九齊科技股份有限公司

Nyquest Technology Co., Ltd.

User Manual

Q-MIDI

NY2/NY5/NY5+/NY6/NY7/ NX1

MIDI Timbre Editor

Version 5.6

Aug. 27, 2025

Table of Contents

1 Introduction

Q-MIDI is a tool for melody application development provided by Nyquest Technology Corporation limited (Nyquest). The main function of *Q-MIDI* focuses on timbre development for NY2 / NY5 / NY5+ / NY6 / NY7 / NX1 series microprocessor. *Q-MIDI* equips highly integrated user interface, user can create own exclusive instrument database. Through the simplified user interface and efficient development process, users can edit projects and convert MIDI files quickly and efficiently.

1.1 What is *Q-MIDI*

Q-MIDI is an integrated timbre development tool for melody application. It includes functionality of timbre and envelope editor, automatic timbre analyzer, and real-time timbre simulator. User can edit envelope, synthesize timbre with envelope, and eventually create customized Instrument Database easily. Besides, *Q-MIDI* also provides functions of simulating timbre on PC and converting .mid files to IC specified format.

1.2 Install *Q-MIDI*

Please contact Nyquest Technology to acquire the latest version of *Q-MIDI*. To install, simply unzip the .zip file and double click the .exe file. Then, follow the instruction of the Installation Wizard to complete the installation.

System Requirements:

- A PC compiled with Pentium 1.3GHz or higher CPU, Windows 7 / 8 / 10 / 11.
- At least 1G SDRAM.
- At least 2G free space on the hard disk.
- A display card and monitor that support 1366x768 resolution or higher.
- .NET Framework 4.8 installed.

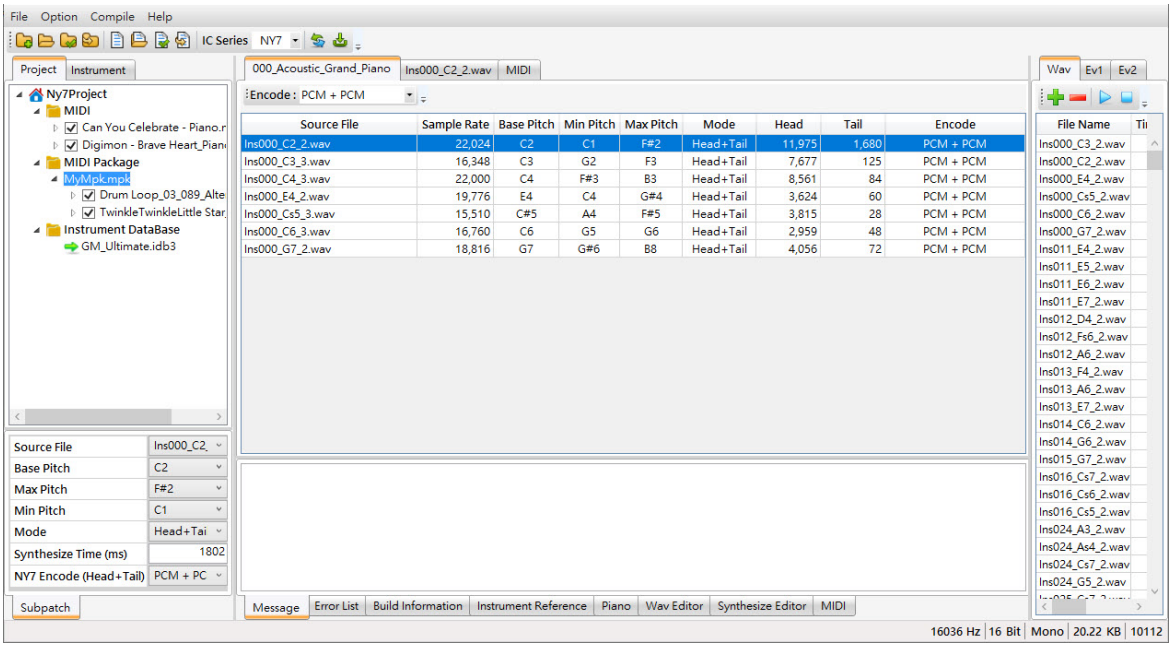
2 *Q-MIDI* Interface

When user activates *Q-MIDI*, the following window will pop-up for user selecting IC series. Then, please press “OK” to start editing project.

3 NY5+ / NY6 / NY7 / NX1 Series Interface

User can easily execute Recent Projects, Open Project or New Project via clicking the corresponding buttons on the main page of *Q-MIDI*.

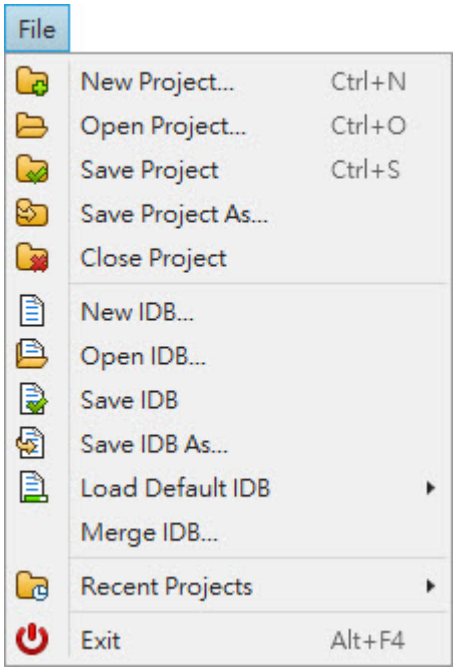
The screen of *Q-MIDI* contains: Menu, Toolbar, Project Manager, Instrument Manager, Subpatch Property Window, Instrument Table, Subpatch Editor, Information Window, Wav Manager and Envelope Manager. The following chapters will introduce every function respectively.



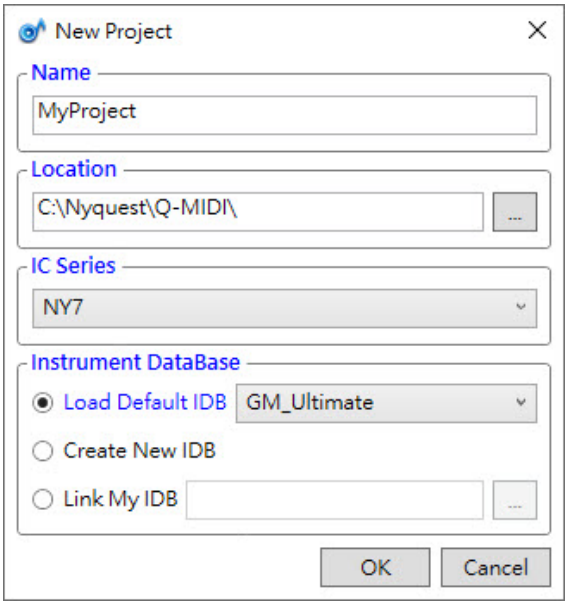
3.1 Menu

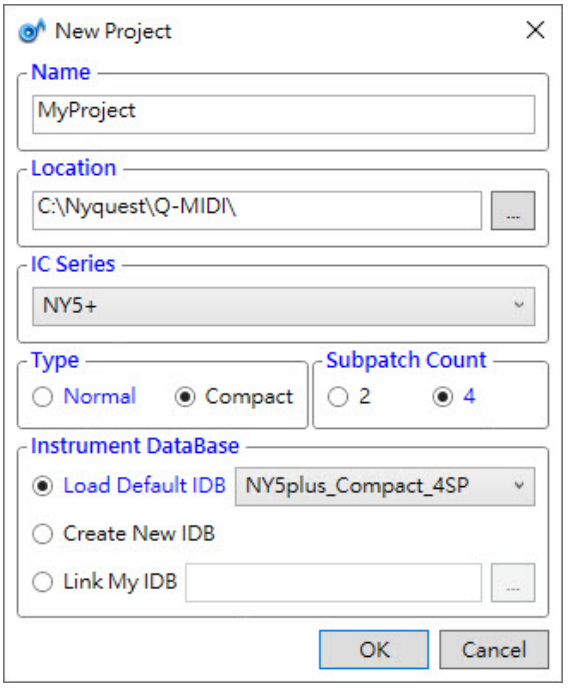
The menu bar contains: File, Option, Compile, Analyze and Help.

3.1.1 File



New Project...: Build an new project file. The New Project window is shown as below.





- **Name:** Project Name.
- **Location:** The file path of projects.
- **IC Series:** IC Series supports NY5+, NY6, NY7 and NX1.
- **Type:** The NY5+ project types, included Normal and Compact. The NY5+ compact project only supports the timbre database built by NY5+ compact, NY5+ normal project and other series project do not support the timbre database which is built by NY5+ compact project.
- **Subpatch Count:** The subpatch count for the IDB of NY5+ Compact project, provides 2 or 4 instrument subpatches. This setting will change the base / min / max pitch as shown below. When subpatch count is 2, the instrument patches only allow 2 groups of subpatch settings (base / min / max pitch / sample rate), 7 options for the base pitch of each subpatch, the min / max pitch could be C1~B8. When subpatch count is 4, 4 options for the base pitch of each subpatch, every base pitch corresponds to a fixed group of the min / max / sample rate settings.

Subpatch Count	Base Pitch	Min Pitch	Max Pitch	Sample Rate (Hz)
2	C1, C2, C3, C4, C5, C6, C7	C1 ~ B8	C1 ~ B8	4000 ~ 62500
4	C2	C1	B3	15625
	C4	C4	B5	15625
	C6	C6	B6	31250
	C7	C7	C8	31250

- **Load Default IDB:** Load the built-in default instrument databases: the default instrument database for NY5+ is NY5plus_GM_Ultimate, NY5plus_GM_Vintage and NY5plus_GM_LE; for, NY5+ Compact project is NY5plus_Compact_4SP and NY5plus_Compact_2SP; for NY6/NY7 is GM_Ultimate, GM_Vintage and GM_LE. Please refer to the corresponding documentation in the installation directory for a detailed summary of these IDB content.
- **Create New IDB:** Create a new instrument database
- **Link My IDB:** To specify the desired instrument database. .

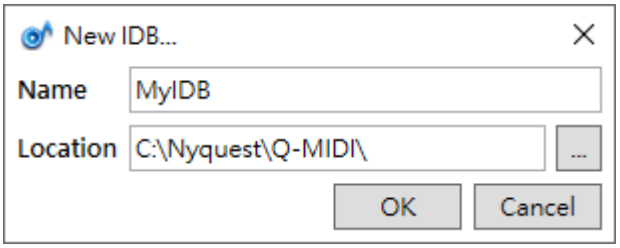
Open Project...: Open previously edited project file.

Save Project: Save the current editing project file.

Save Project As...: Save the current project to the specified file path.

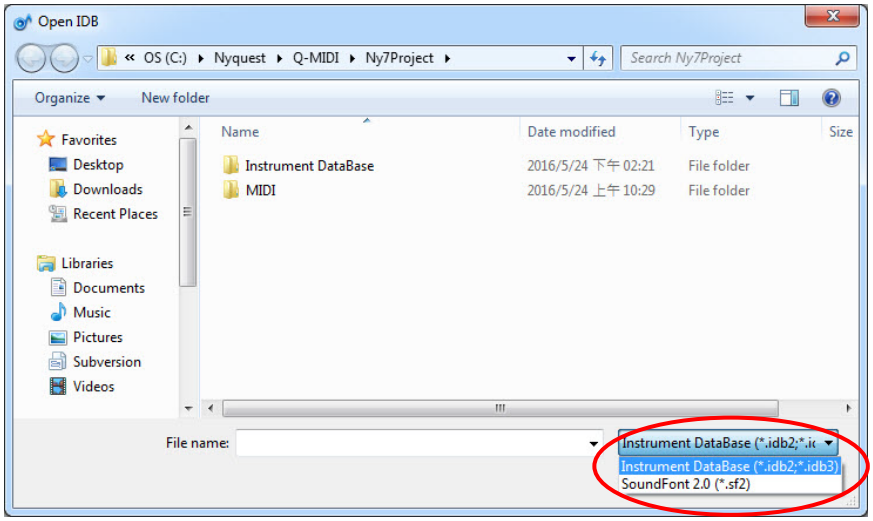
Close Project: Close the current project.

New IDB…: Create a new IDB file and its file extension is .idb3 as shown below.

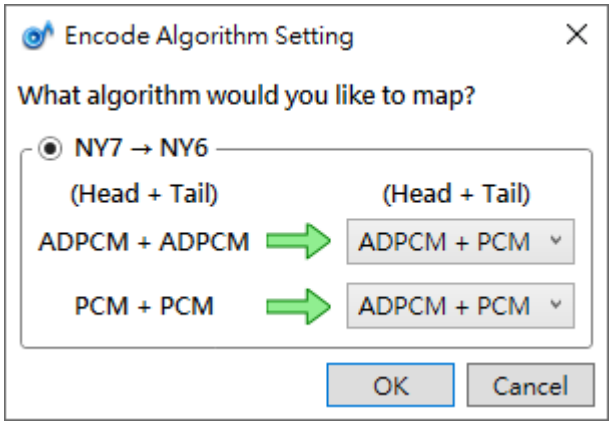


- **Name:** Name of the new instrument database.
- **Location:** The location to store the new instrument database.

Open IDB…: Open an existing IDB (.idb2/.idb3) or SoundFont (.sf2) file. If a .sf2 file is selected, *Q-MIDI* will convert the file to .idb3 and add it to project.



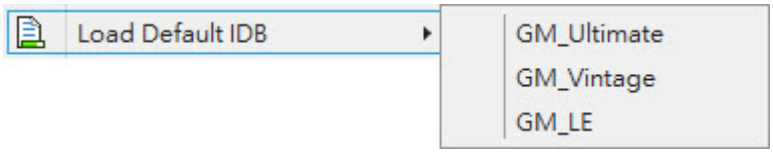
If users open the IDB file which different from current project IC series, the encoding settings window will appear. Add the IDB file created from NY7 project to NY6 project as shown below. After pressing OK, all the subpatch codes will convert according to the setting. ADPCM+ADPCM and PCM+PCM will convert to ADPCM+PCM.



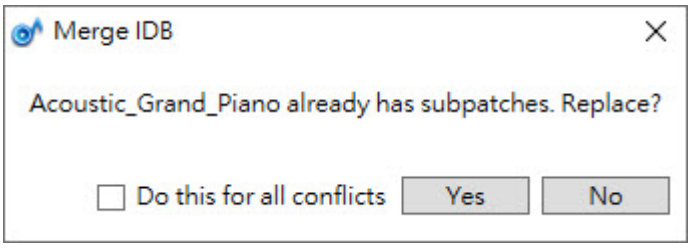
Save IDB: Save the current editing IDB.

Save IDB As…: Save the current IDB to the specified file path.

Load Default IDB: Load the default IDB and add to the project, as shown below.



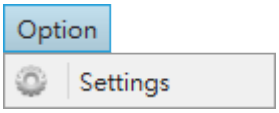
Merge IDB…: Merge the specified IDB or SF2 to an existing IDB. If the instrument already has a subpatch in the merge process. The following message will pop up to ask how to deal with.



Recent Projects: List of the most recently used projects. Click on one to open.

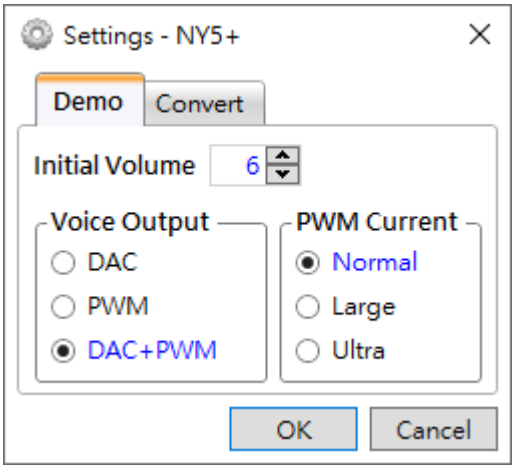
Exit: Exit *Q-MIDI*.

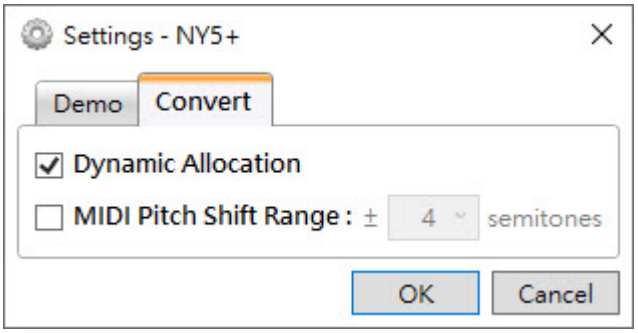
3.1.2 Option



Settings: Settings for converting files. The window is shown below.

For NY5+ series,





Initial Volume: Initial Volume is the initial playback volume of .mid files. The range of volume is from 1 to 15. A larger number means the higher volume. Default is 6.

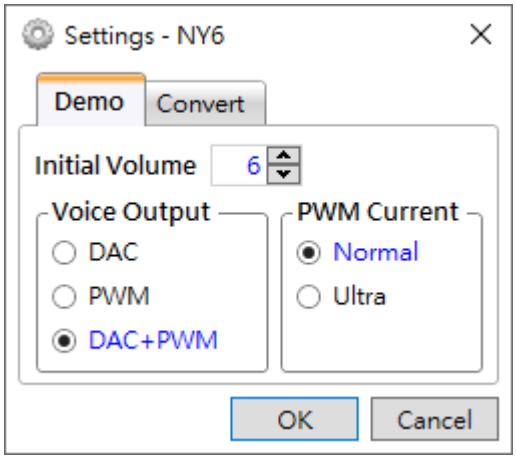
Voice Output: The Voice Output will be DAC, PWM or PWM+DAC mode. If users choose PWM+DAC mode, IC will automatically detect the speaker connected pins to determine if output voice via PWM or DAC.

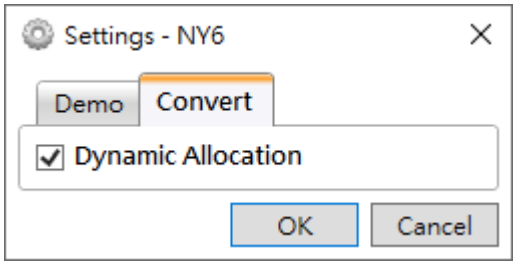
PWM Current: This setting provides 3 selections: Normal, Large and Ultra. Default is Normal.

Dynamic Allocation: When Dynamic Allocation is checked, MIDI notes in 1~16 channels will be assigned to 4+1 channels to be played as possible, one of the channels is for percussion; when it is unchecked, only notes in 1~5 channels, one note at once for each channel, will be played.

MIDI Pitch Shift Range: Pitch shift up/down n semitones for all notes of selected mid files when executing Convert or Download. Default is disabled.

In NY6 series.





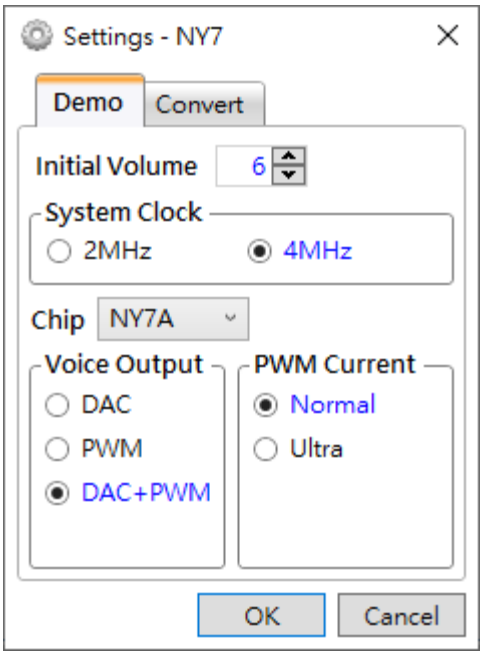
Initial Volume: Initial Volume is the initial playback volume of .mid files. The range of volume is from 1 to 15. A larger number means the higher volume. Default is 6.

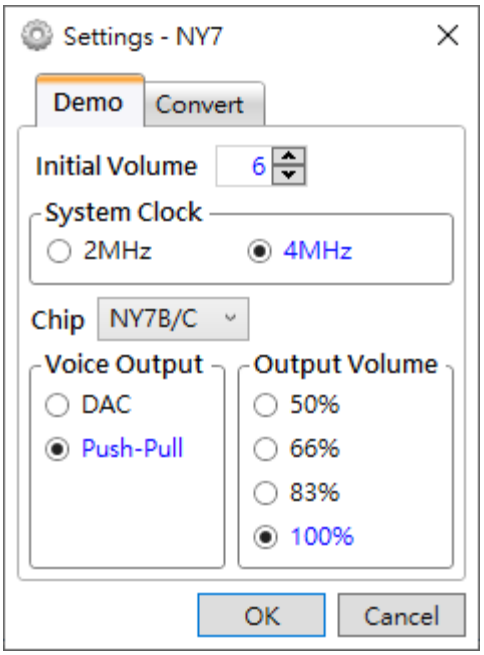
Voice Output: The Voice Output will be DAC, PWM or PWM+DAC mode. If users choose PWM+DAC mode, IC will automatically detect the speaker connected pins to determine if output voice via PWM or DAC.

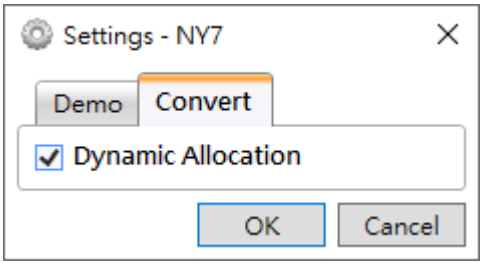
PWM Current: This setting provides 2 selections: Normal and Ultra. Default is Normal.

Dynamic Allocation: When Dynamic Allocation is checked, MIDI notes in 1~16 channels will be assigned to 6 channels to be played as possible; when it is unchecked, only notes in 1~6 channels, one note at once for each channel, will be played.

In NY7 series.







Dynamic Allocation: When Dynamic Allocation is checked, MIDI notes in 1~16 channels will be assigned to 8 channels to be played as possible; when it is unchecked, only notes in 1~8 channels, one note at once for each channel, will be played.

Initial Volume: Initial Volume is the initial playback volume of .mid files. The range of volume is from 1 to 15. A larger number means the higher volume. Default is 6.

System Clock: User can set system clock rate to 4MHz or 2MHz. Default is 4MHz.

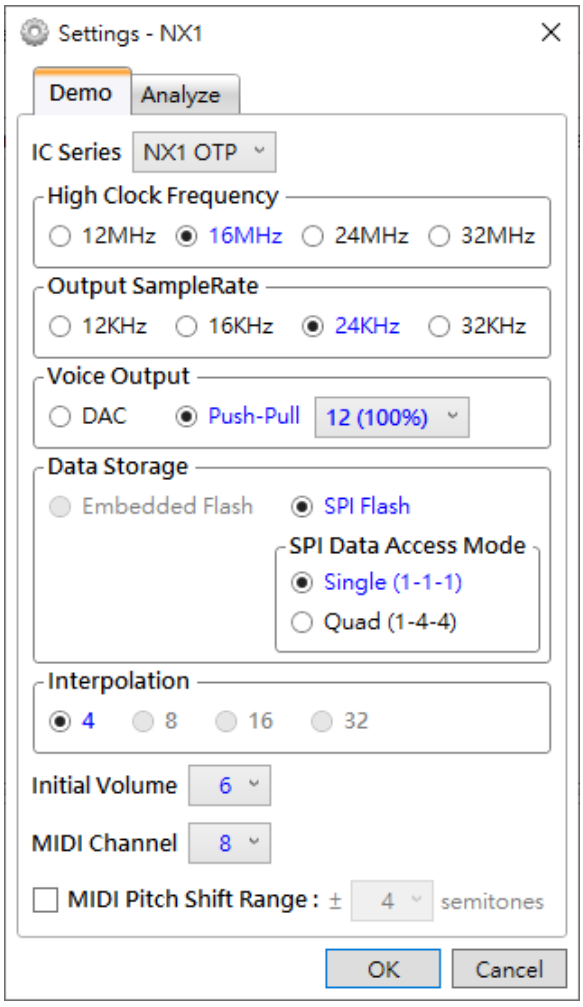
Chip Series: NY7 series provide 2 selections: NY7A and NY7B/C. A new project is default as NY7B/C.

