it is not possible to include both sets of information in a single payload. If both *Velocity* and *Note* information is required, consider exporting the information into two Koreography Tracks. Another option is to create your own Payload type to handle both pieces of information and update the MIDI Converter to work with them. This requires Source Code access.
3. **Payload Options:** Options available depend on the *Output Payload* settings.
    - **Velocity:** The following options are available when the *Velocity* Payload Output option is selected:
        - **Normalized:** The velocity data normalized as a float in the range of [0,1].
        - **Raw Data:** The integer value contained in the velocity data; a number in the range of [0,127].
    - **Note:** The following options are available when the *Note* Payload Output option is selected:
        - **As Text:** The musical note converted to text, e.g. “C” or “D#/Eb”.
        - **Raw Data:** The integer value contained in the note data; a number in the range of [0,127] where 60 is Middle C.

Note: The **Payload Options** row will be empty when the **Output Payload** option *None* is specified.

The final configurable fields are **Koreography** and **Event ID**.

Koreography and Event ID fields

Specifying the required **Koreography** object provides the MIDI Converter with enough information to generate the correct audio timings for Koreography Events on export. The MIDI Converter accesses the *frequency* (sample rate) setting of the AudioClip referenced in the specified Koreography. Further, Koreography Track operations apply to this Koreography.

Event ID is required and specifies a Koreography Track to modify. As Event IDs must be unique within a single Koreography, the MIDI Converter changes what modification buttons are available based on whether or not the Koreography has a Koreography Track with the specified Event ID:

- The Event ID is **not found** in the Koreography:
    1. **Export New Track:** A new Koreography Track will be created added to the specified Koreography.
- The Event ID is **found** in the Koreography:
    1. **Overwrite Events in Track:** All Koreography Events in the Koreography Track will be replaced with new ones with the specified import settings.
    2. **Append to Track:** Koreography Events with the specified import settings will be added to the Koreography Track, without modifying previously existing Koreography Events.

> **Note:** When using the **Append to Track** feature, some MIDI events may not successfully convert into Koreography Events. This may happen if a **OneOff** Koreography Event already exists at the location of an incoming OneOff Koreography Event. There may only be one OneOff at any given sample location at a time. **Span** Koreography Events do not have this limitation.

Once the **Koreography** and **Event ID** fields are specified, and *at least one channel selected*, the **Export New Track** button will activate. To export a Koreography Track with the given settings:

1. Click the **Export New Track** button.
2. Specify a name and location for the new asset.
3. Click the **Save** button.

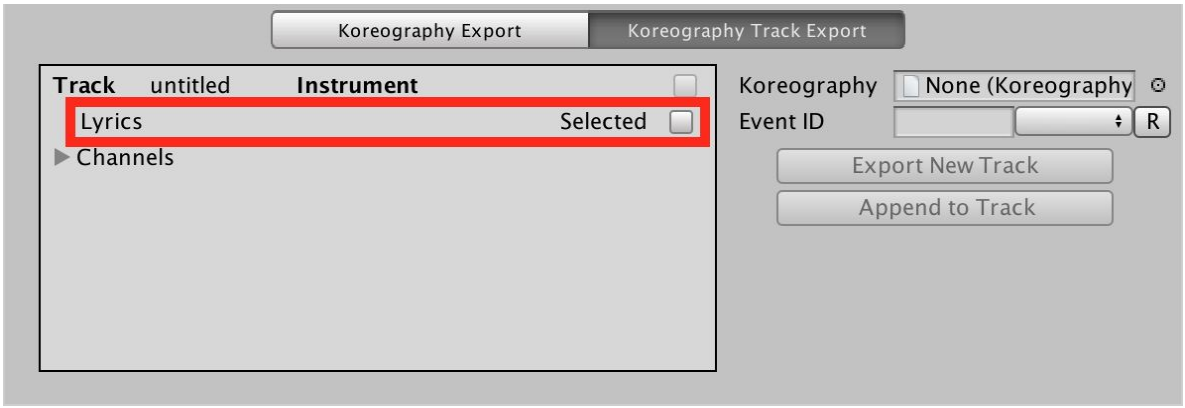
The **Overwrite Events in Track** and **Append to Track** buttons will activate if the designated Event ID already exists in the specified Koreography.

Overwrite and Append buttons

You may now open the **Koreography Editor**, load the Koreography you specified in the MIDI Converter, and inspect and modify the exported Koreography Events.

Lyrics Support

The MIDI Converter supports MIDI Lyrics. When a MIDI Track containing Lyrics is detected, the option to select them for export is displayed. All detected Lyric events within the selected MIDI Track are converted into OneOff Koreography Events with a Text Payload that contains the lyric specified at the detected time.



Lyrics export option

Note: If any channels are marked as **Selected** when exporting Lyrics, those channels will *also* be exported in the same pass.

Custom MIDI Conversion

While the MIDI Converter features many built-in options for converting raw MIDI events into Koreography data, it may be advantageous to customize the conversion yourself. Perhaps you would like to store both the MIDI note and velocity values in a single payload? Perhaps you would like to export a single event containing a Curve Payload made from all MIDI events in a given channel? The MIDI Converter supports this feature by leveraging Koreographer's custom payload system.

The MIDI Converter checks the Koreography Track specified by the **Event ID** to determine whether it implements a special `IMIDIConvertible` interface. If so, the special **Use Custom Conversion** option is enabled.

Use Custom Conversion button

The **Use Custom Conversion** button will send all of the MIDI events in the selected channels to the specified Koreography Track for conversion.

> **Note:** Per-channel note configuration settings are ignored when using this feature.

For information on implementing a custom Koreography Track that enables this feature, please see the **Custom Payload Demo Overview** document included with the **Custom Payload Demo**.

MIDI Data Usage

The MIDI Converter currently uses the following MIDI Messages and Events to generate Koreography:

- **Messages**
  - Note On/Note Off
- **Meta Events**
  - Sequence/Track Name
  - Instrument Name
  - Set Tempo
  - Time Signature
  - Lyric

This list is likely to expand in the future based on user feedback.