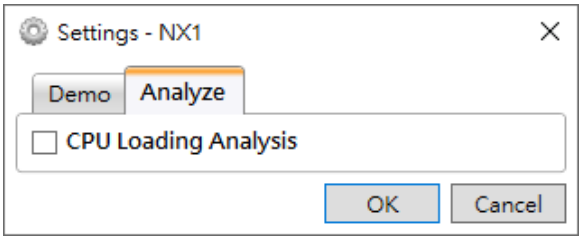
Voice Output: When NY7A series is selected, the Voice Output will be DAC, PWM or PWM+DAC mode. If users choose PWM+DAC mode, IC will automatically detect the speaker connected pins to determine if output voice via PWM or DAC. When NY7B/C is selected, user can choose Push-Pull or DAC, and default is Push-Pull.

PWM Current: This setting provides 2 selections: Normal and Ultra. Default is Normal. This setting is only available for NY7A.

Output Volume: This is the built-in Push-Pull amplifier's analog volume setting. It provides 4 options: 100%, 83%, 66% and 50%. Default is 100%. This setting is only available for NY7B/C.

In NX1 series.





IC Body: It provides NX11FS21, NX11FS22, NX11FS23, NX12/13FM, NX12/13FS and NX1 OTP. The default is NX1 OTP.

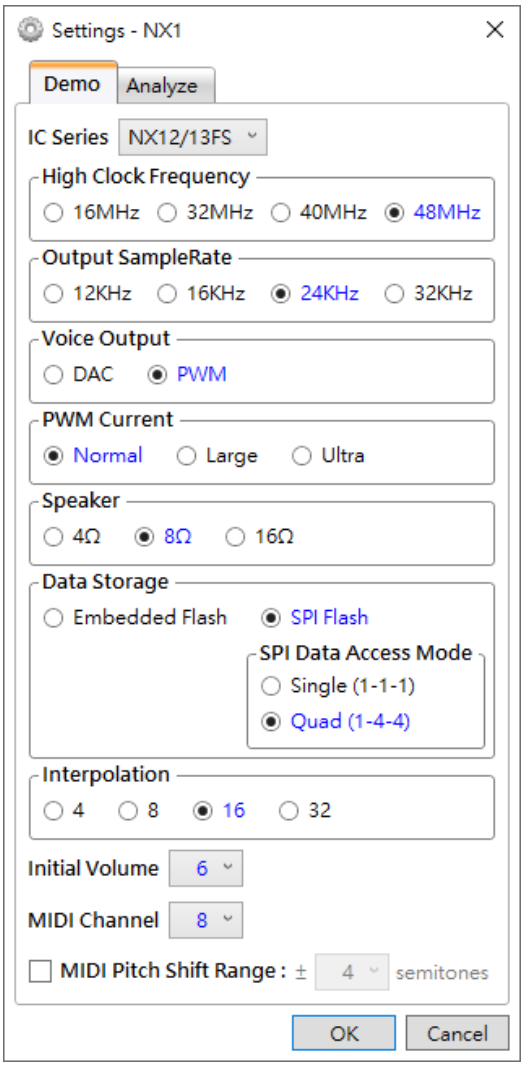
High Clock Frequency: MX1 OTP provides 4 options: 12MHz, 16MHz, 24MHz and 32MHz, the default is 16MHz. NX11FS21/22/23 provides 16MHz, 32MHz and 40MHz, the default is 40MHz. NX12/13FM and NX12/13FS provide 16MHz, 32MHz, 40MHz and 48MHz, the default is 48MHz.

Output Sample Rate: The sample rate of .mid files. It provides 12KHz, 16KHz, 24KHz and 32KHz. Default is 24KHz.

Voice Output: The Voice Output will be DAC or Push-Pull mode for NX1OTP. Default is Push-Pull mode. This is the built-in Push-Pull amplifier's analog volume setting. There are 16 levels and default is 12 (100%). The following table shows the corresponding percentage in different levels of Push-Pull.

Push-Pull																
Level	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Percentage (%)	130	122	114	107	100	94	88	83	77	71	66	60	55	50	45	40

When user selects the IC Body as NX11FS21 and NX11FS22, the Voice Output could be PWM. When the IC Body is NX11FS23, NX12/13FM or NX12/13FS, the Voice Output could be set as DAC or PWM, the default is PWM and user can set the PWM current and Speaker as the following description.



PWM Current: This setting provides 3 selections: Normal, Large and Ultra. Default is Normal

Speaker: User can set the speaker as 4Ω, 8Ω or 16Ω. Default is 8Ω.

Data Storage: This setting provides embedded or external flash memory to store data which is dependent on the used IC.

SPI Data Access Mode: Set the SPI access data mode. For NX1 OTP, NX11FS22 ,NX11FS23 and NX12/13FS series, it provides Single and Quad mode, the default mode for NX1 OTP is Single, for NX11FS22, NX11FS23 and NX12/13FS series is

Quad. For NX11FS21 and NX12/13FM series, only the Single mode is available.

Interpolation: Set the samples of interpolation. This setting provides 4 sample options: 4, 8, 16 and 32. The more parameters, the more samples, and vice versa. This default parameter for NX1 OTP IC is 4, other NX1 IC series is 16.

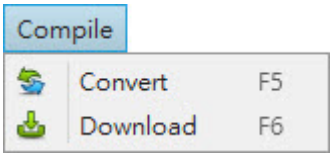
Initial Volume: Initial Volume is the initial playback volume of .mid files. The range of volume is from 1 to 15. Default is 6.

MIDI Channel: The maximum number of MIDI channels. It provides 1~16 channel. Default is 8. The Initial Volume will also be adjusted synchronously to the default value 8, 6, 5 and 4.

MIDI Pitch Shift Range: Pitch shift up/down n semitones for all notes of selected mid files when executing Convert or Download. Default is disabled.

CPU Loading Analysis: Calculate CPU loading analysis information when executing Convert or Download. Default is disabled.

3.1.3 Compile

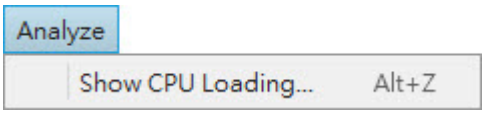


Convert: Convert the current editing IDB files and the selected MIDI files to .qmd file for used in *Q-Code* program.

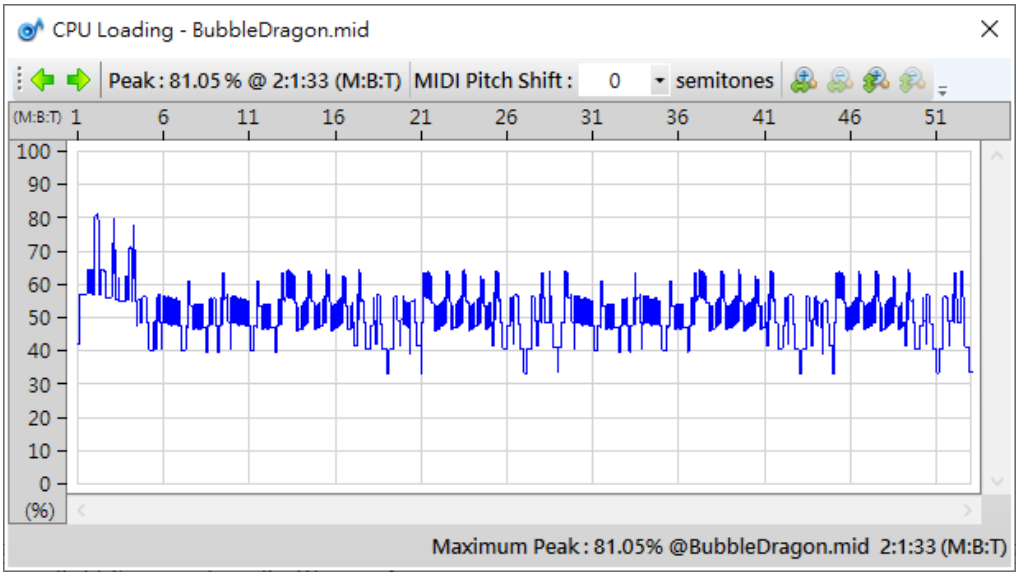
Download: Convert the current editing IDB files and the selected MIDI files to .bin file, and then is downloaded via *Q-Writer* for rehearsal. The corresponding functions of the button after downloading are described as follows:

Function	NY5+ / NY6 / NY7	NX1 NX12/13FM NX12/13FS	NX11FS21	NX11FS22 NX11FS23
Play	PA0	PA0	PA2	PA1
Play the previous song	PA1	PA1	PA3	PA2
Play the next song	PA2	PA2	PA12	PA3
Pause or Resume	PA3	PA3	PA13	PA4
Stop playing	PB0	PA4	PA14	PA5
Volume +1	PB1	PA5	PD0	PA6
Volume -1	PB2	PA6	PD1	PA7
Speed up or Resume	PB3	PA7	X	PA12

3.1.4 Analyze



Show CPU Loading…: After executing Convert or Download, the waveform display shows the CPU loading during the playback of MIDI. This item only supports NX1. The illustration is below.



The horizontal scale is MIDI position (Measure: Beat: Tick), and the vertical scale is CPU loading (%). The text below means the .mid file with the largest loading and the position of loading peak from the ticked .mid files. The toolbar is as follows:

MIDI Pitch Shift 0 semitones: Shift the semitone up or down, maximum ± 12, preset ± 4.

Previous: Play the previous MIDI, supports the left arrow key on keyboard as a hotkey.

Next: Play the next MIDI, supports the right arrow key on keyboard as a hotkey.

Peak: Show the max loading and its location. The loading unit is percentage, the unit of location is Measure: Beat: Tick.

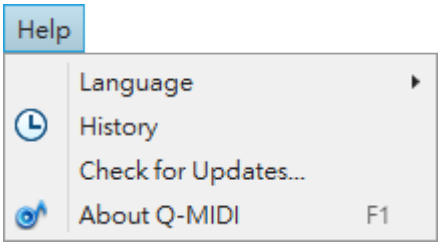
Zoom In Horizontally: Enlarge the waveform of voice file in the horizontal direction.

Zoom Out Horizontally: Shrink the waveform of voice file in the horizontal direction.

Zoom In Vertically: Enlarge the waveform of voice file in the vertical direction.

Zoom Out Vertically: Shrink the waveform of voice file in the vertical direction.

3.1.5 Help



Language: Switch the language to English, simplified Chinese or traditional Chinese for *Q-MIDI* UI.

History: View the revision history of *Q-MIDI.*

Check for Updates…: Check for the latest version of *Q-MIDI.* This function will connect to the Internet.

About Q-MIDI: Show current *Q-MIDI* version and the contact information for technical support.

3.2 Toolbar

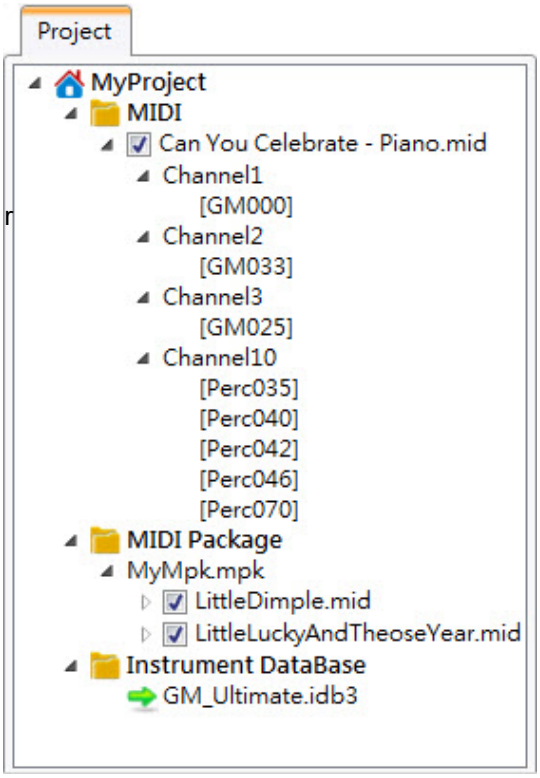
Toolbar is under the menu bar. The buttons on toolbar provide shortcuts to activate functions that are commonly used, which allows user to access desired functions quickly without selecting them from the menu bar.

The descriptions of toolbar menu items are as follows:

Icon	Function	Descriptions
	New Project…	Create a project.
	Open Project…	Open an existing project file.
	Save Project	Save the current project.
	Save Project As…	Save the current project to the specified file path.
	New IDB…	Create a new IDB file (.idb3).
	Open IDB…	Open an existing IDB (.idb2/.idb3) or SoundFont (.sf2) file
	Save IDB	Save currently used IDB file.
	Save IDB As…	Save the currently used IDB file to the specified file path.
	IC Series	Show the current project for IC series and can be switched. If the currently used IDB file has never been set for encoding, the encoding settings window will appear.
	Convert	Convert the currently used IDB and the selected MIDI file to .qmd files which can be used to develop *Q-Code* program in NY5+/NY6/NY7/NX1 series.
	Download	Convert currently used IDB and the selected MIDI file to .bin file, and then is downloaded to IC via *Q-Writer*.

3.3 Project Manager

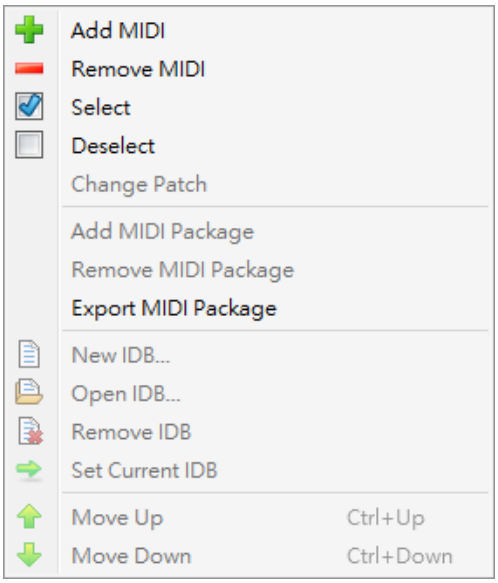
User can add and set the instruments of mid, mpk and IDB file. The project manager also shows the channel and used instruments of mid. The interface is shown below.



Take the above picture for example, the Can You Celebrate.mid file uses 4 channels. The detail is shown below.

Channel	No.	Name
1	GM000	Acoustic_Grand_Piano
2	GM033	Electric_Bass_finger
3	GM025	Acoustic_Guitar_steel
10	Perc035	Acoustic_Bass_Drum
10	Perc040	Electric_Snare
10	Perc042	Closed_Hi_Hat
10	Perc046	Open_Hi_Hat
10	Perc070	Maracas

Right-click to open the context menu for mid, mpk, and IDB editing. The menu content is as follows



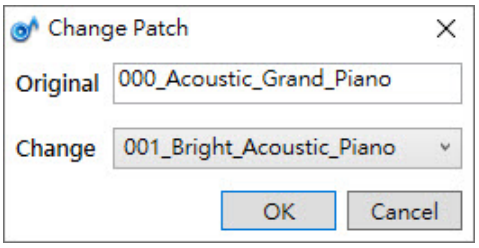
Add MIDI: Add mid files to project. When a mid file is added, its default status is ticked, which means this .mid file is included when converting.

Remove MIDI: Remove the current ticked mid file.

Select: Check all selected .mid files.

Deselect: Deselect all selected .mid files.

Change Patch: Reset the instrument of selected mid.



Add MIDI Package: Add .mpk file to the MIDI Package of project directory.

Remove MIDI Package: Remove the selected .mpk file from the MIDI Package of project directory.

Export MIDI Package: Export the ticked .mid files of the MID directory as a .mpk file.

New IDB: Create a new IDB file and add it to project.

Open IDB: Open the specified IDB (.idb2/.idb3) or SoundFont (.sf2) file. If .sf2 file is selected, *Q-MIDI* will convert the file as .idb3 and add it to project. If users add the IDB file which is different from current project IC series, the encoding settings window will appear.

Remove IDB: Remove the current selected IDB file.

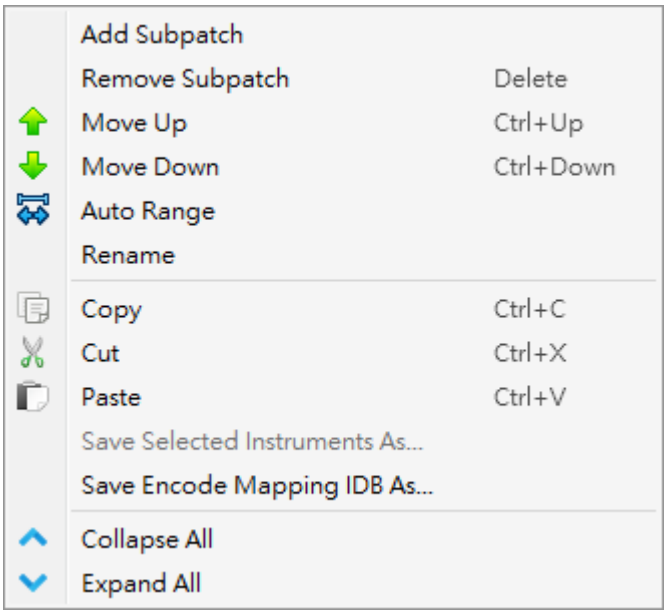
Set Current IDB: Set the current IDB as instrument database used when playing mid file..

Move Up: Move the selected .mid file up to change the playback order of .qmd file.

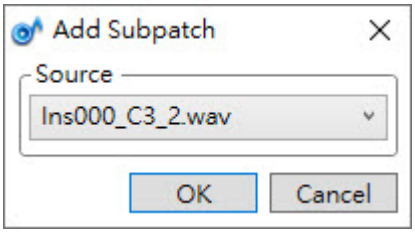
Move Down: Move the selected .mid file down to change the playback order of .qmd file.

3.4 Instrument Manager

The Instrument Manager is to create the timbres for instrument database. It consists of 2 categories: Instrument and Percussion. User can edit the subpatch of instruments using context menu. Only one subpatch is allowed in percussion. The context menu is shown below.



Add Subpatch: Set the source file of subpatches to create and add subpatches to the specified kinds of instrument. The window is shown below.



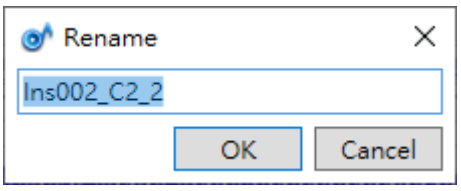
Remove Subpatch: Remove the current selected subpatch.

Move Up: Move the selected subpatch up to change the order.

Move Down: Move the selected subpatch down to change the order

Auto Range: Extend pitch range of the selected subpatch to max valid playback-frequency range.

Rename: Rename the current subpatch.



Copy: Copy the selected subpatch.

Cut: Cut the selected subpatch.

Paste: Paste the previous copied or cut subpatch to the current specified instrument.

Save Selected Instruments As…: Save the selected instruments as a new IDB file.

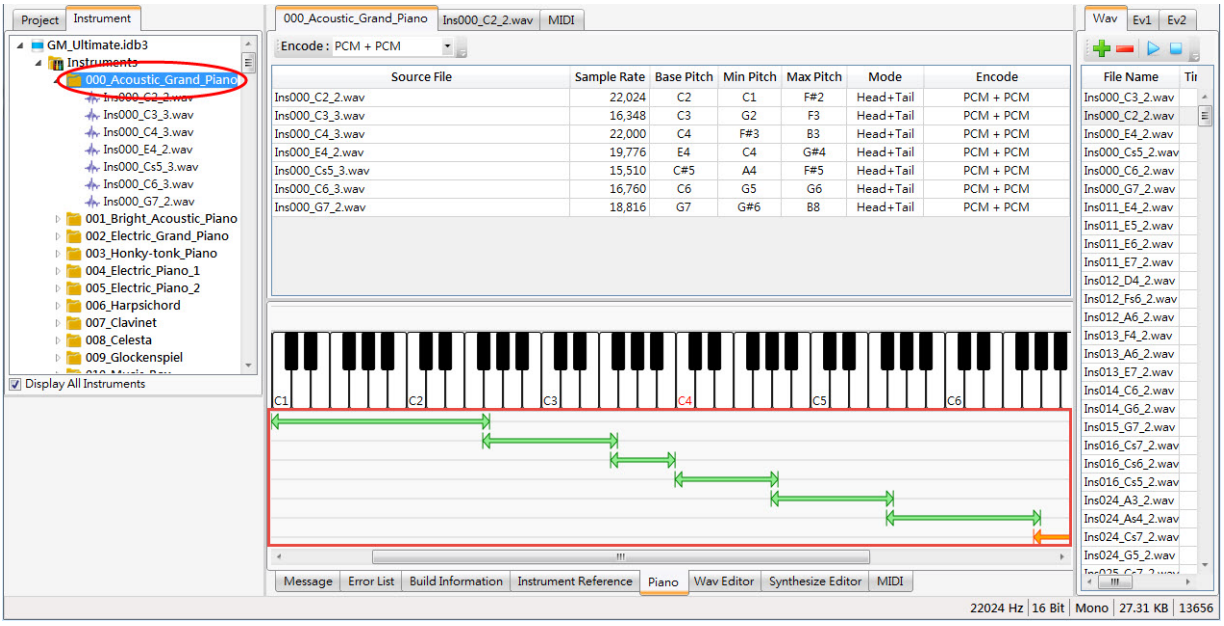
Save Encode Mapping IDB As…：Encode mapping the current IDB, and save it as a new IDB in IDB folder of the project. New IDB is added in the Project Manager at the same time.

Collapse All: Collapse all the expanded instruments.

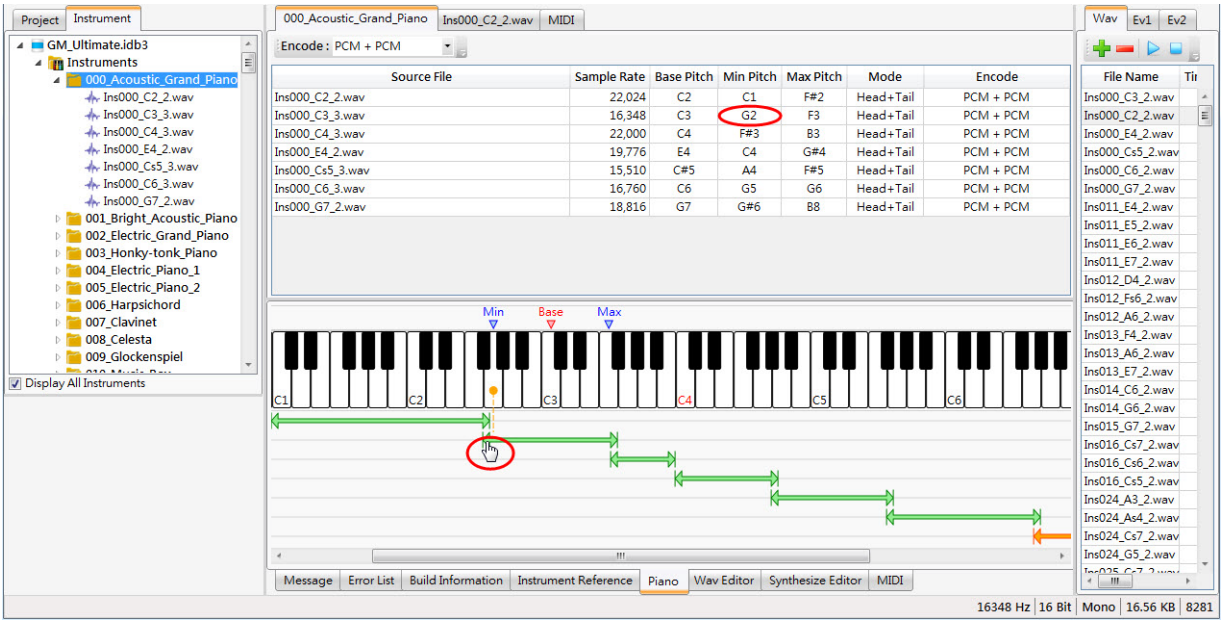
Expand All: Expand all the collapsed instruments.

After all subpatches of an instrument have been edited, user can then set the pitch range of each subpatch. The setting procedure is as follows.

Step1 〉Move cursor to the desired instrument and press the left mouse button, the pitch range of all subpatches will be shown in the Piano tab of Information Window.



Step2 〉Move cursor to the either arrow end of the pitch range, then press and hold the left mouse button to drag left or right to change pitch range. When user saves any IDB file (for example, Download), *Q-MIDI* will check whether the pitch range of the leftward / rightward subpatches overlap. If there are overlapping pitches, an error message will display.

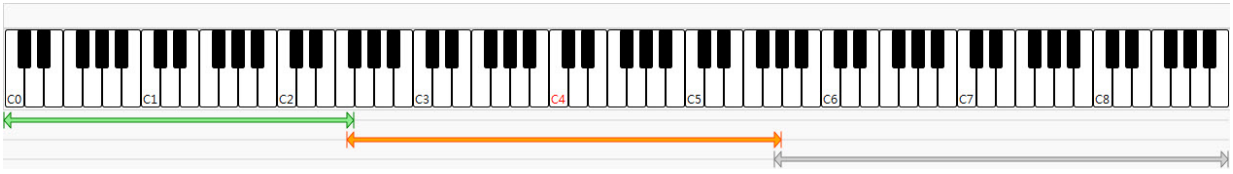


Step3 〉While dragging the arrow, the color of pitch range might be changed. The meanings of different colors are described as follows.

Green: Valid pitch range.

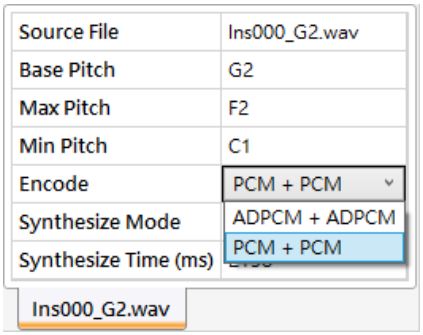
Orange: If IC Series is NY7, the playback result might not be as expected. If IC Series is NX1, the playback might be abnormal because CPU is overloaded. User needs to download and confirm with the rehearsal.

Grey: The pitch range exceeds the supported range of IC. If user applies this subpatch, there may be no sound or noise when playing files.



3.5 Subpatch Property Window

The Subpatch Property Window shows the property items of the current edited subpatch: Source File, Base Pitch, Max Pitch, Min Pitch, Mode, Synthesize Time and Encode as shown below.



Source File: Select the source of subpatch. User could add wav source files from Wav Manager.

Env File: Select the source file of envelope file for subpatch, user could add source files from Ent5 Manager. This item only supports NY5+ Compact project.

Base Pitch: Set the base pitch of subpatch.

Max Pitch: Set the supported highest pitch of the subpatch.

Min Pitch: Set the supported lowest pitch of the subpatch.

Mode: There are 3 modes: Head + Tail, Head Only and Tail Only.

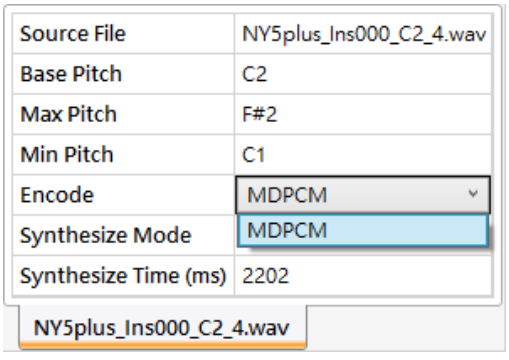
- Head + Tail: The timbre is synthesized by Head and Tail section, which is edited in Wav Editor.
- Head Only: The entire wav source is used for synthesizing.
- Tail Only: Only Tail section is used for synthesizing, which can be edited in Wav Editor.

Synthesize Time: The length of time to be shown on Synthesizer Editor, the unit is ms.

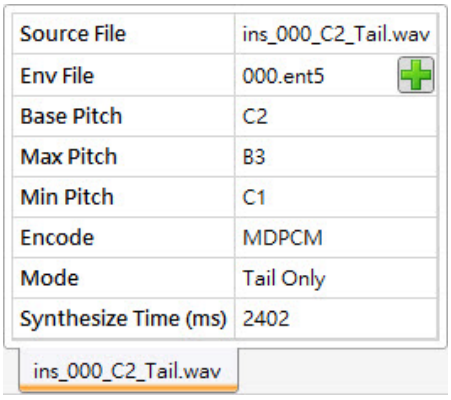
Encode: Set Head and Tail section encoding, corresponding to the sound quality of IC series (NY5+/NY6/NY7/NX1).

In NY5+ series,

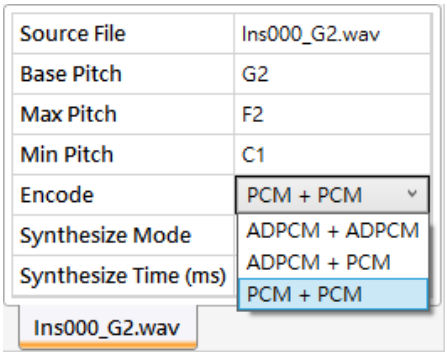
Normal project:



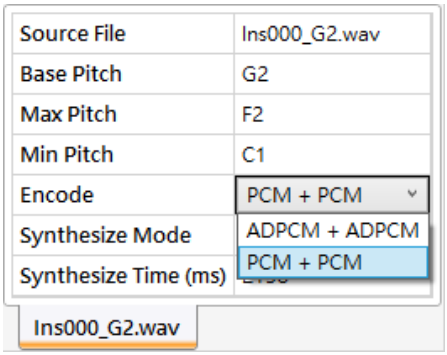
Compact project:



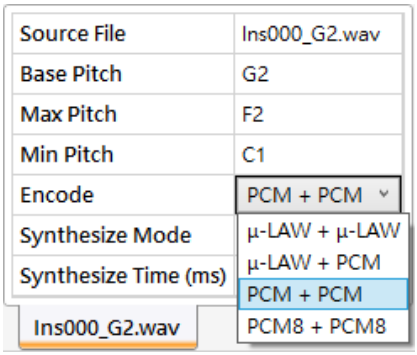
In NY6 series,



In NY7 series,

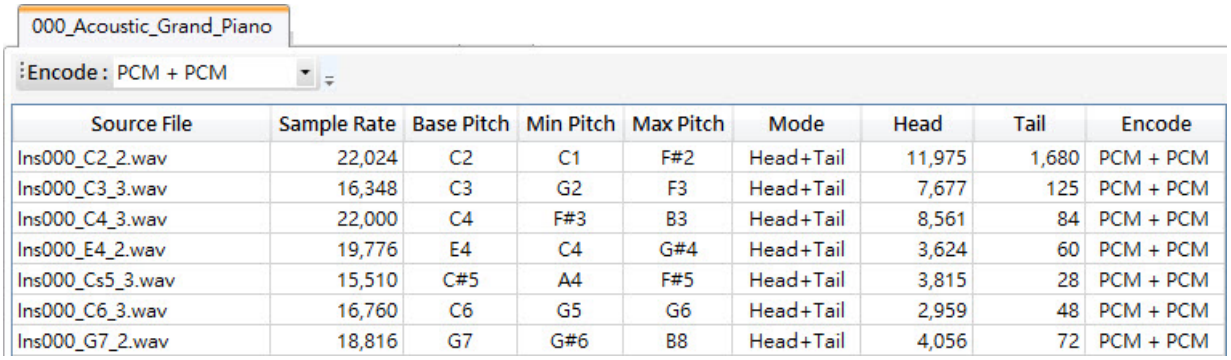


In NX1 series,



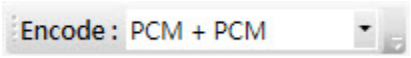
3.6 Instrument Table

The Instrument Table shows information of subpatch: Source File, Sample Rate, Base Pitch, Min Pitch, Max Pitch, Mode and Encode as shown below.



Source File	Sample Rate	Base Pitch	Min Pitch	Max Pitch	Mode	Head	Tail	Encode
Ins000_C2_2.wav	22,024	C2	C1	F#2	Head+Tail	11,975	1,680	PCM + PCM
Ins000_C3_3.wav	16,348	C3	G2	F3	Head+Tail	7,677	125	PCM + PCM
Ins000_C4_3.wav	22,000	C4	F#3	B3	Head+Tail	8,561	84	PCM + PCM
Ins000_E4_2.wav	19,776	E4	C4	G#4	Head+Tail	3,624	60	PCM + PCM
Ins000_Cs5_3.wav	15,510	C#5	A4	F#5	Head+Tail	3,815	28	PCM + PCM
Ins000_C6_3.wav	16,760	C6	G5	G6	Head+Tail	2,959	48	PCM + PCM
Ins000_G7_2.wav	18,816	G7	G#6	B8	Head+Tail	4,056	72	PCM + PCM

Toolbar description is as follows:



Encode: Set encoding algorithm of Head and Tail section of all subpatch at one time. There are different choices of encoding algorithm according to the IC series.

The instrument table description is as follows:

Source File: The source of subpatch.

Sample Rate: The sample rate of wav source.

Base Pitch: Set the base pitch of subpatch.

Min Pitch: Set the supported lowest pitch of the subpatch.

Max Pitch: Set the supported highest pitch of the subpatch.

Head: The sample points from Head section of the subpatch.

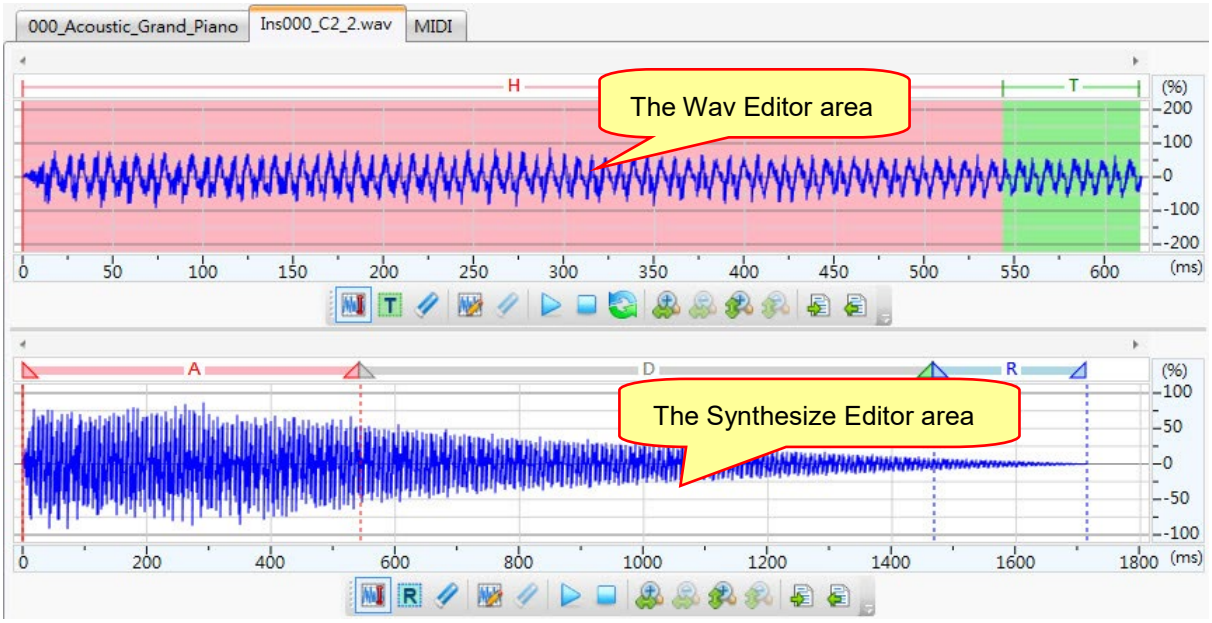
Tail: The sample points from Tail section of the subpatch.

Mode: Synthesizing methods for timbre. There are 3 modes: Head + Tail, Head Only and Tail Only.

Encode: Set encoding algorithm of Head and Tail section. There are different choices of encoding algorithm according to the IC series.

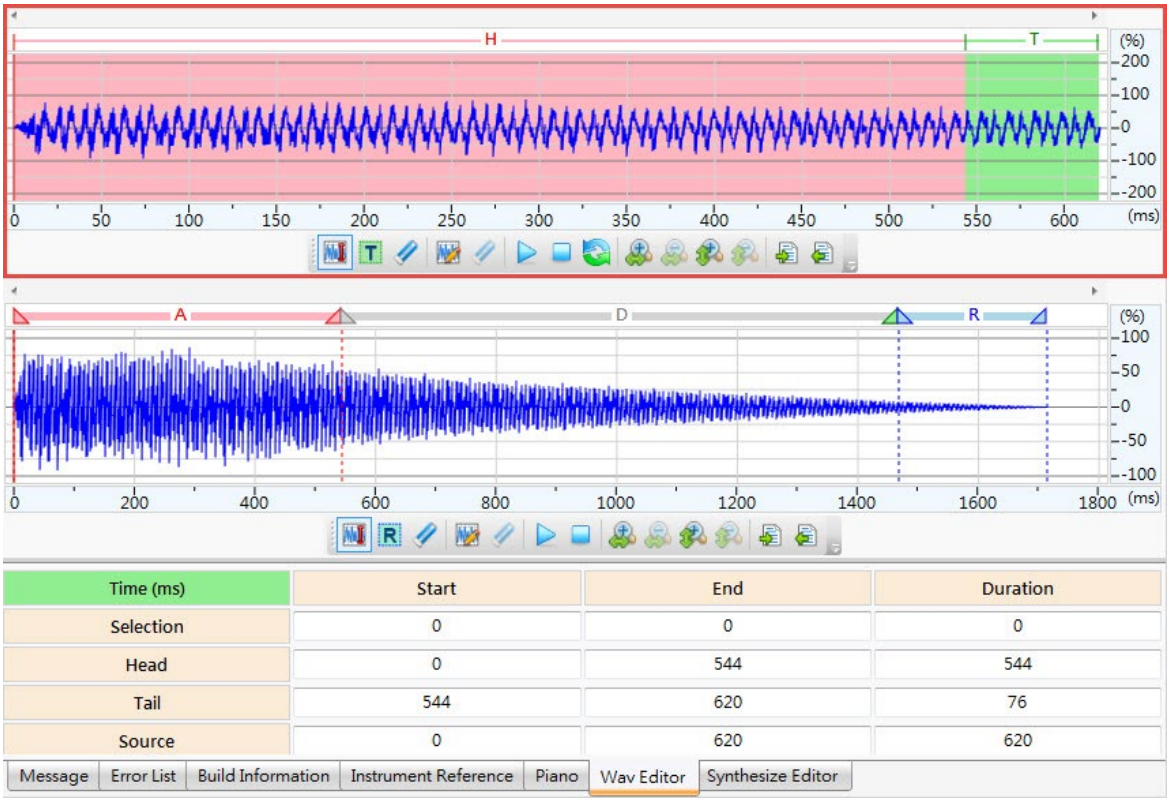
3.7 Subpatch Editor

The Subpatch Editor tab is divided into 2 areas: Wav Editor and Synthesize Editor. The percussion of NY5+ Compact project does not support the Subpatch Editor.



3.7.1 Wav Editor

This section is for setting Tail and Envelope to adjust from the original wav source.



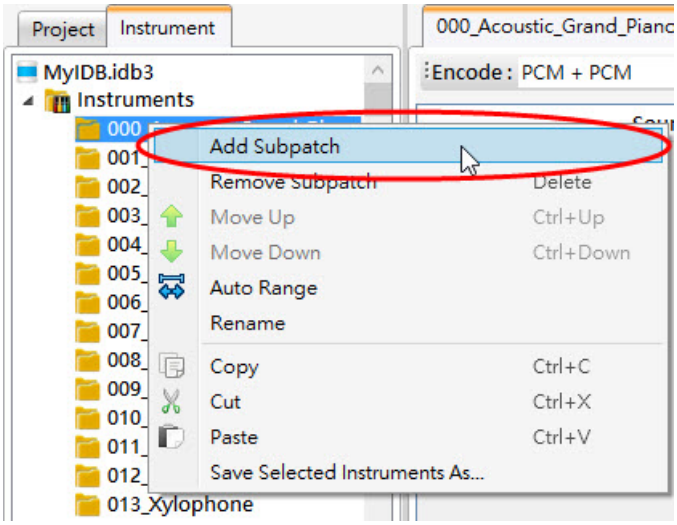
User can set and edit the Tail and Envelope curve by toolbar or context menu. The descriptions are listed below.

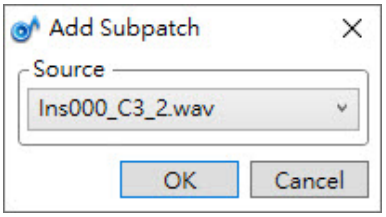
Icon	Function	Descriptions
	**Select Mode**	Drag and set Tail section under Select Mode.
	**Set Tail Section**	Set the selected range as Tail section.
	**Clear Tail Section**	Clear the current Tail section setting.
	**Pencil Mode**	Pencil Mode is used for editing source files by dragging envelope points.
	**Clear All**	Clear all the edited points of Envelope.
	**Play**	Play the synthesized result of edited envelope.
	**Stop**	Stop playback.
	**Loop**	Loop playback.
	**Zoom In Horizontally**	According to the current position of the cursor line horizontal direction to enlarge.
	**Zoom Out Horizontally**	According to the current position of the cursor line horizontal direction to narrow.
	**Zoom In Vertically**	Increase the vertical scale resolution of display.
	**Zoom Out Vertically**	Decrease the vertical scale resolution of display.
	**Import**	Import envelope curve file (.ev1).
	**Export**	Export the current edited envelope curve as .ev1 file.

◆ Set Tail section

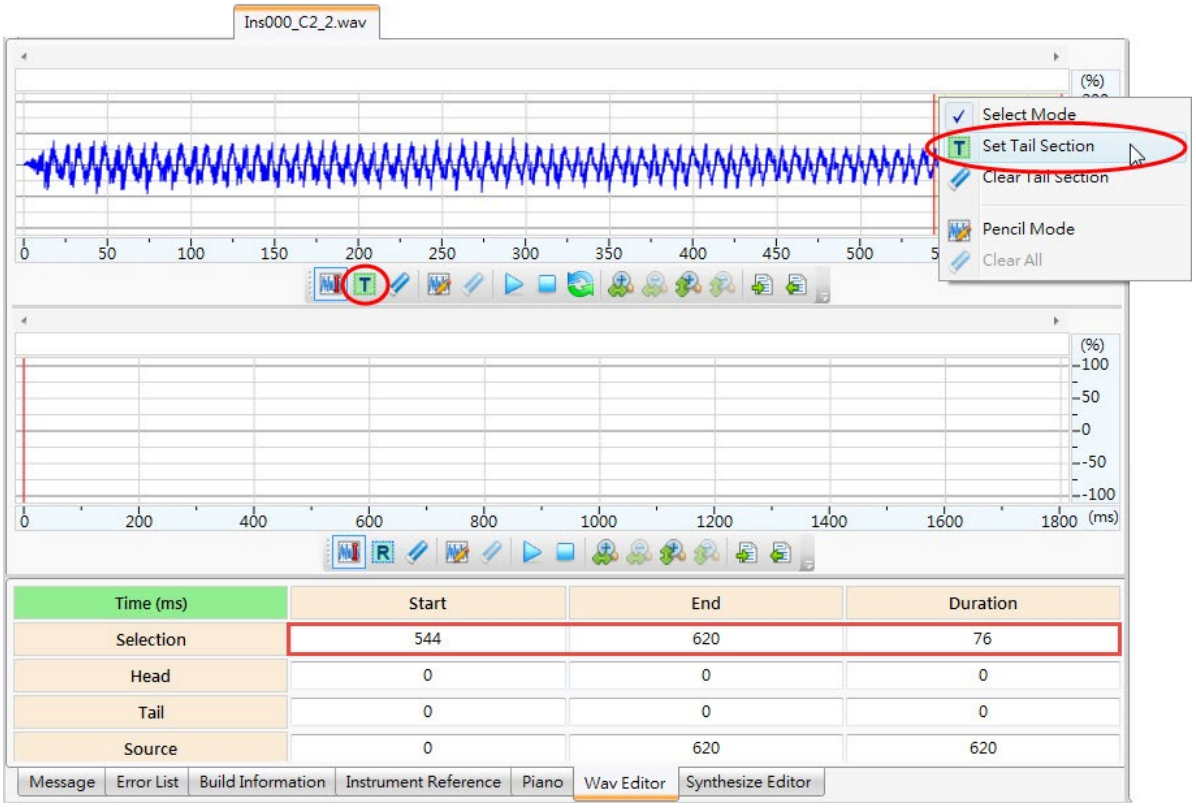
In Select Mode, set Tail section then Head section is also set as from beginning to Tail Section. The Mode of Property Window will determine if both sections are used to synthesize the source in Synthesize Editor. An example is illustrated as below.

Step1 〉Select Add Subpatch and set the wav source to Ins000_C2_2.wav.

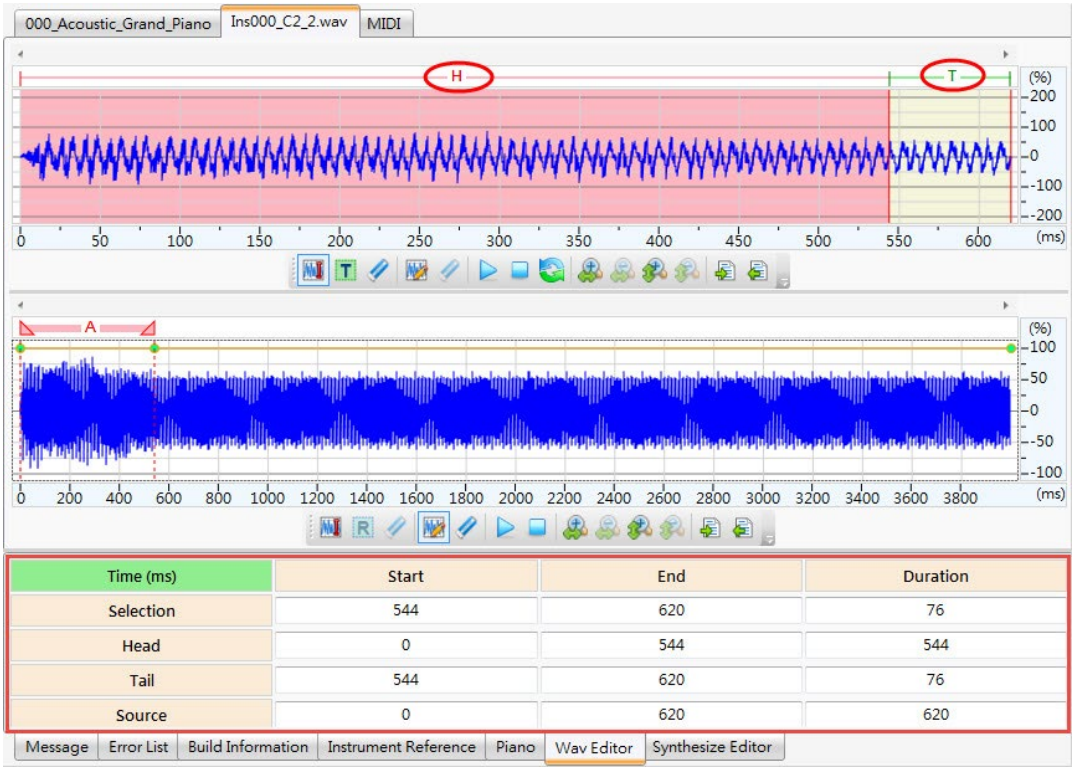




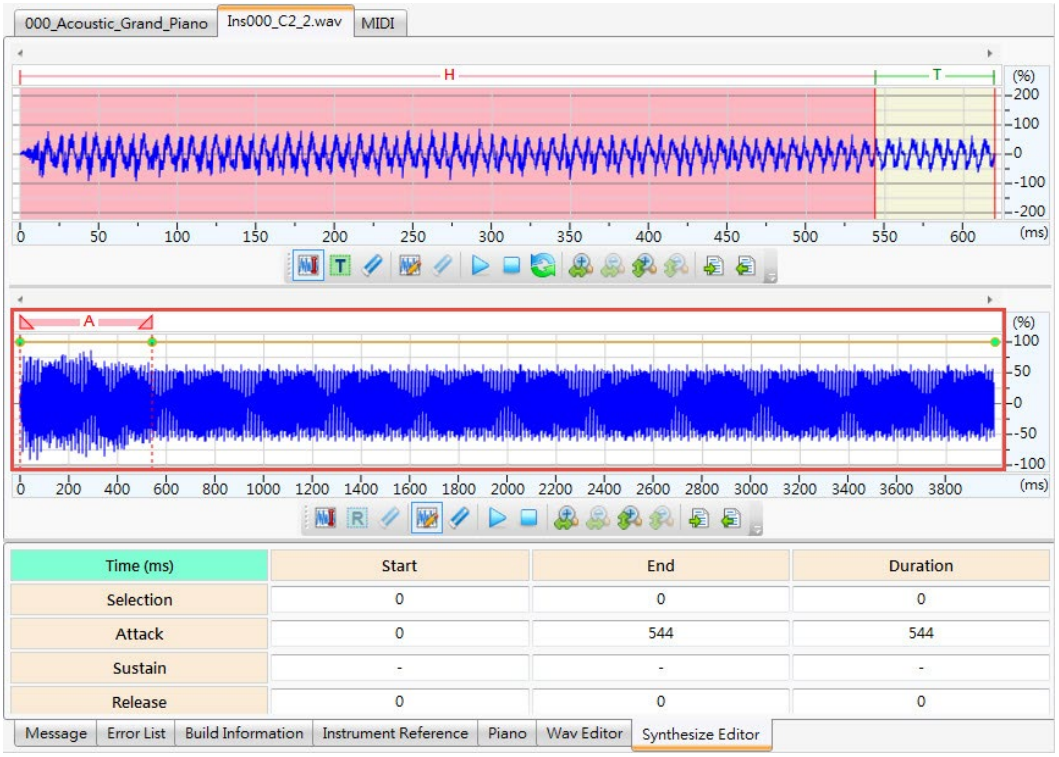
Step2 〉Find a range where the height of starting point and ending point are similar and close to 0%. The following example selects a range of 544 ~ 620 ms. Set the tail section using Set Tail Section on context menu or toolbar. For the NY5+ series project, the length of Tail Section is restricted to 8~460 samples.



Step3 〉After setting the Tail section, the Head section and Tail section area are appeared in Wav Editor . The Information Window will show the information of the sections.



Step4 〉The Synthesize Editor tab will synthesize the sound based on the Head section, Tail section, Mode and Synthesize Time. The default length of Synthesizer Editor is 4000 ms.

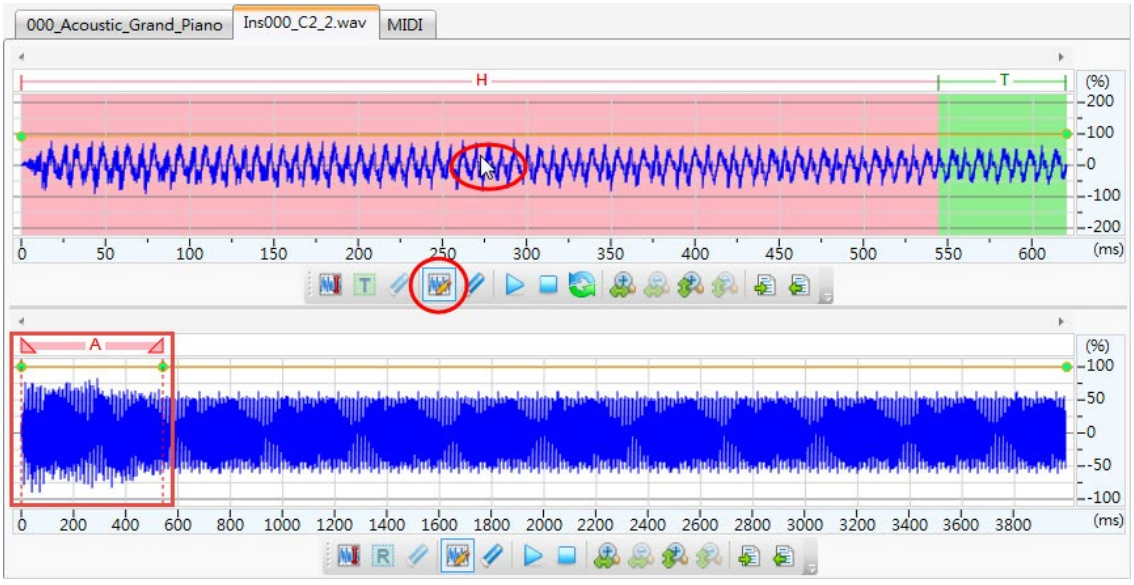


◆ Edit Envelope

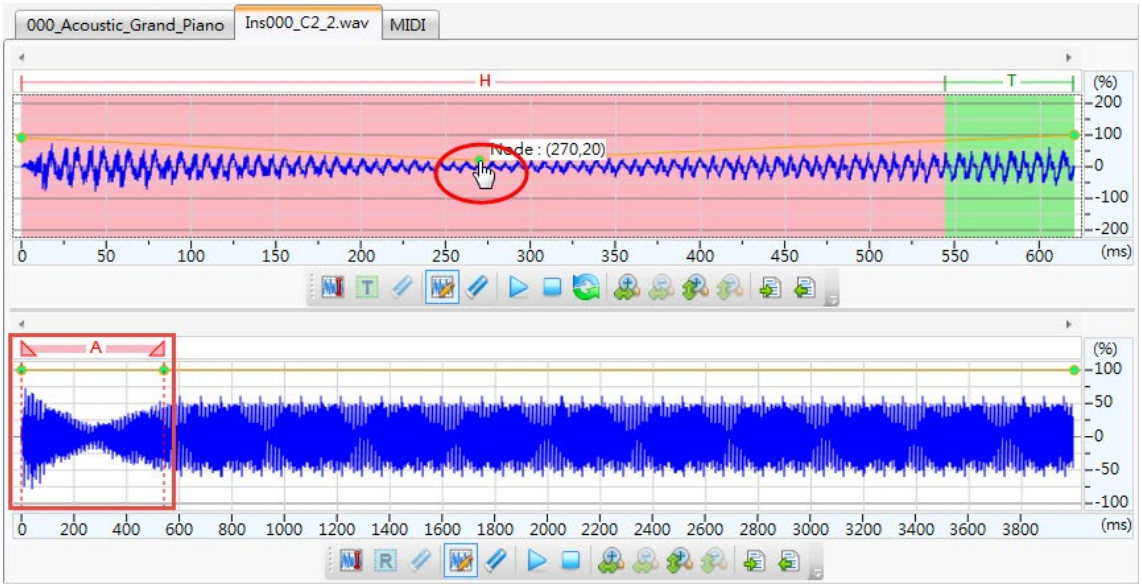
User can edit envelope curve in pencil mode by using mouse.

◆ Add envelope point

Step1 〉Move cursor to the specified position and click the left mouse button to add envelope point.

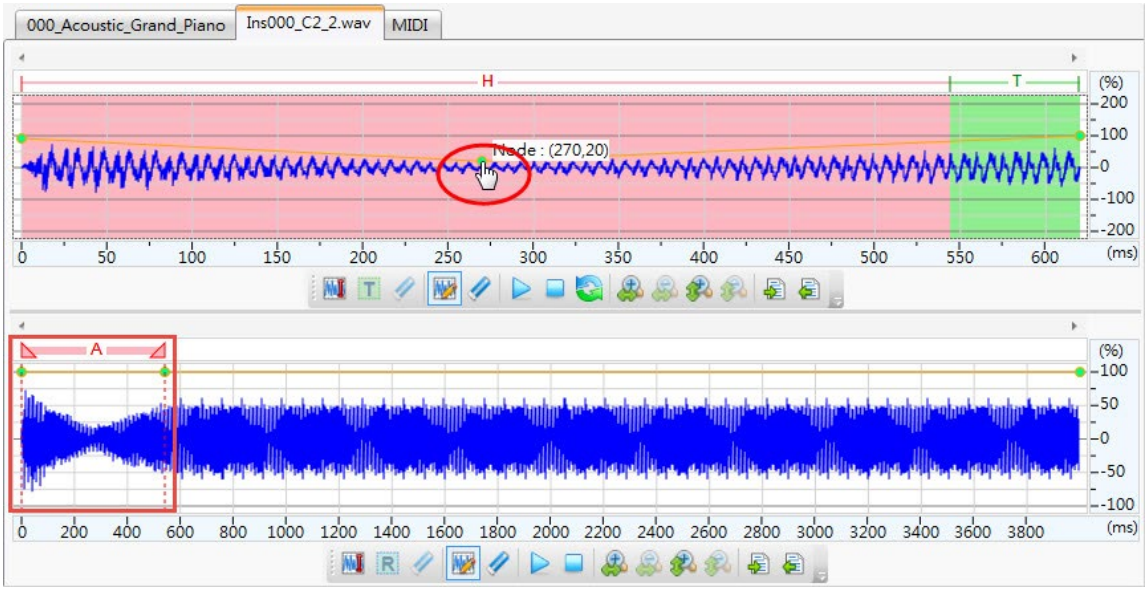


Step2 〉After adding the point, *Q-MIDI* will mark the current location of the point and synthesize sound with the envelope curve, and the waveform of Synthesize Editor will be updated simultaneously.

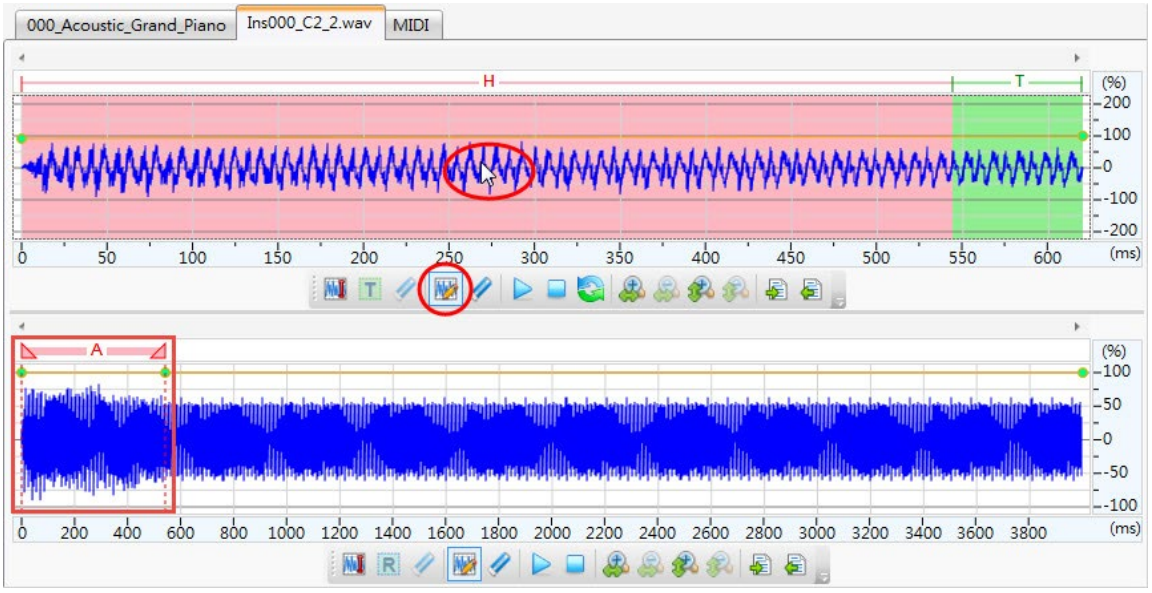


◆ Remove the envelope point

Step1 〉Move the cursor to the envelope point and click the right button to remove.

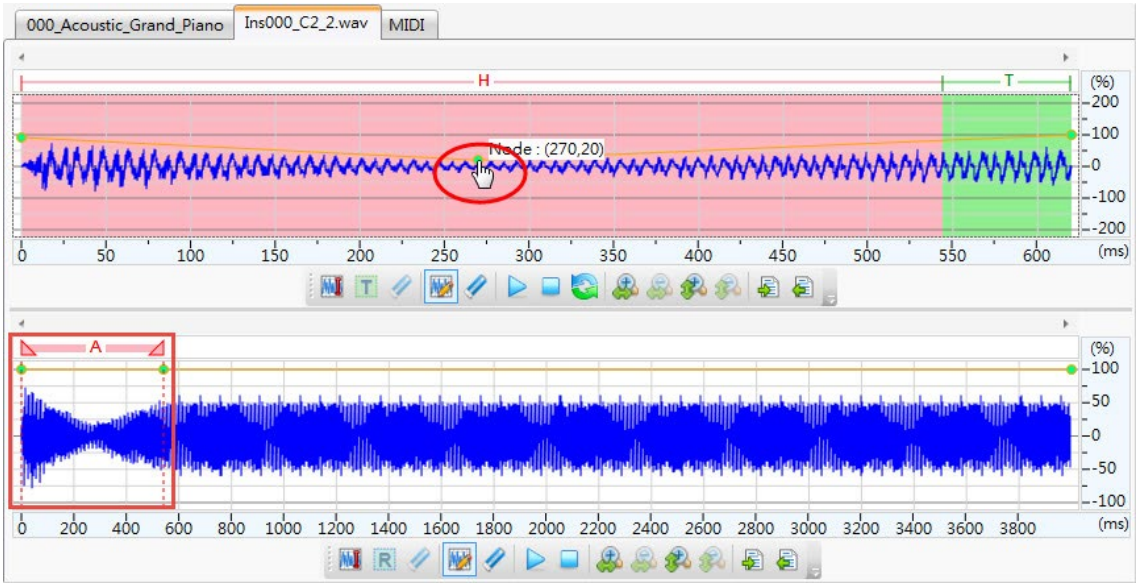


Step2 〉After removing the envelope point, *Q-MIDI* will synthesize sound with the envelope curve, and the waveform of Synthesize Editor will be updated simultaneously.

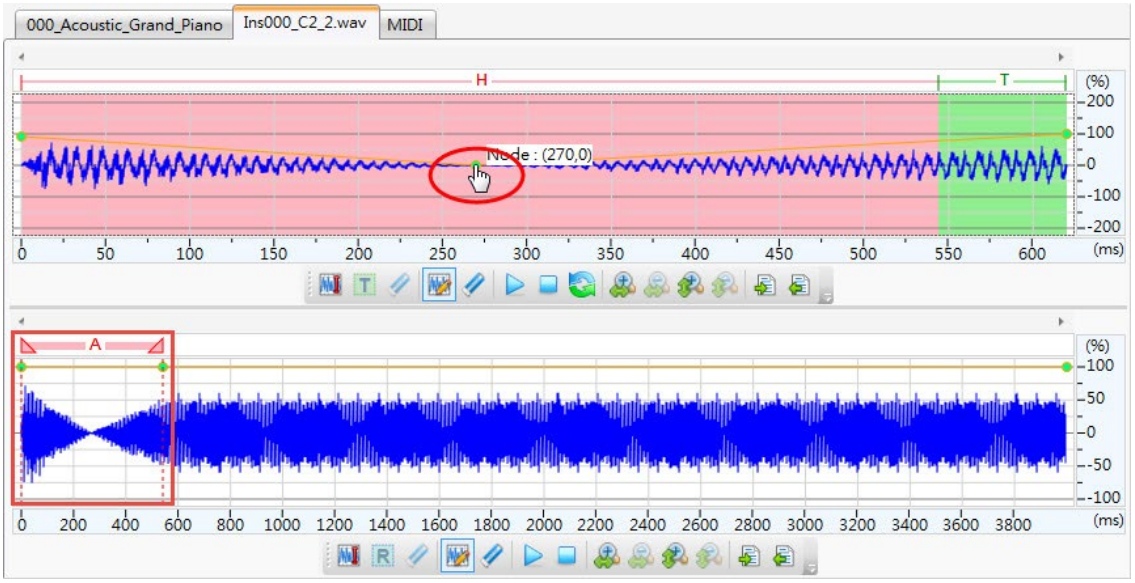


◆ Drag the envelope point

Step1 〉Move cursor to the envelope point, then press and hold the left mouse button.

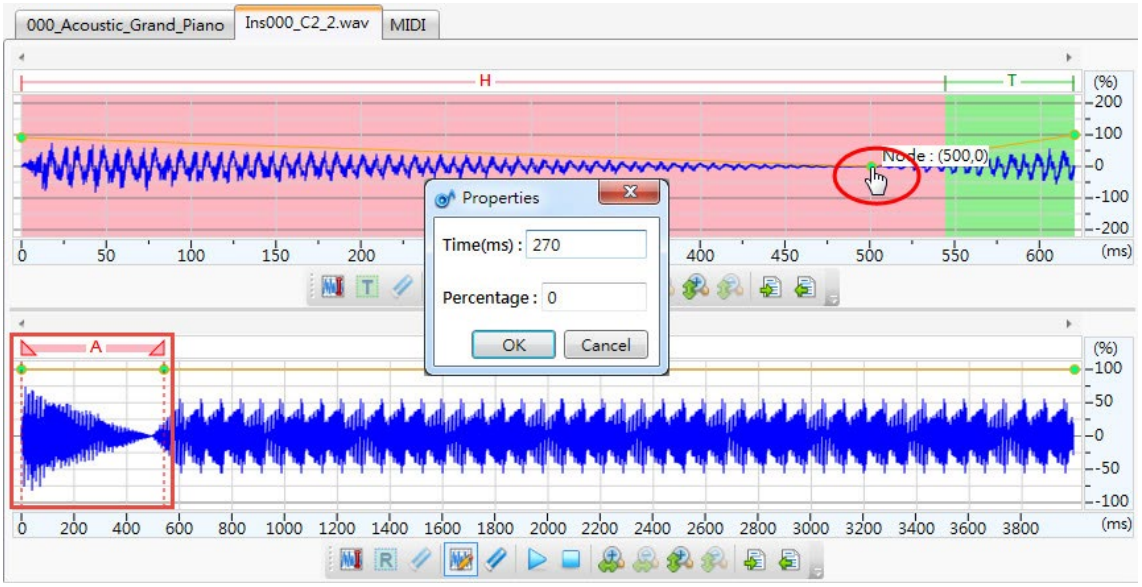


Step2 〉Press and hold the left button then drag the envelope point to the desired position. After releasing the button, *Q-MIDI* will synthesize sound with the envelope curve, and the waveform of Synthesize Editor area will be updated simultaneously.

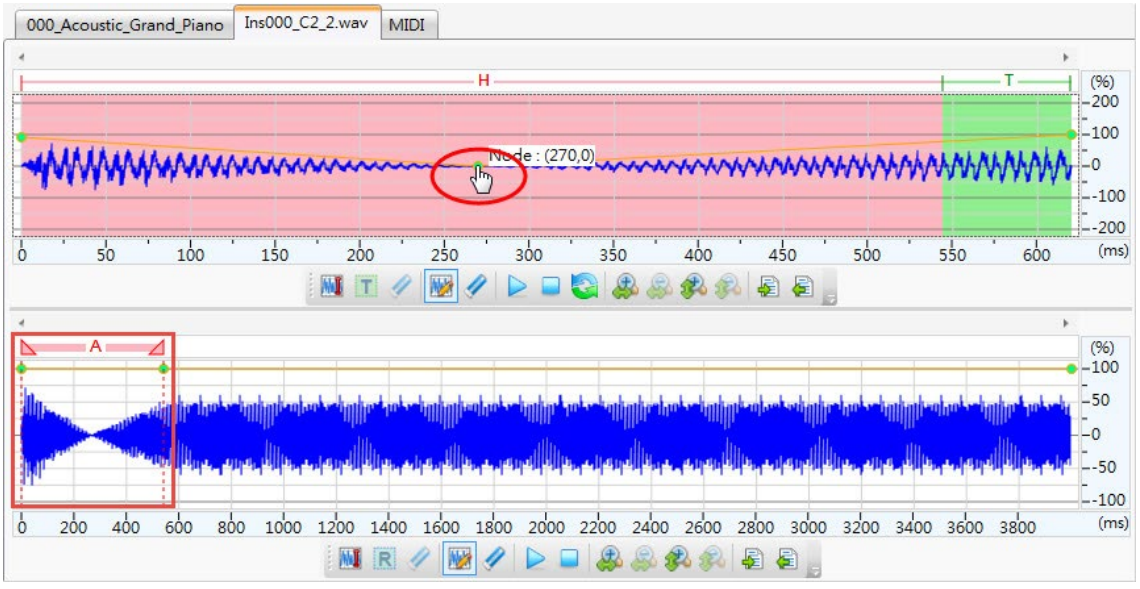


◆ Edit the envelope point

Step1 〉Move the cursor to the envelope point and double click the left button, the Properties window will pop-up.



Step2 〉User can edit the envelope point position changing the original source and envelope synthesis to change waveform. At this time Synthesize Editor synthetic sound will also be synchronized to update the waveform.



3.7.2 Synthesize Editor

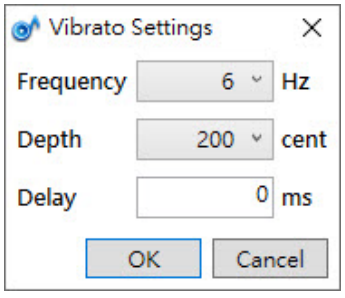
The Synthesize Editor is for simulating the synthesized result of subpatches after setting the ADSR section and editing the envelope curve.

User can set the ADSR section and edit the envelope curve by toolbar or context menu. The menu items are listed below.

Icon	Function	Descriptions
	**Select Mode**	Drag and set Tail section under Select Mode.
	**Set Release Section**	Set the selected section as Release section.
	**Clear Release Section**	Clear the current Release section setting.
	**Pencil Mode**	Pencil Mode is used for editing source files by dragging envelope points.
	**Clear All**	Clear all the edited envelopes.

Icon	Function	Descriptions
	Vibrato	Enable or disable vibrato. This function doesn't support NY5+, NY6 and NX1.
	Vibrato Settings	Set vibrato frequency, pitch range and delay time. This function doesn't support NY5+, NY6 and NX1.
	Play	Play the synthesized result of edited envelope.
	Stop	Stop playback.
	Zoom In Horizontally	According to the current position of the cursor line horizontal direction to enlarge.
	Zoom Out Horizontally	According to the current position of the cursor line horizontal direction to narrow.
	Zoom In Vertically	Increase the vertical scale resolution of display.
	Zoom Out Vertically	Decrease the vertical scale resolution of display.
	Import	Import envelope curve file. For NY5+ Compact project the filename extension is .ent5, the rest project is .ev2.
	Export	Export the current edited envelope curve file. For NY5+ Compact projects the filename extension is .ent5, the rest project is .ev2.

The Vibrato Settings window is shown below.



Frequency: There are 10 options of frequency. The greater the value, the higher frequency.

Depth: There are 8 options of depth. The greater the value, the wider pitch vibration. (Unit: cent)

Delay: Set the delay time to postpone starting the vibrato effect. (Unit: ms)

In different modes, the settings are also different. The following describes each of them.

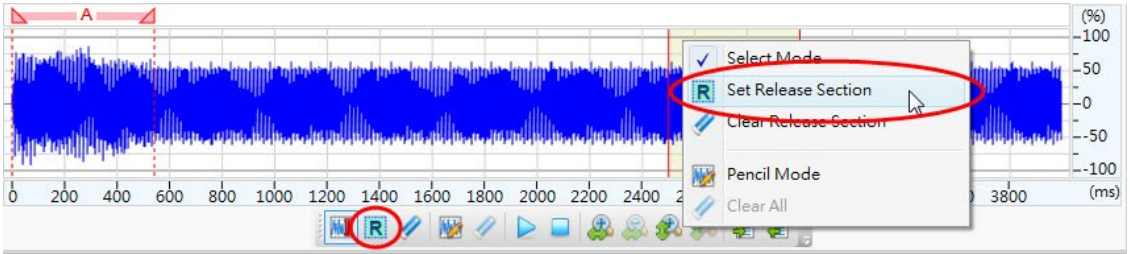
- Head + Tail: The Head + Tail mode uses the Head section and repeat the Tail section to synthesize sound.
- Set the ADSR section: Please refer to Appendix 5.1 for the detailed description of ADSR.

Step1 〉After setting the Tail section in the Wav Editor, the Synthesize Editor will show the synthesized waveform and mark the Attack section.

Time (ms)	Start	End	Duration
Selection	0	0	0
Attack	0	544	544
Sustain	-	-	-
Release	0	0	0

Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

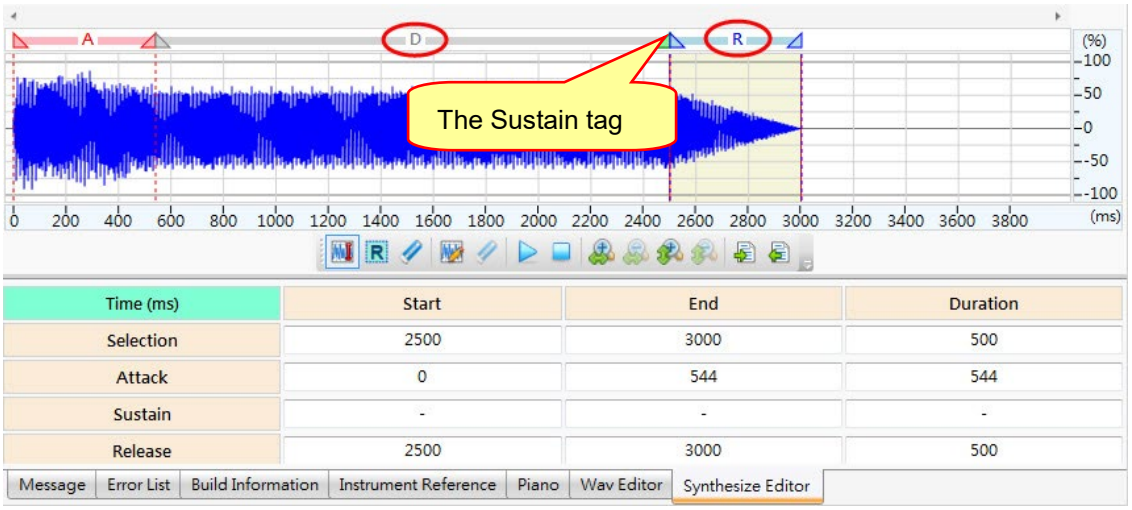
Step2 〉Select a range to set the Release section by using toolbar or the context menu.



Time (ms)	Start	End	Duration
Selection	2500	3000	500
Attack	0	544	544
Sustain	-	-	-
Release	0	0	0

Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

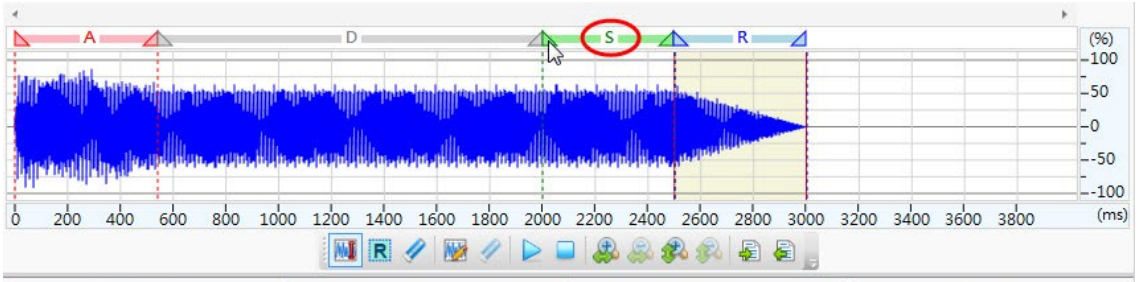
Step3 〉After setting, the Synthesize Editor will mark the Decay section and Release section, and the Sustain tag will appear on top of the starting position of Release section.



Time (ms)	Start	End	Duration
Selection	2500	3000	500
Attack	0	544	544
Sustain	-	-	-
Release	2500	3000	500

Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

Step4 〉Move cursor to the Sustain tag, press and hold the left mouse button, then dragging the tag leftward, the Sustain section will appear.



Time (ms)	Start	End	Duration
Selection	2500	3000	500
Attack	0	544	544
Sustain	2000	2500	500
Release	2500	3000	500

Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

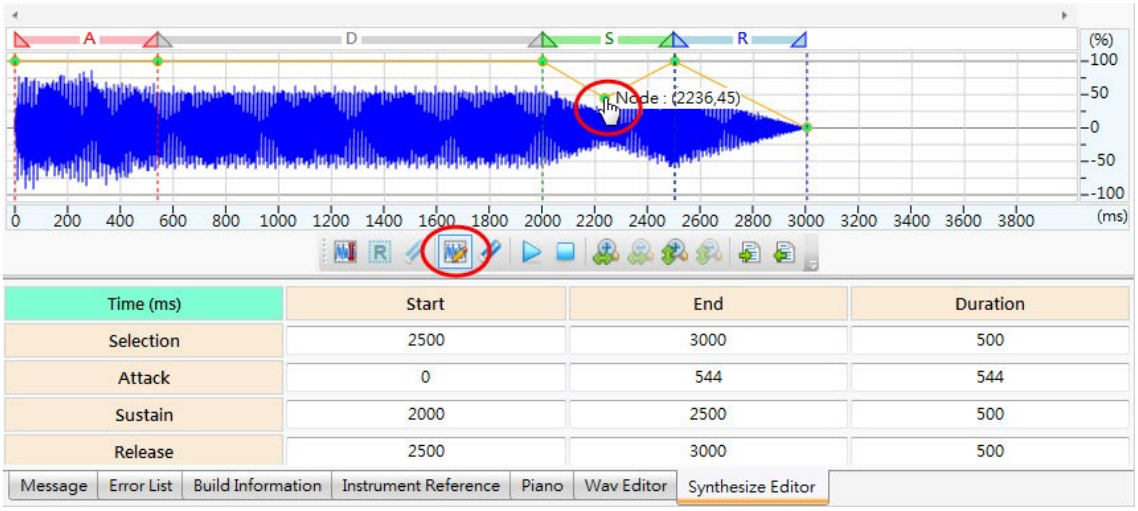
◆ Edit the envelope curve

Step1 〉Adjust envelope for the Sustain section in pencil mode. Please note the height of the start point and the end point of Sustain envelope are fixed as the same. Besides, multi-point editing of Sustain envelope is not currently supported for percussion instruments.

Add an envelope point: Move curosr to the desired position and press the left mouse button to add an envelope point.

Remove the envelope point: Move cursor to an envelope point and press the right button on mouse to delete the envelope point.

Drag the envelope point: Move cursor to the envelope point, press and hold the left mouse button until dragging the envelope point to the desired position.



Time (ms)	Start	End	Duration
Selection	2500	3000	500
Attack	0	544	544
Sustain	2000	2500	500
Release	2500	3000	500

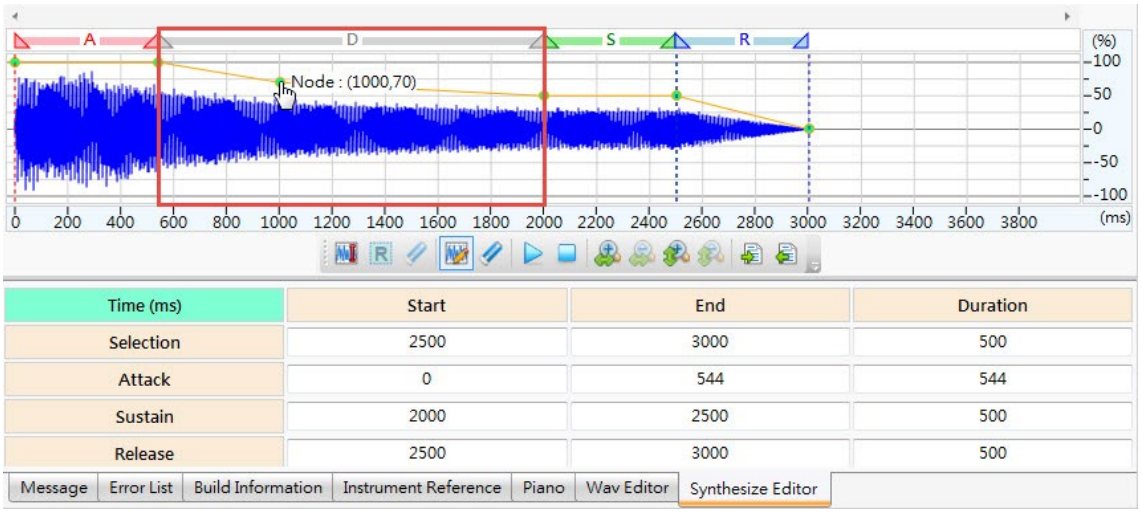
Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

Step2 〉Move cursor to the Decay section to add / remove / drag the envelope point for adjusting the envelope curve.

Add an envelope point: Move curosr to the desired position and press the left mouse button to add an envelope point.

Remove the envelope point: Move cursor to an envelope point and press the right button on mouse to delete the envelope point.

Drag the envelope point: Move cursor to the envelope point, press and hold the left mouse button until dragging the envelope point to the desired position.



Time (ms)	Start	End	Duration
Selection	2500	3000	500
Attack	0	544	544
Sustain	2000	2500	500
Release	2500	3000	500

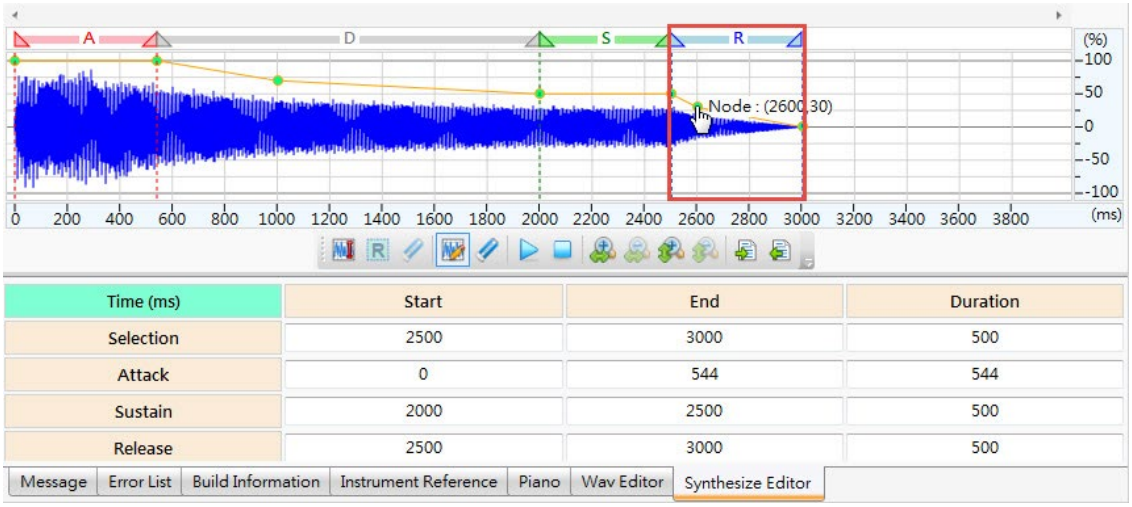
Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

Step3 〉Move cursor to the Release section to add / remove / drag the envelope point for adjusting the envelope curve.

Add an envelope point: Move curosr to the desired position and press the left mouse button to add an envelope point.

Remove the envelope point: Move cursor to an envelope point and press the right button on mouse to delete the envelope point.

Drag the envelope point: Move cursor to the envelope point, pressing and holding the left mouse button until dragging the envelope point to the desired position.



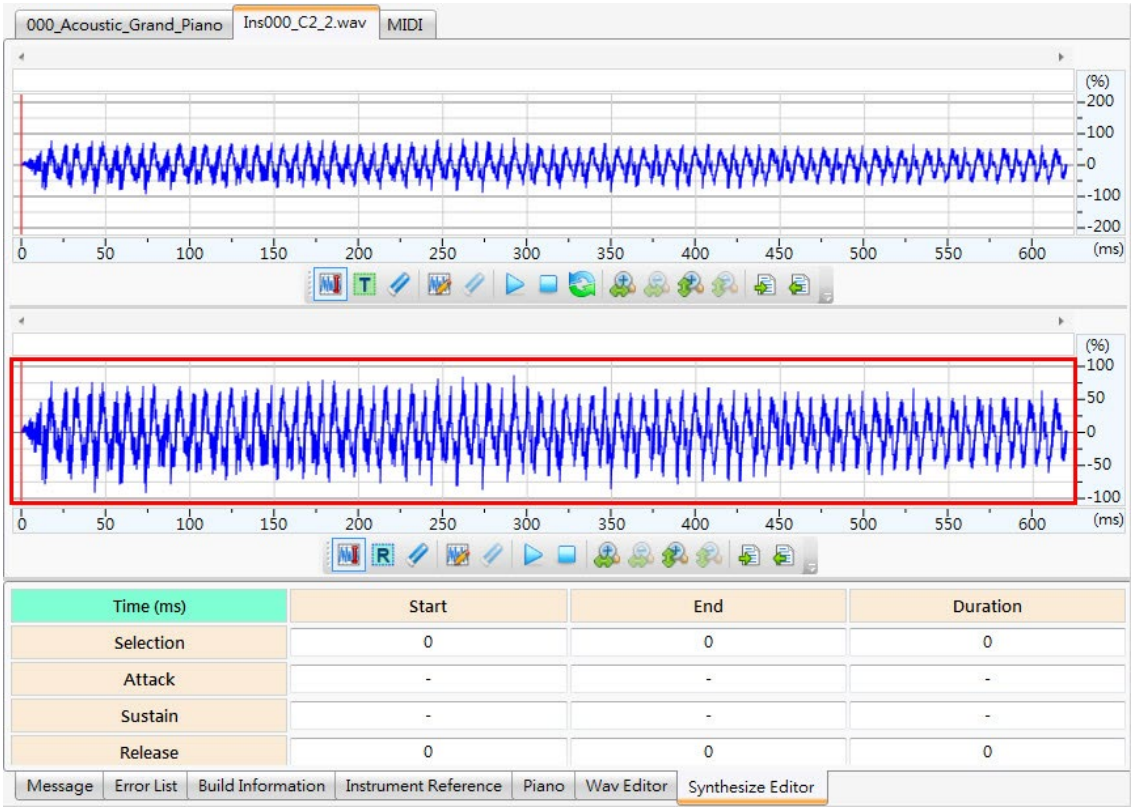
Time (ms)	Start	End	Duration
Selection	2500	3000	500
Attack	0	544	544
Sustain	2000	2500	500
Release	2500	3000	500

Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

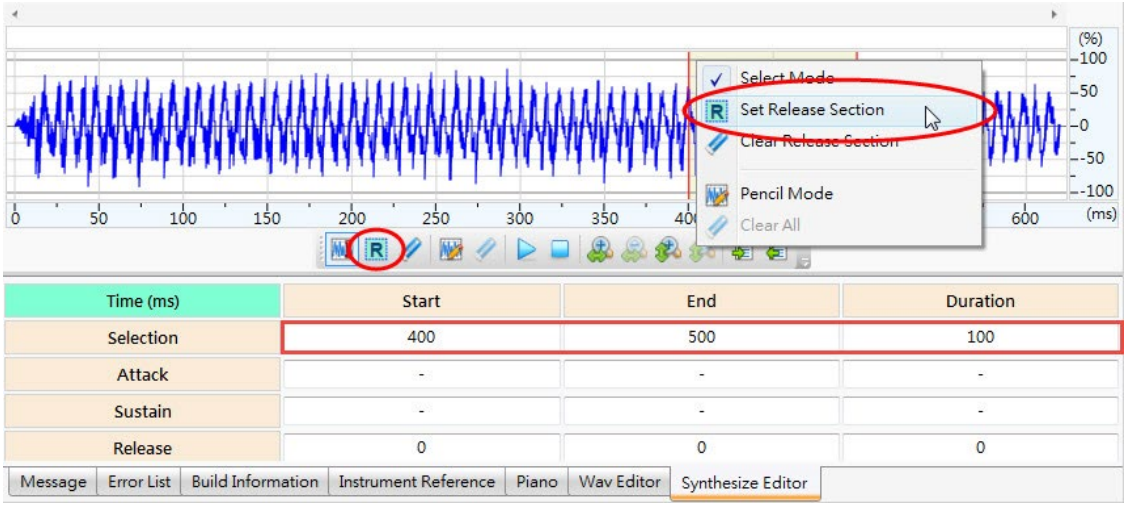
◆ Head Only: The entire wav source of Wav Editor is used for synthesizing sound. The procedure is described as follows.

◆ Set the Release section

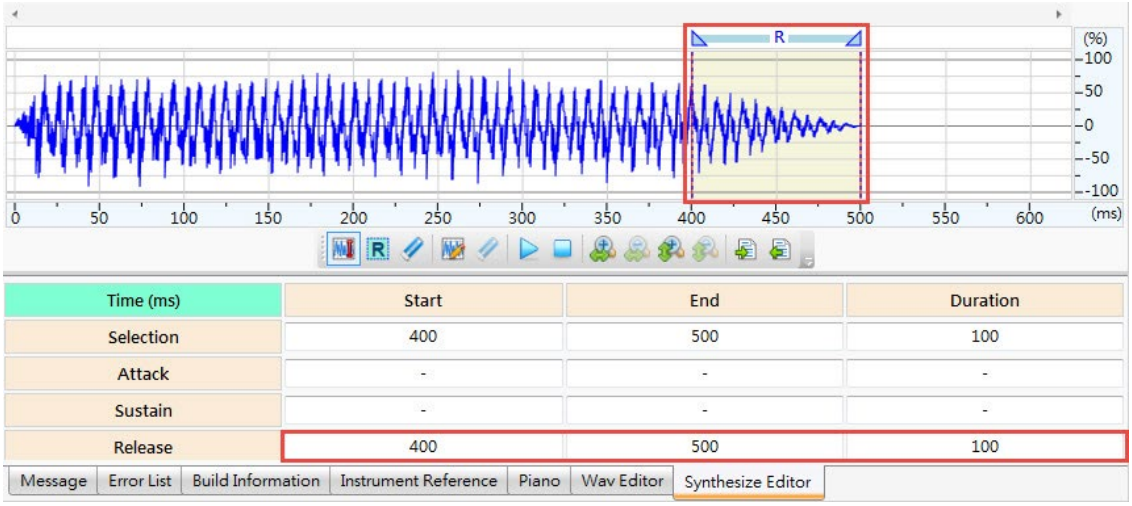
Step1 〉The Synthesize Editor shows the entire wav source from Wav Editor as synthesized result.



Step2 〉Select a range and set the Release section by toolbar or the context menu.



Step3 〉The Release section will be appeared after setting.



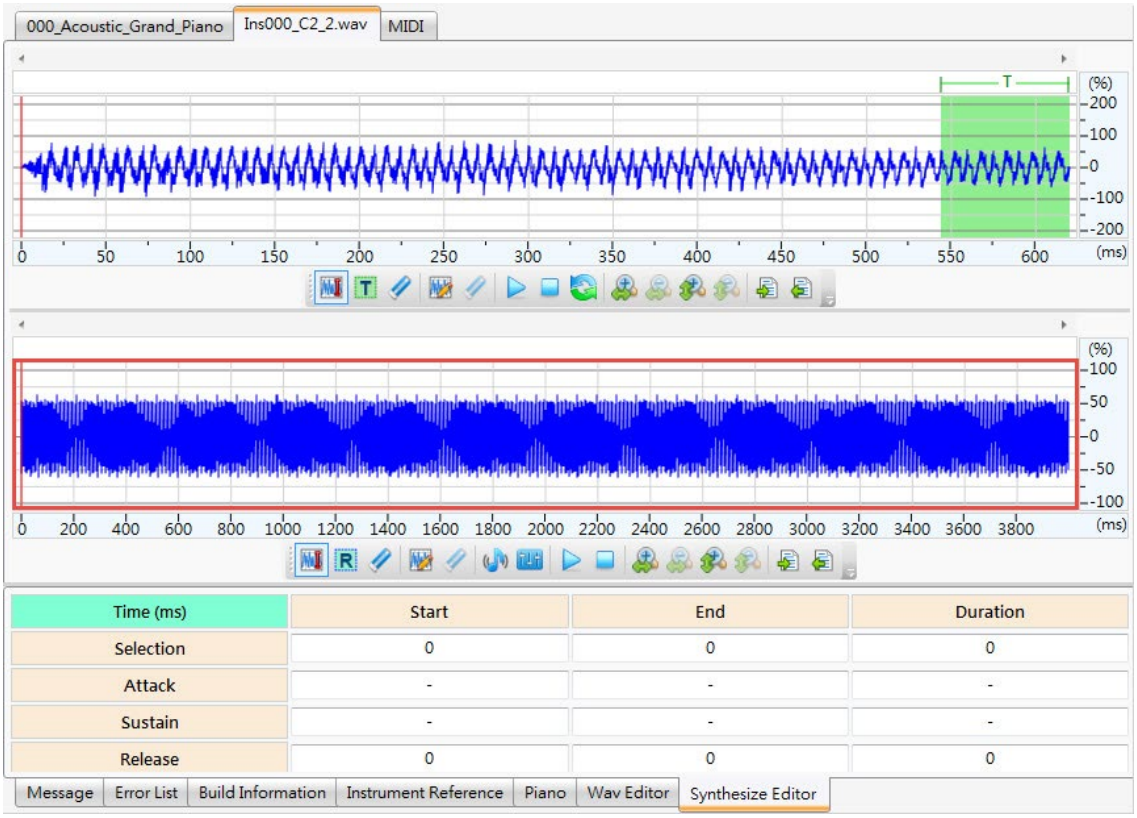
Time (ms)	Start	End	Duration
Selection	400	500	100
Attack	-	-	-
Sustain	-	-	-
Release	400	500	100

Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

◆ Tail Only: The synthesized wav is created by repeating Tail sections in the Wav Editor. This function does not support NX1.

◆ Set the Release section

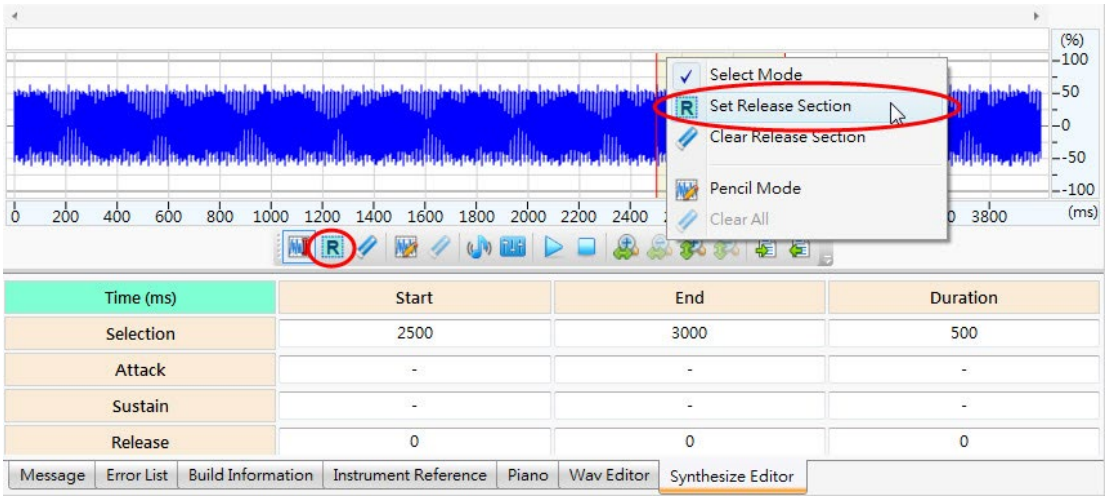
Step1 〉Define the Tail section in Wave Editor.



Time (ms)	Start	End	Duration
Selection	0	0	0
Attack	-	-	-
Sustain	-	-	-
Release	0	0	0

Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

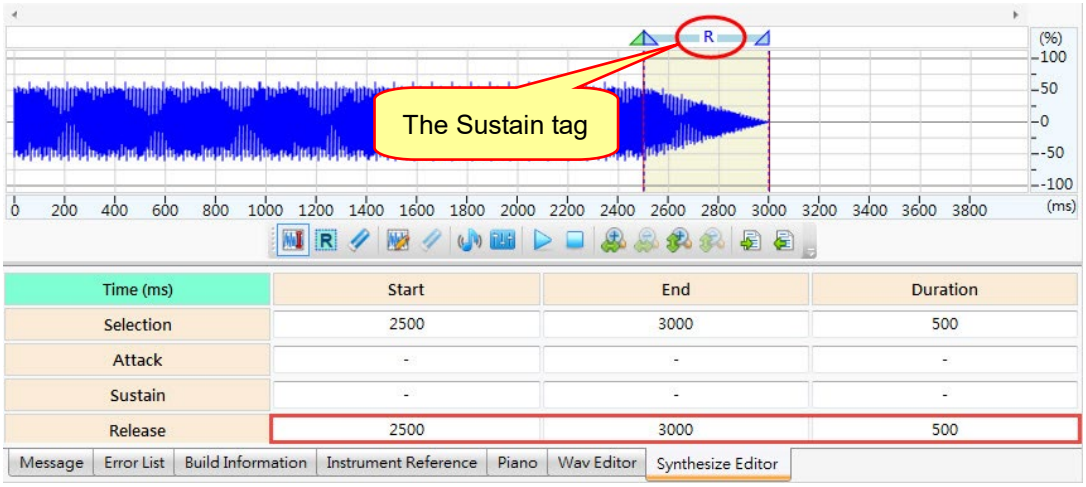
Step2 〉Select a range and set the Release section by toolbar or the context menu.



Time (ms)	Start	End	Duration
Selection	2500	3000	500
Attack	-	-	-
Sustain	-	-	-
Release	0	0	0

Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

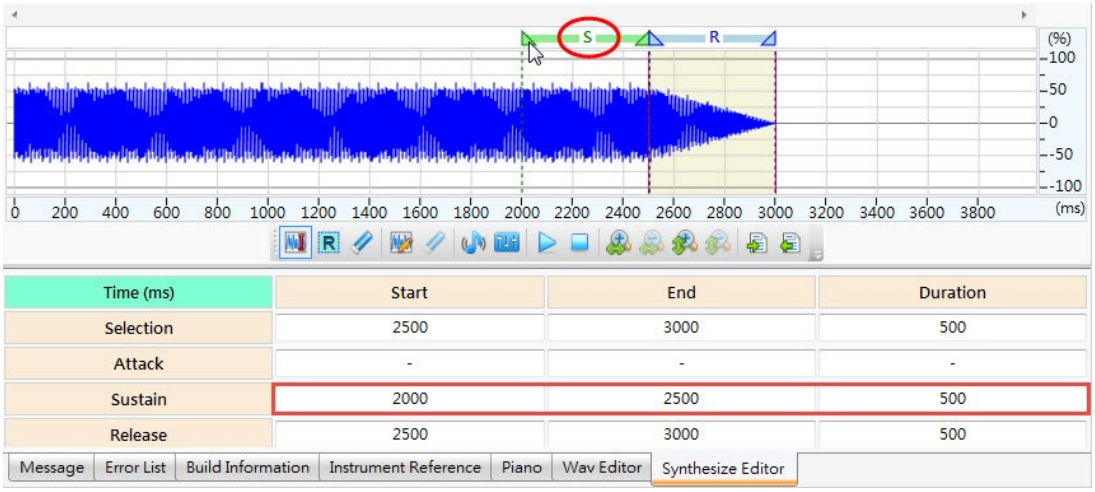
Step3 〉The Release section will be appeared after setting, and the Sustain tag will appear on top of the starting position of Release section.



Time (ms)	Start	End	Duration
Selection	2500	3000	500
Attack	-	-	-
Sustain	-	-	-
Release	2500	3000	500

Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

Step4 〉Move cursor to the Sustain tag, pressing and holding the left mouse button to drag leftward until the Sustain section appear.



Time (ms)	Start	End	Duration
Selection	2500	3000	500
Attack	-	-	-
Sustain	2000	2500	500
Release	2500	3000	500

Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

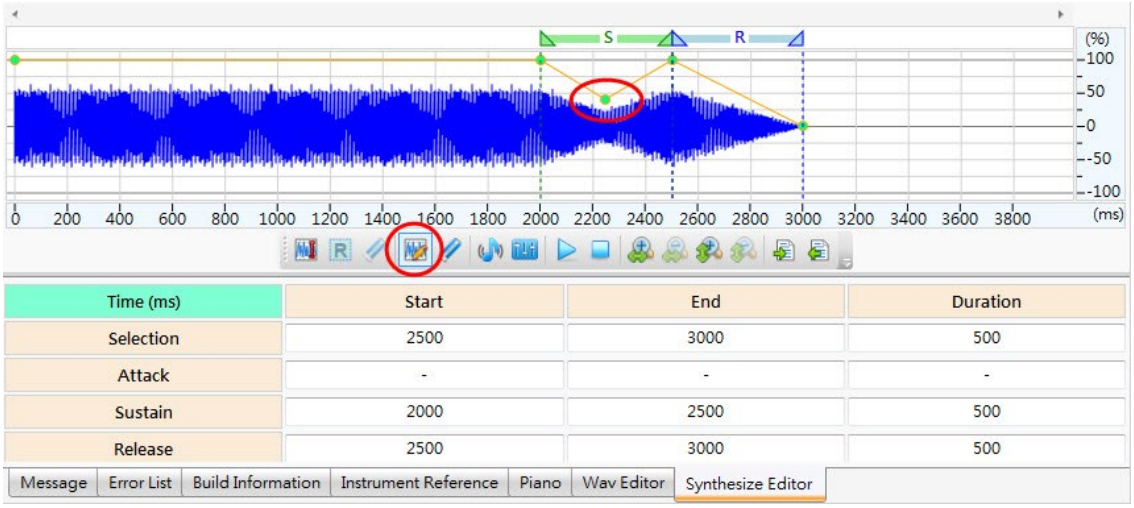
◆ Edit the envelope curve

Step1 〉Adjust envelope for the Sustain section in pencil mode. Please note the height of the start point and the end point of Sustain envelope are fixed as the same. Besides, multi-point editing of Sustain envelope is not currently supported for percussion instruments.

Add an envelope point: Move curosr to the desired position and press the left mouse button to add an envelope point.

Remove the envelope point: Move cursor to an envelope point and press the right button on mouse to delete the envelope point.

Drag the envelope point: Move cursor to the envelope point, press and hold the left mouse button until dragging the envelope point to the desired position.

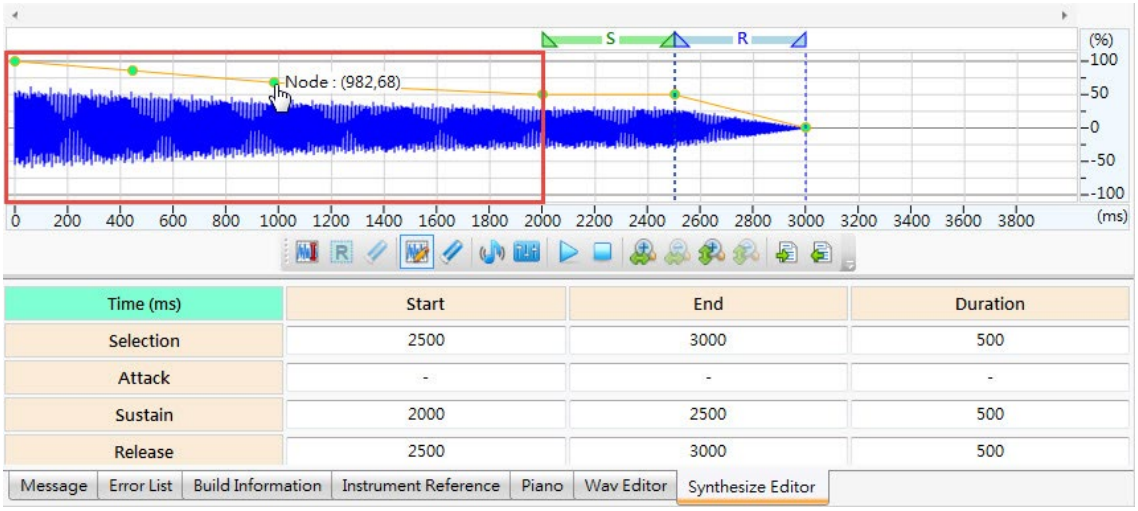


Step2 〉In pencil mode, use cursor to add / remove / drag points before the Sustain section for adjusting the envelope curve.

Add an envelope point: Move curosr to the desired position and press the left mouse button to add an envelope point.

Remove the envelope point: Move cursor to an envelope point and press the right button on mouse to delete the envelope point.

Drag the envelope point: Move cursor to the envelope point, press and hold the left mouse button until dragging the envelope point to the desired position.



Time (ms)	Start	End	Duration
Selection	2500	3000	500
Attack	-	-	-
Sustain	2000	2500	500
Release	2500	3000	500

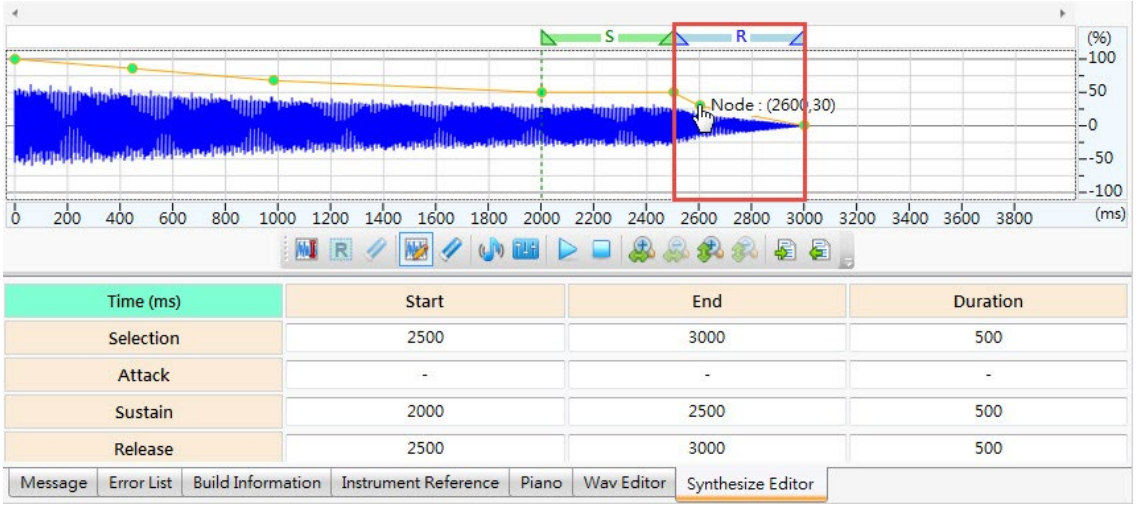
Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

Step3 〉Use cursor to add / remove / drag the envelope point for adjusting the envelope curve in the Release section

Add an envelope point: Move curosr to the desired position and press the left mouse button to add an envelope point.

Remove the envelope point: Move cursor to an envelope point and press the right button on mouse to delete the envelope point.

Drag the envelope point: Move cursor to the envelope point, pressing and holding the left mouse button until dragging the envelope point to the desired position.



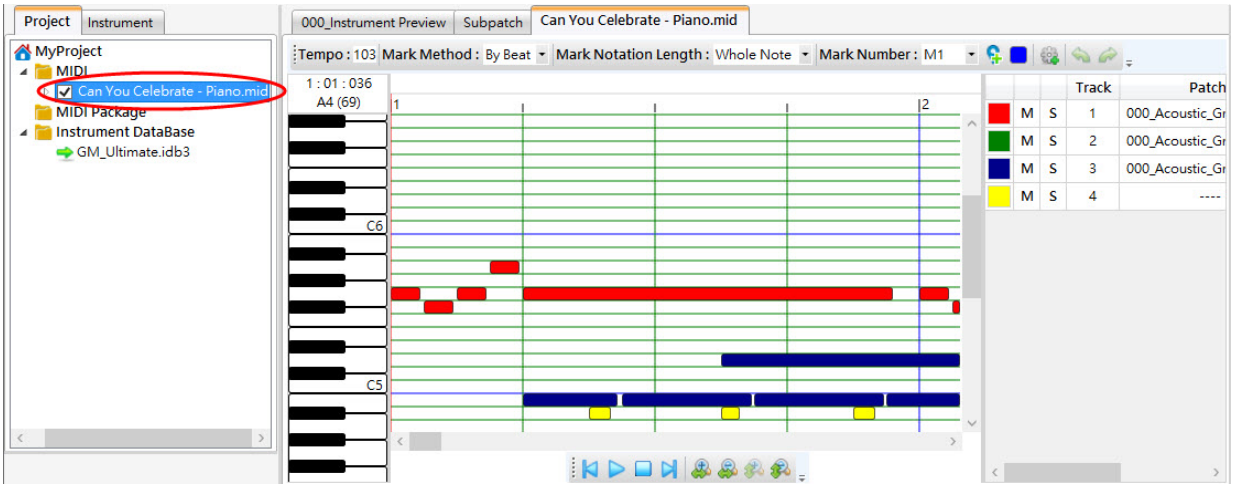
Time (ms)	Start	End	Duration
Selection	2500	3000	500
Attack	-	-	-
Sustain	2000	2500	500
Release	2500	3000	500

Message | Error List | Build Information | Instrument Reference | Piano | Wav Editor | Synthesize Editor

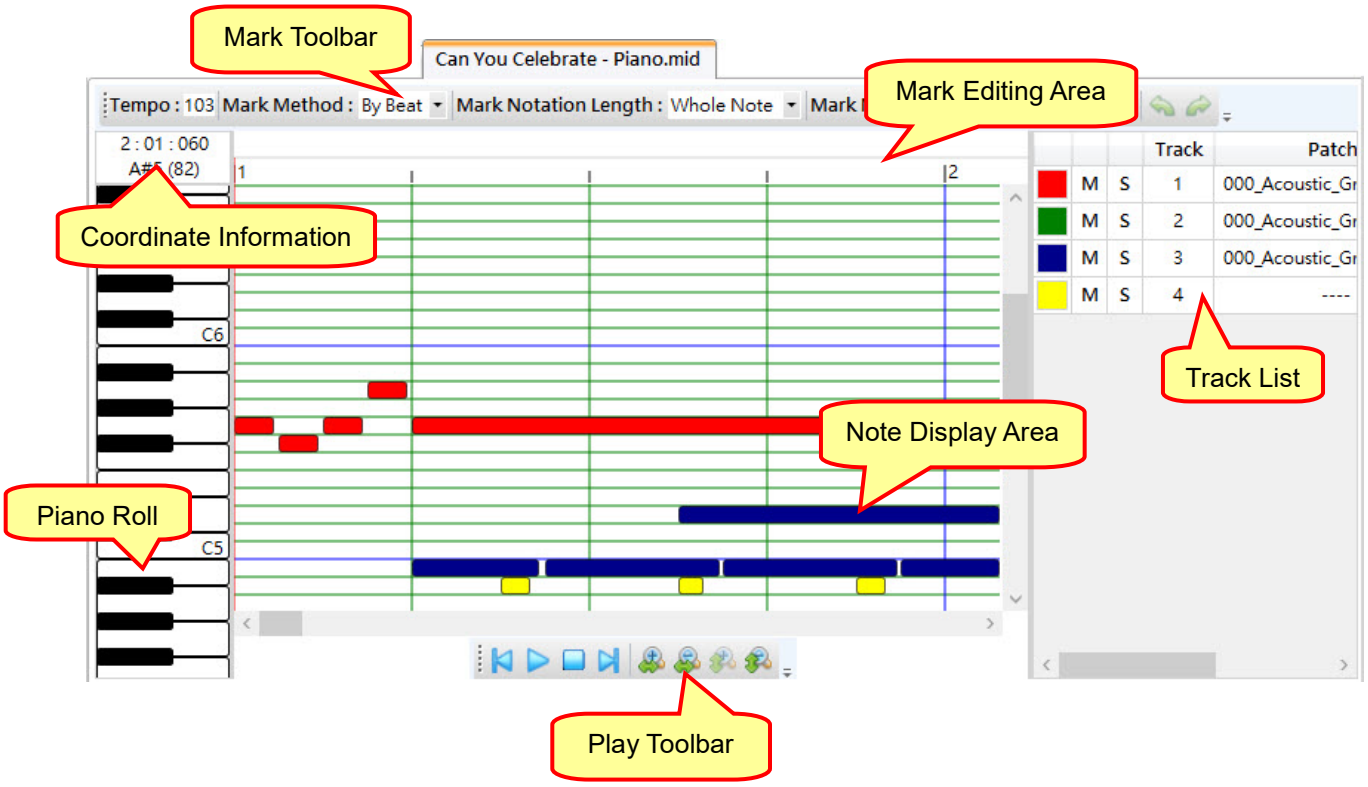
3.8 Mark Editor

Mark Editor provides *Q-Code* and *NYIDE* implementation of the corresponding action, such as follow the rhythm of the music to flash. Instructions are as follows.

Double-click the left mouse click to display the mid in the Project Management area, as shown below:



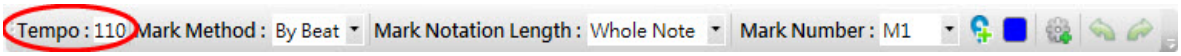
The Mark Editor includes Mark Toolbar, Coordinate Information, Piano Roll, Mark Editing Area, Note Display Area, Play Toolbar and Track List.



3.8.1 Mark Toolbar

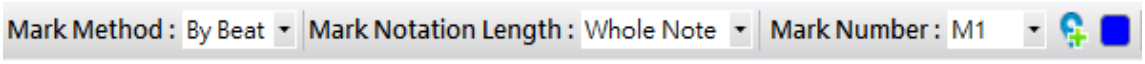
Mark Toolbar provides Tempo, Basic Insert Method, Advanced Insert Method, Undo and Redo functions, that can simplify and shorten editing mark process. The following instructions:

3.8.1.1 Tempo: How many beats per minute. According to the current cursor line position display tempo information.



3.8.1.2 Basic Insert Method: There are 4 kinds of Method to choose: By Beat, By Note (With Mute), By Note (Without Mute) and By Pitch.

- **By Beat:** When the length of the note is equal to the length of specified Notation Length, mark at the beginning of the note.



Mark Notation Length: Set note length, there are Whole Note, Half Note, Quarter Note, Eighth Note, Sixteenth Note and Thirty-Second Note.

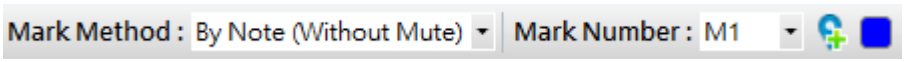
Mark Number: For NY5+/NY6/NY7/NX1, the supported range is M1 to M255.

Mark Color: There are 24 colors to choose.

- **By Note (With Mute):** Mark according to the start time of each note, including mute note.

Mark Color: There are 24 colors to choose.

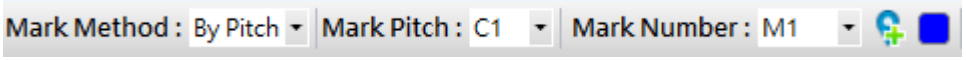
- **By Note (Without Mute)**: Mark according to the start time of each Note, not including mute note.



Mark Number: For NY5+/NY6/NY7/NX1, the supported range is M1 to M255.

Mark Color: There are 24 colors to choose.

- **By Pitch**: Mark at the start time of note with the specified pitch.

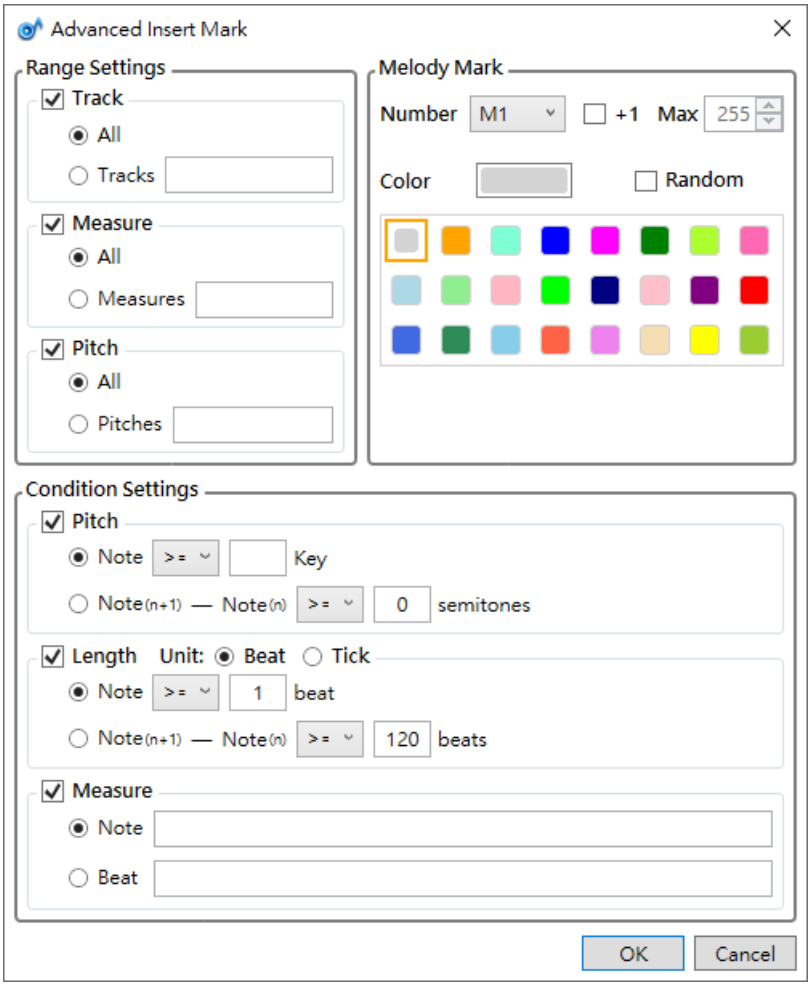


Mark Pitch: Specify the pitch

Mark Number: For NY5+/NY6/NY7/NX1, the supported range is M1 to M255.

Mark Color: There are 24 colors to choose.

Advanced Insert Mark: Mark quickly through setting the detailed conditions.

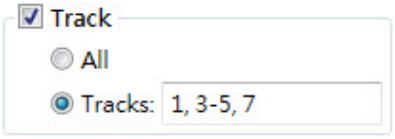


Advanced Insert Mark includes Range Settings, Melody Mark and Condition Settings. The instructions are as follows.

◆ **Range Settings**: Specify Track, Measure and Pitch range.

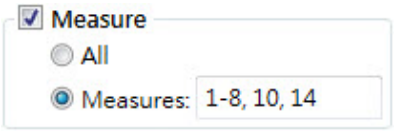
Track: Set Track number for All or a specified Track, the default is All.

The specified Track shows as below, designated Tracks are 1, 3 to 5, and 7.



Measure: Set the Measure range, the default is All.

The specified Measure range shows as below, the Measure ranges are 1 to 8, 10, and 14.



Pitch: Set the Pitch range, the default is All.

The specified Pitch range shows as below, the Pitch ranges are C1 to C3, D5, and E6.

◆ **Melody Mark:** Set Mark Type, Track, Color and Number.

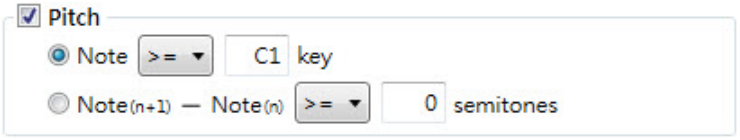
Number: The supported range is M1 to M255. Allows enabling number auto-increment (+1) and setting the maximum value for the incrementing number (Max).

Color: There are 24 colors to choose, and it can be determined by Random.

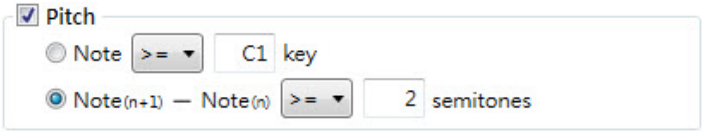
◆ **Condition Settings:** Set the conditions for the Pitch, Length, and Measure.

Pitch: There are two setting conditions as below.

➢ Higher than, equal to, or lower than the specified Pitch. The Pitch with higher than or equal to C1 is eligible.



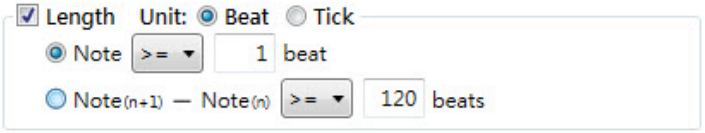
➢ The distance of two adjacent pitches is more than, equal to, or less than a few semitones. The distance of two adjacent Pitches with more than or equal to 2 semitones is eligible.



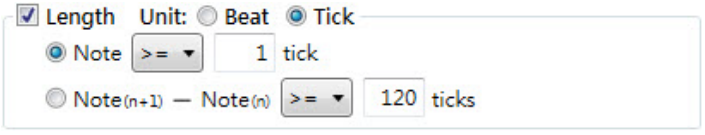
Length: There are two setting conditions as below.

➢ Note length is is more than, equal to, or less than specified Beat or Tick.

The note length with more than or equal to 1 Beat is eligible.

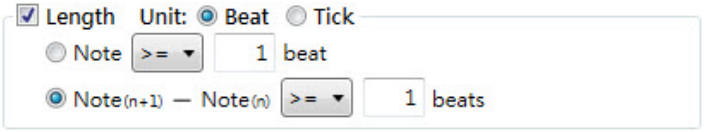


The note length with more than or equal to 1 Tick is eligible.

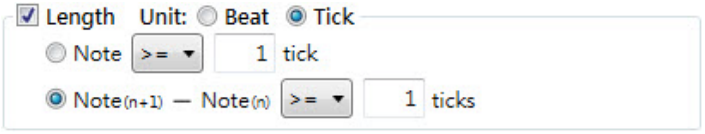


- The length gap of the two adjacent notes is more than, equal to, or less than the specified Beat or Tick.

  The length interval of the two adjacent notes with more than or equal to 1 Beat is eligible.



  The length interval of the two adjacent notes with more than or equal to 1 Tick is eligible.



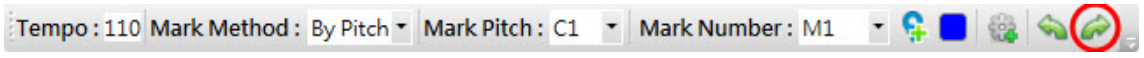
Measure: There are two setting conditions as below.

- **Note:** For the following example, the first, second to fourth, and sixth note in each Measure are eligible.

- **Beat:** For the following example, the first and second to fourth note in each Measure are eligible.

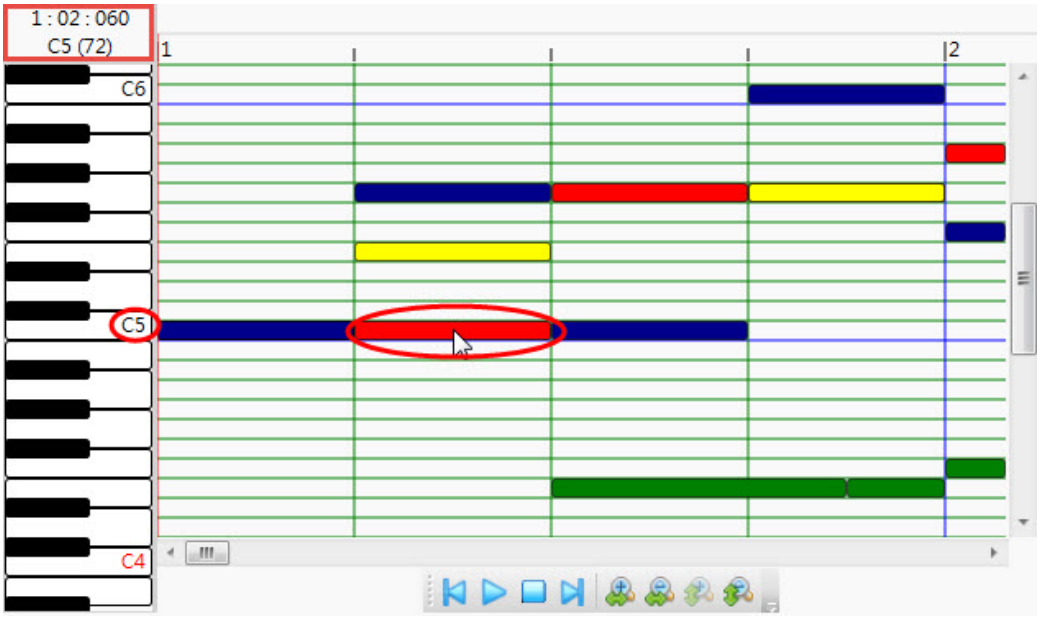
3.8.1.3 Undo: Undo the last Mark action.

3.8.1.4 Redo: Redo the last restored Mark action.



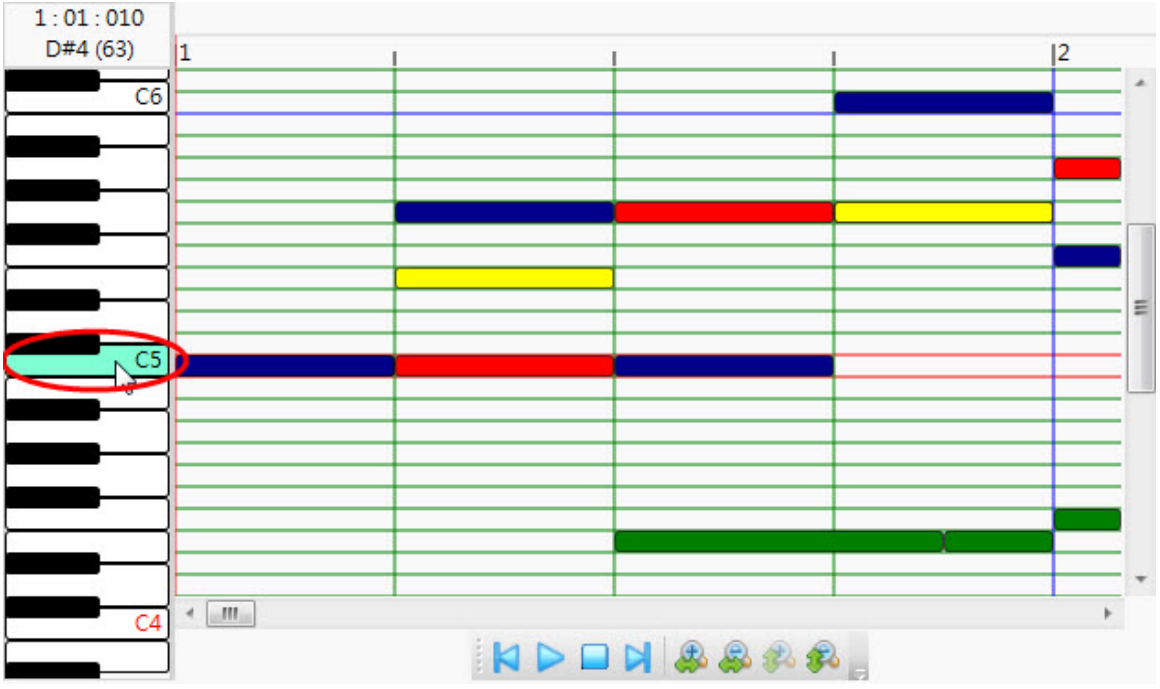
3.8.2 Coordinate Information

Show the current mouse position. The following marked mouse position is in the first measure, second beat, 67th tick and corresponding pitch is C5.



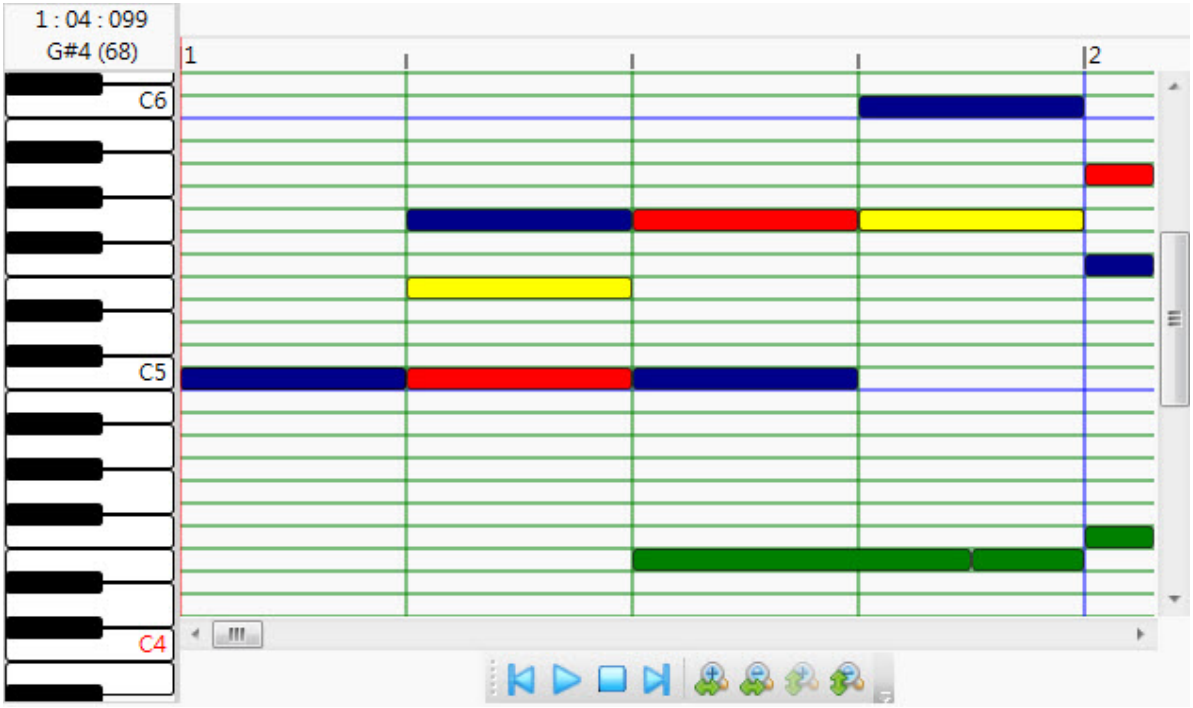
3.8.3 Piano Roll

Show the pitch of all notes.



3.8.4 Note Display Area

Note Display Area shows the start time and length of all notes in MIDI.



3.8.5 Play Toolbar

Go To Start: Move the cursor to the beginning of the MIDI.

Play: Play MIDI from the position of cursor line.

Stop: Stop palying.

Go To End: Move the cursor to the end of the MIDI.

Zoom In Horizontally: According to the current position of the cursor line horizontal direction to enlarge.

Zoom Out Horizontally: According to the current position of the cursor line horizontal direction to narrow.

Zoom In Vertically: Increase the vertical scale resolution of display.

Zoom Out Vertically: Decrease the vertical scale resolution of display.

3.8.6 Track List

Track List displays all the track numbers of entire MIDI, and each track can be switched on/off, set solo, muted, pitch shifted, and set the volume.

			Track	Patch	Key	Vol
	M	S	1	000_Acoustic_Grand_Piano	0	127
	M	S	2	000_Acoustic_Grand_Piano	0	127
	M	S	3	000_Acoustic_Grand_Piano	0	127
	M	S	4	----	0	127

Track Display: Switch the track to show or not. Gray indicates hiding this track.

Mute: Set the track muted or not.

Solo: Set the track to be solo or not.

Track: Display the track number.

Patch: Display the patch number and instrument.

Key: Lift or lower the key of all the notes of the track. The range is -127 ~ 127 and the default is 0.

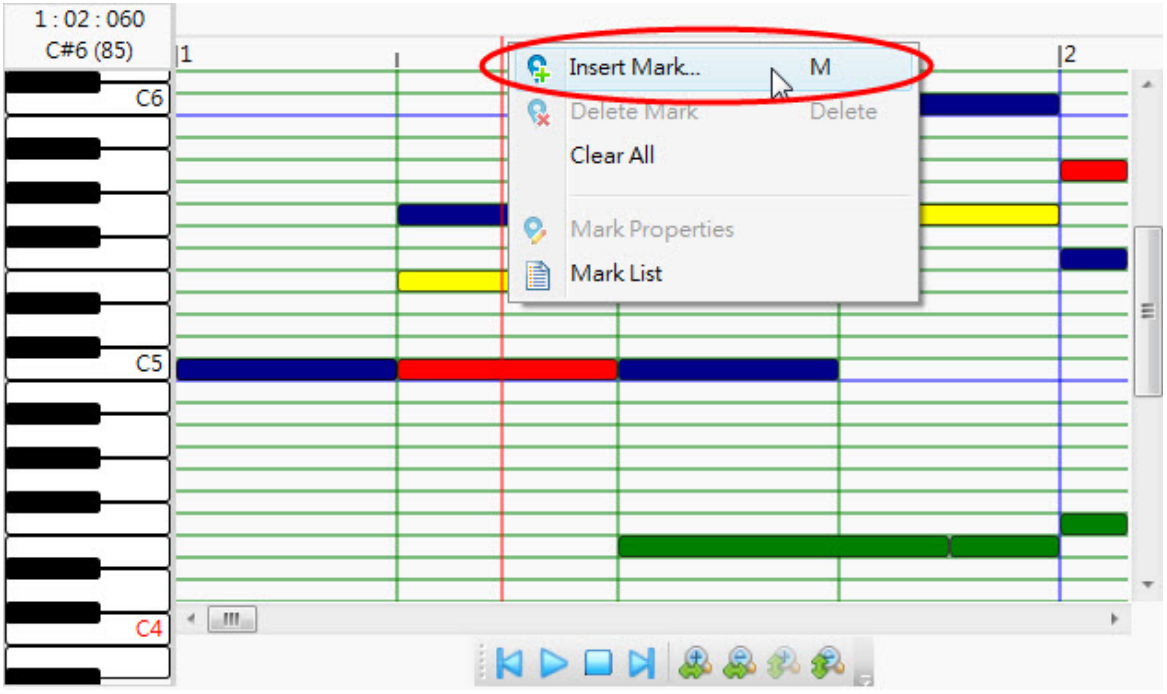
Vol: Volume up or down of all the notes of the track. The range is 0 ~ 127. The default is -1, which means no setting and shows "---".

3.8.7 Mark Editing Area

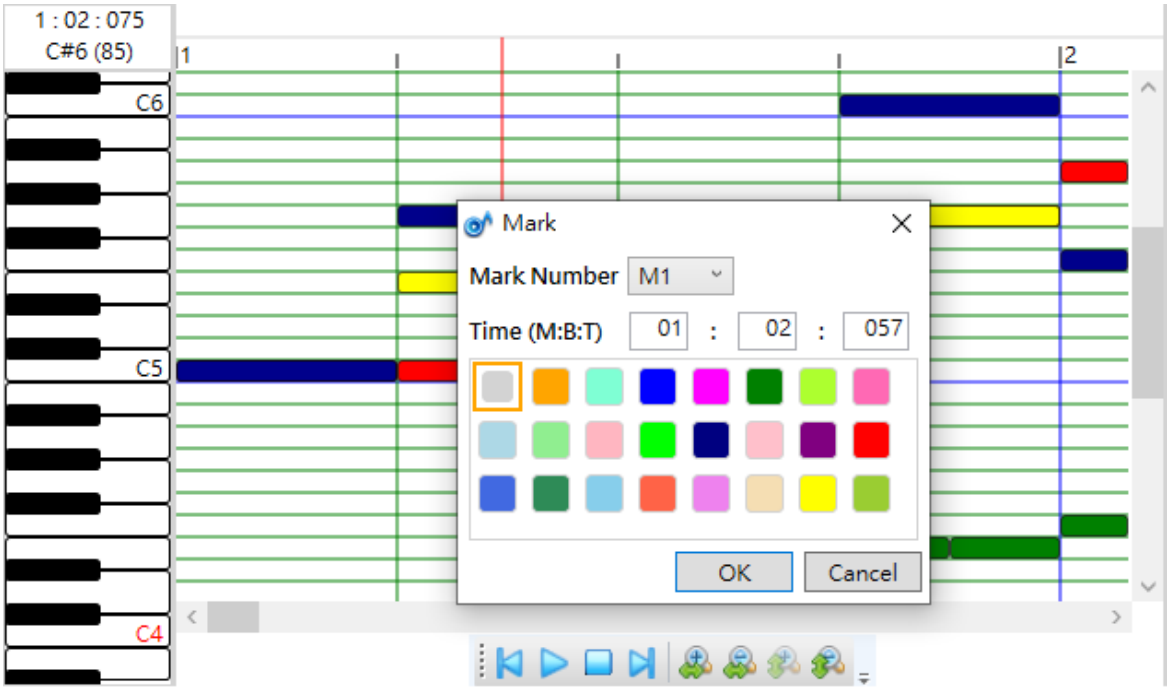
This area provides mark editing, the instructions are as follows.

Insert Mark: Mark at the current location.

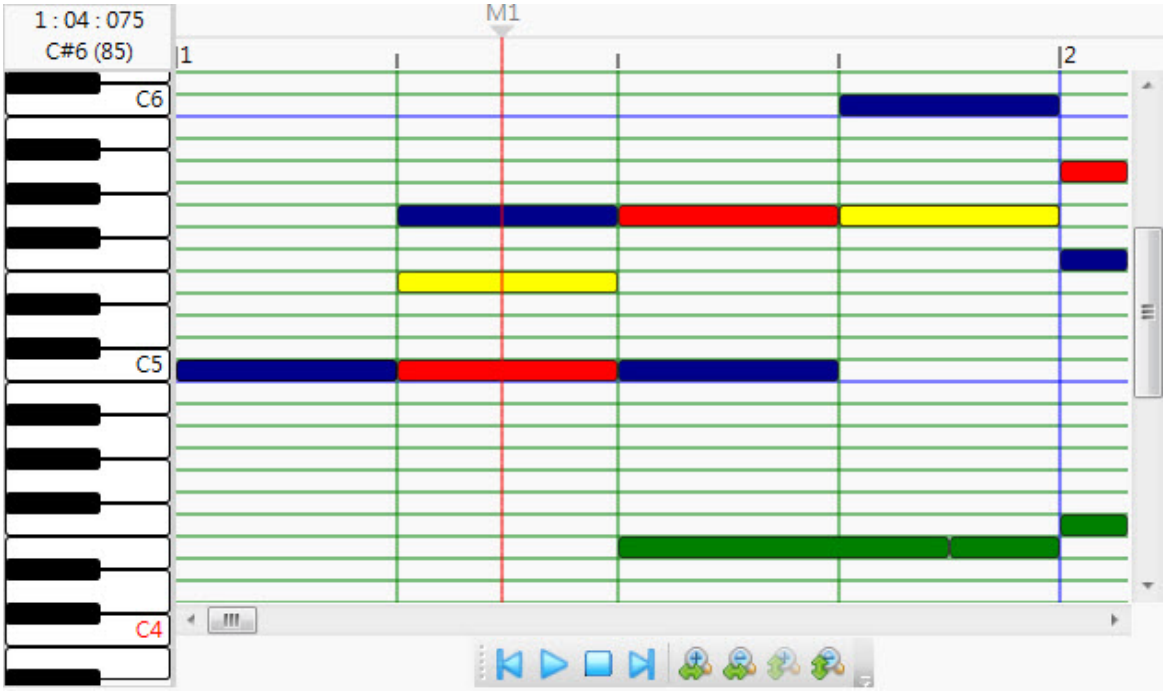
Click the left mouse button to move the red cursor line to the inserted position in Mark Editing Area, and click the right mouse button to open the context menu to select "Inserted Mark" or use the shortcut key "M".



The Mark window can set the Mark Name, Time and color.

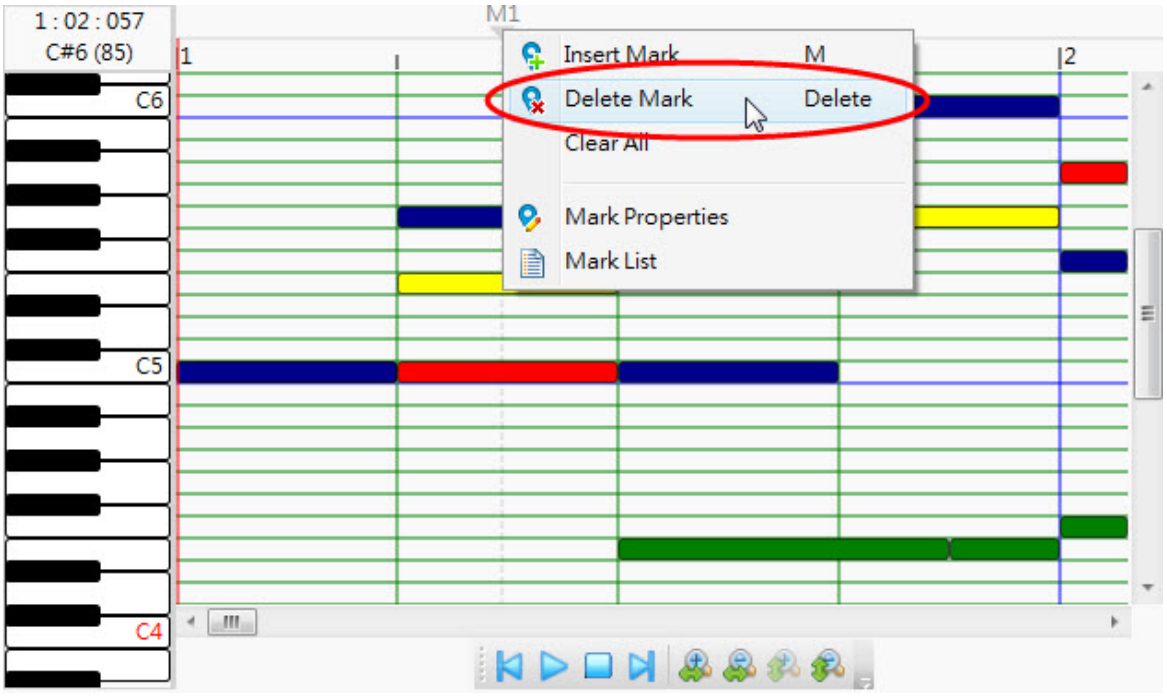


After pressing “OK”, the M1 will show at the specified time.



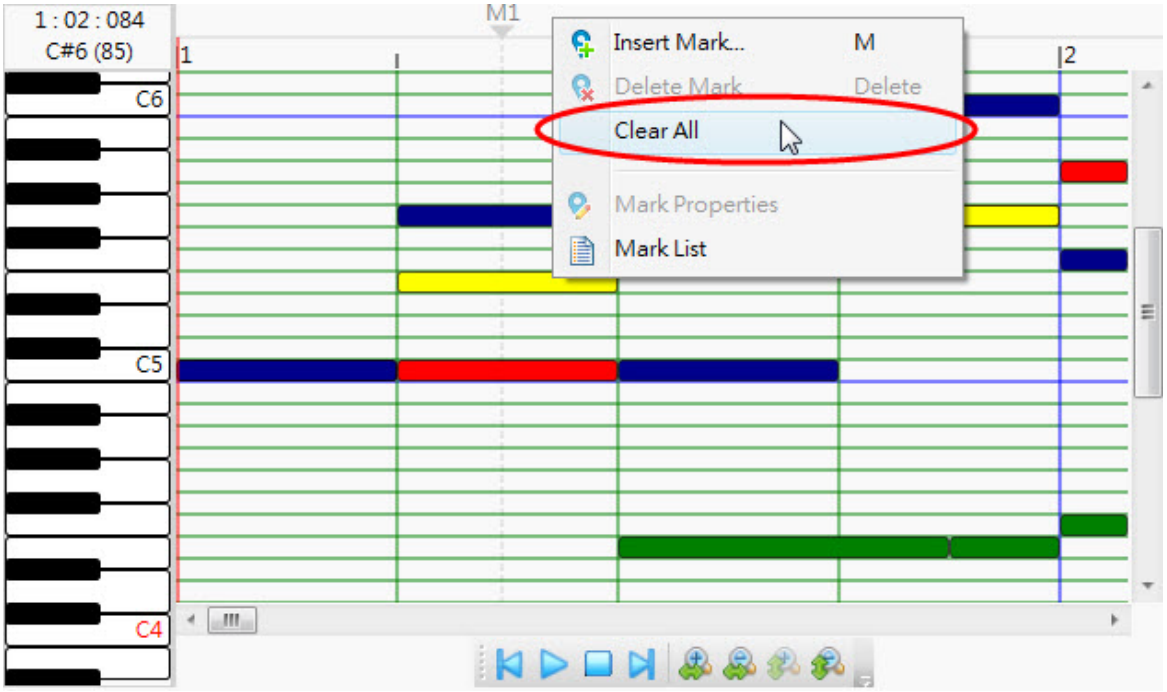
Delete Mark: Delete the inserted Mark.

Move the mouse over the mark you want to delete, and click the right mouse button to open the context menu to select “Delete Mark”.



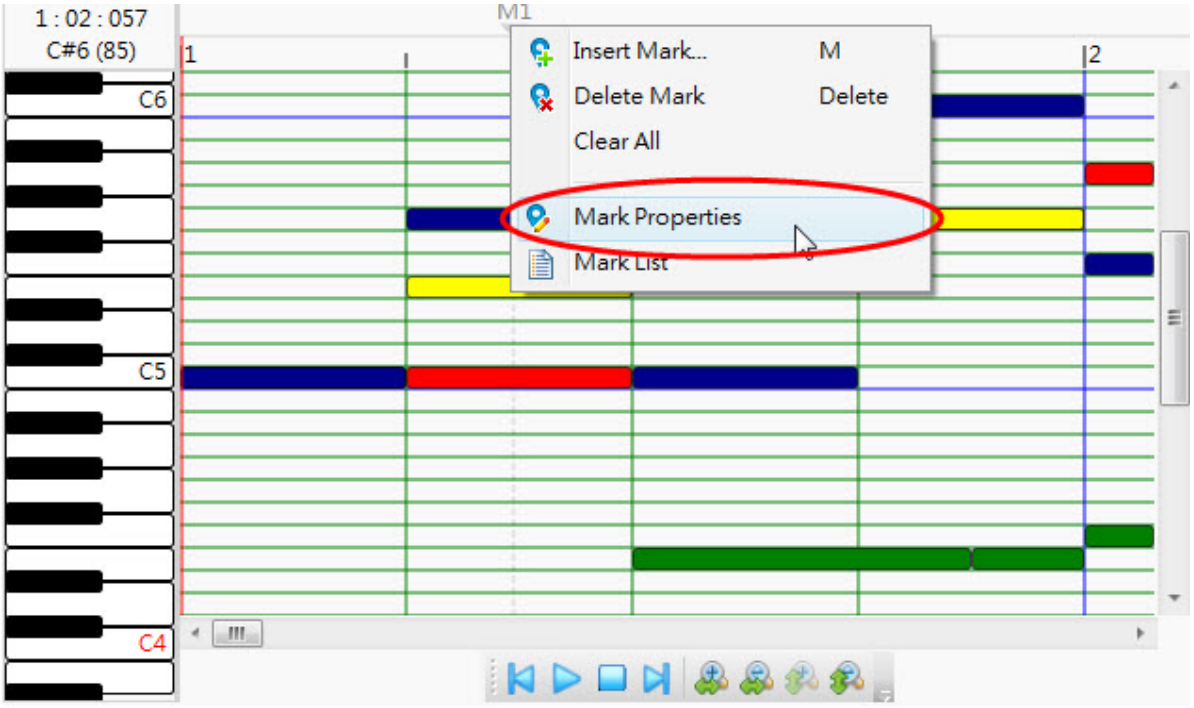
Clear All: Delete all inserted Marks.

Click the right mouse button to open the context menu to select “Clear All” in Mark Editing Area.

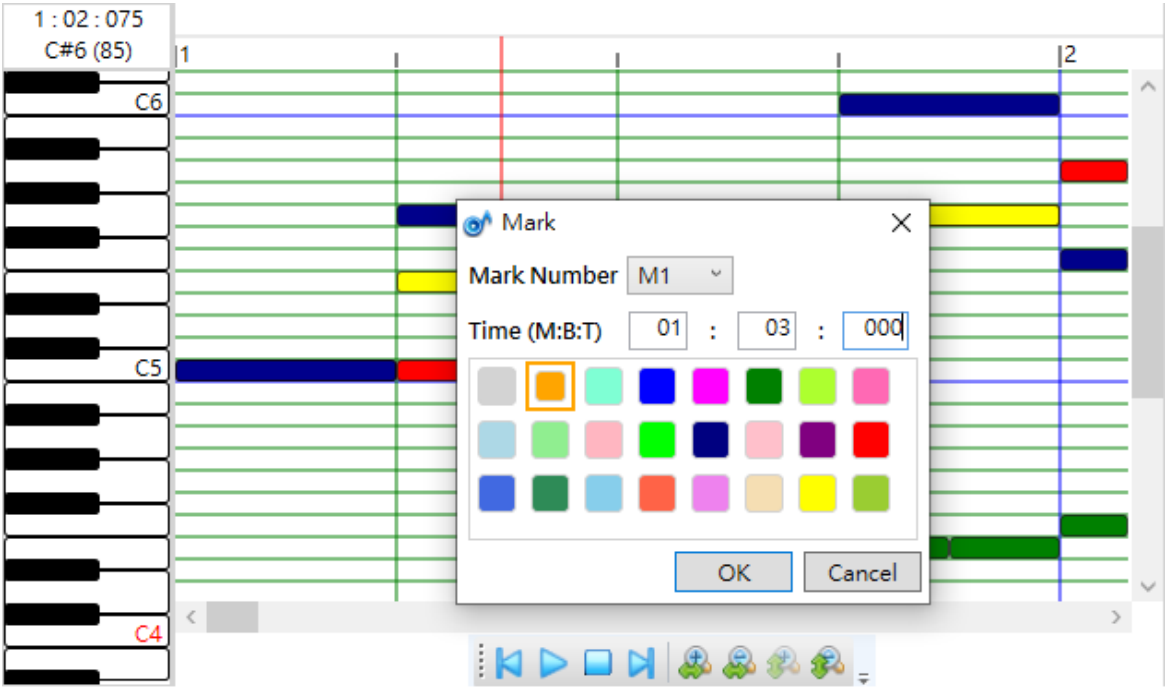


Mark Properties: Edit the currently selected Mark Properties.

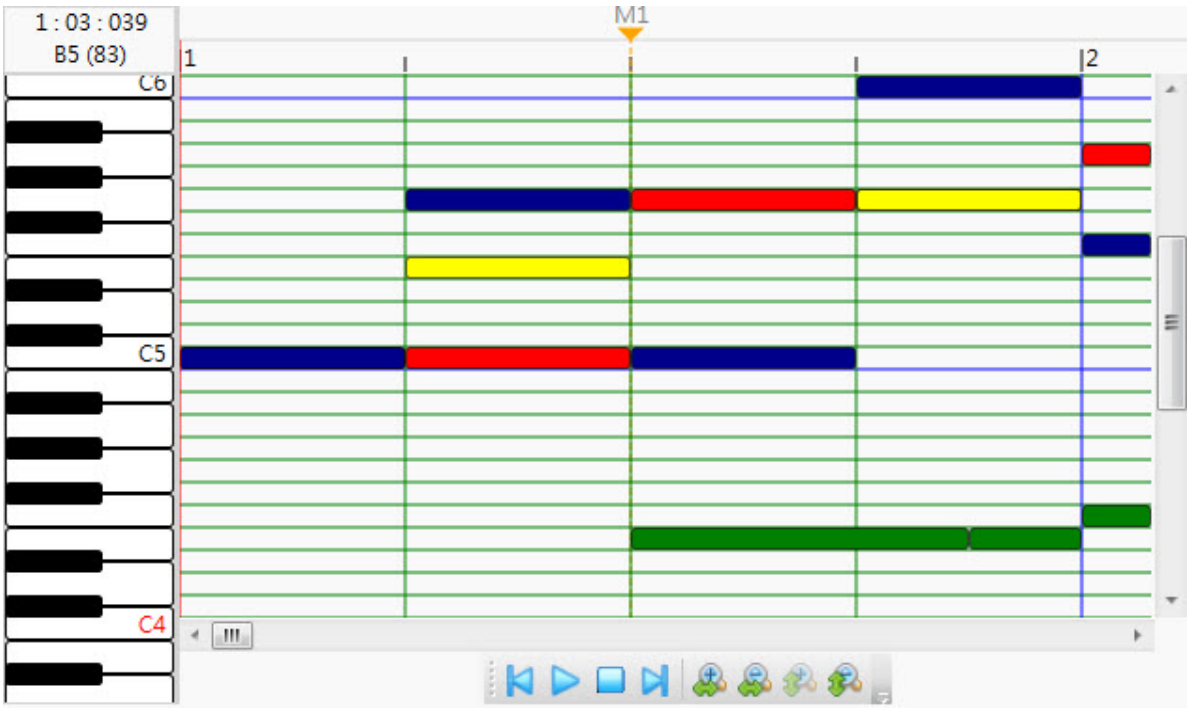
Move the mouse over the mark and click the right mouse button to open the context menu to select “Mark Properties”.



Set the Mark Name, Time and color.

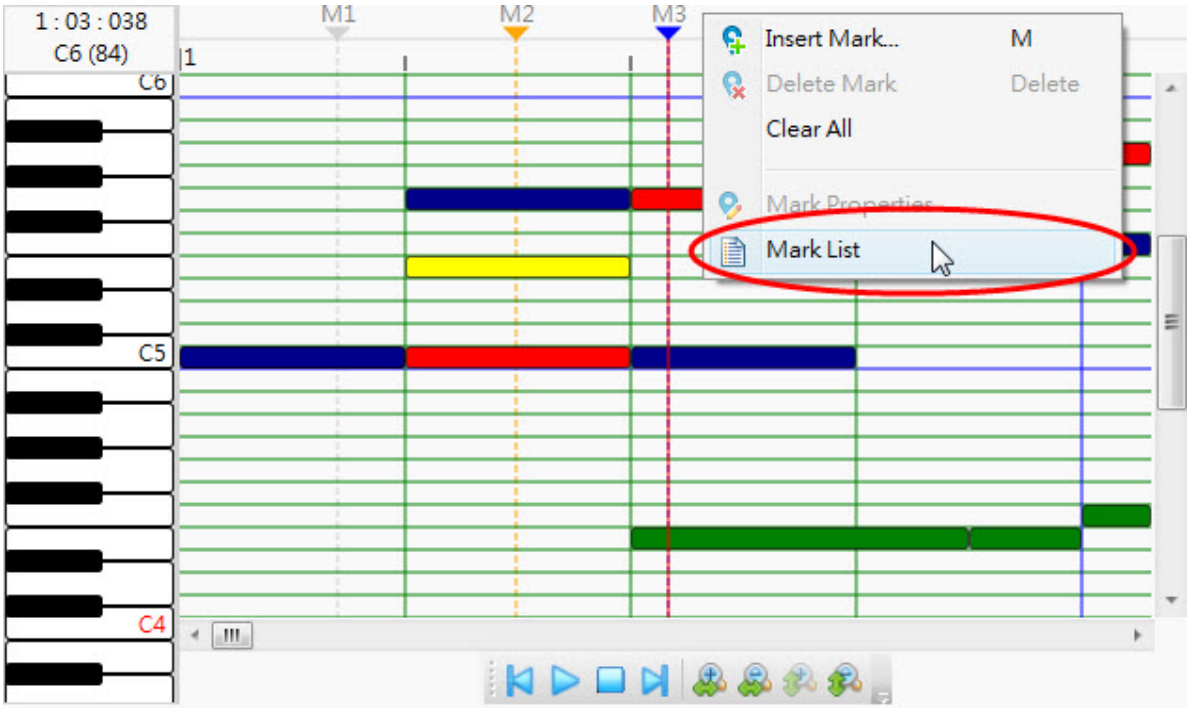


Pressing “OK” to finish editing.

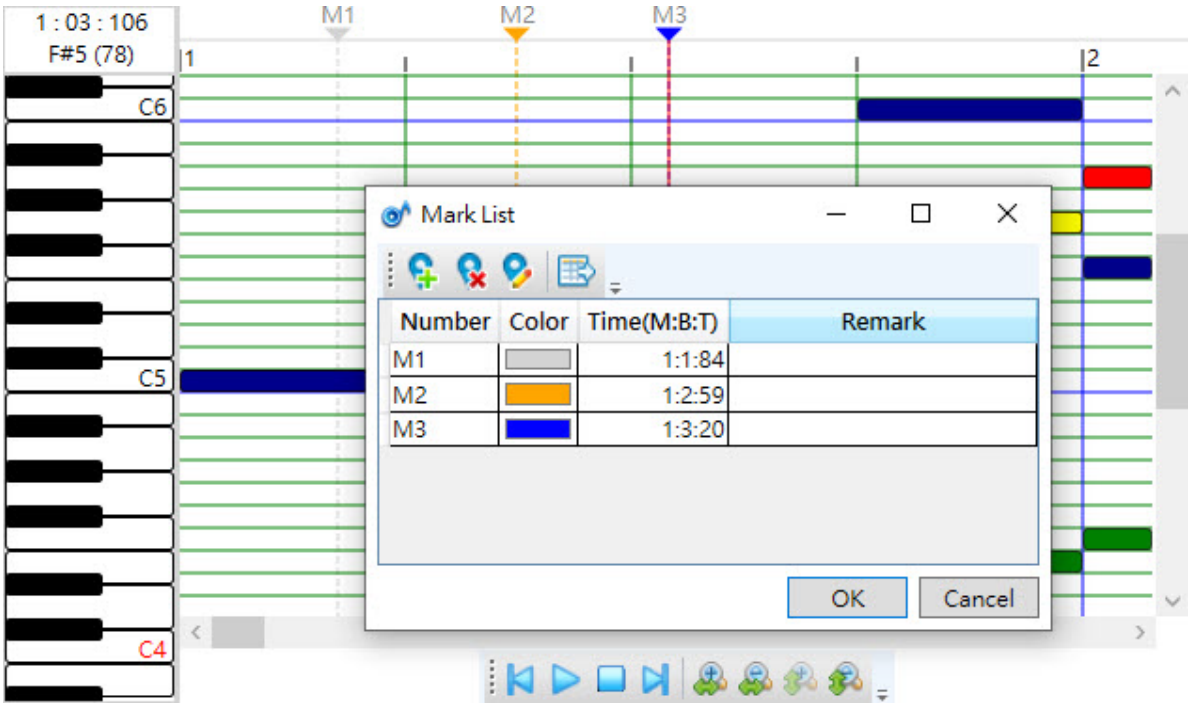


Mark List: List all mark information.

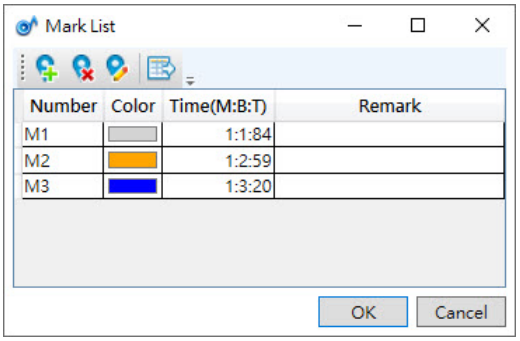
Click the right mouse button to open the context menu to select “Mark List” in Mark Editing Area.



The Mark List window will pop up as below.



The toolbar provides Insert Mark, Delete Mark, Edit Mark and Export.



Insert Mark: Add a new mark in the mark table.

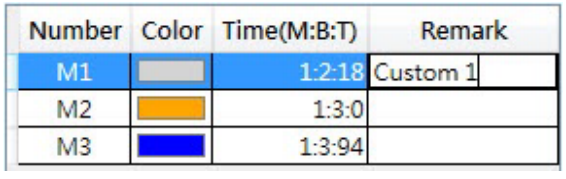
Delete Mark: Delete one or more of the selected marks in the mark table.

Edit Mark: Edit the selected mark in the mark table.

Export: Export the content of mark table to a .html file.

The mark table displays Number, Color, Time (M:B:T) and Remark.

The Remark can be directly entered with custom instructions.



Number: The supported range is from M1 to M255.

Color: There are 24 colors to choose

Time (M:B:T): Represent by Measure(M), Beat(B) and Tick(T).

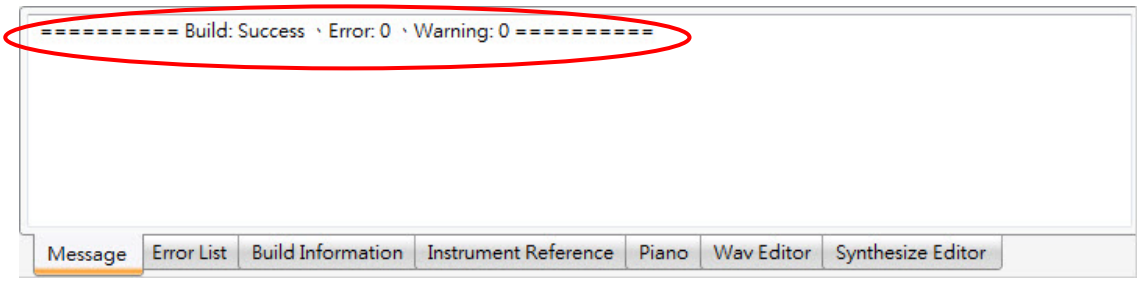
Remark: Enter custom instructions.

3.9 Information Window

The Information Window includes tabs of Message, Error List, Build Information, Instrument Reference, Piano, Wav Editor, Synthesize Editor and MIDI.

3.9.1 Message

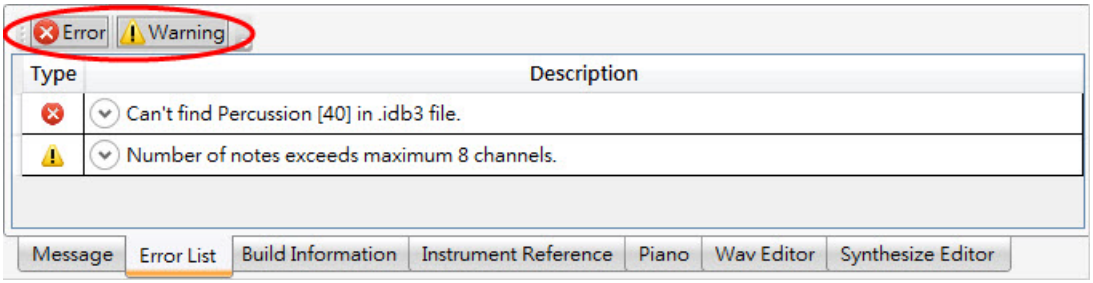
After Convert, Download and Export Resources functions executed, the Message tab will show the status of build, and the number of error and warning.



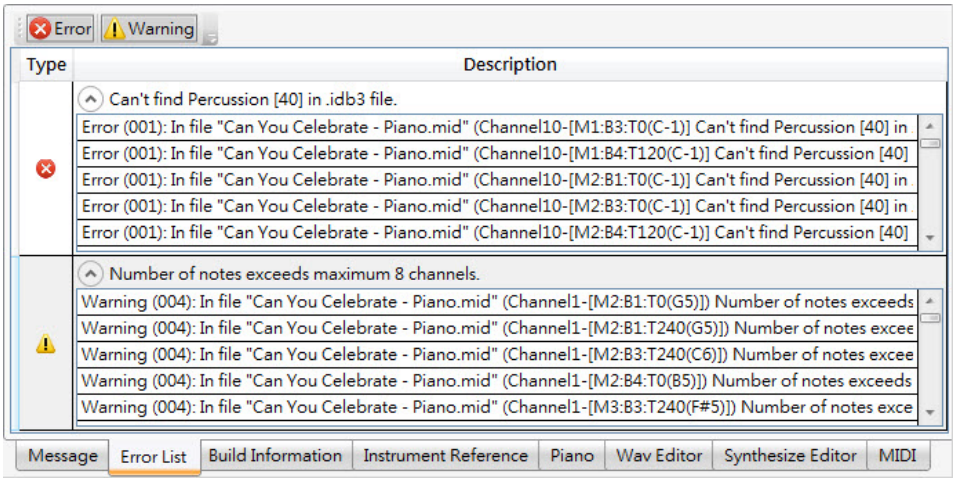
3.9.2 Error List

After Convert, Download and Export Resources functions are executed, the Error List tab will show the information of warning and error. User can click the button on toolbar to filter message types.

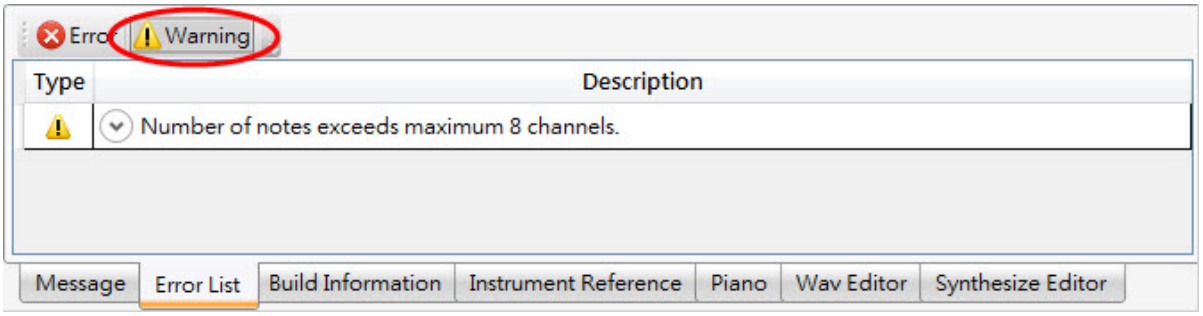
◆ **Shows all information**



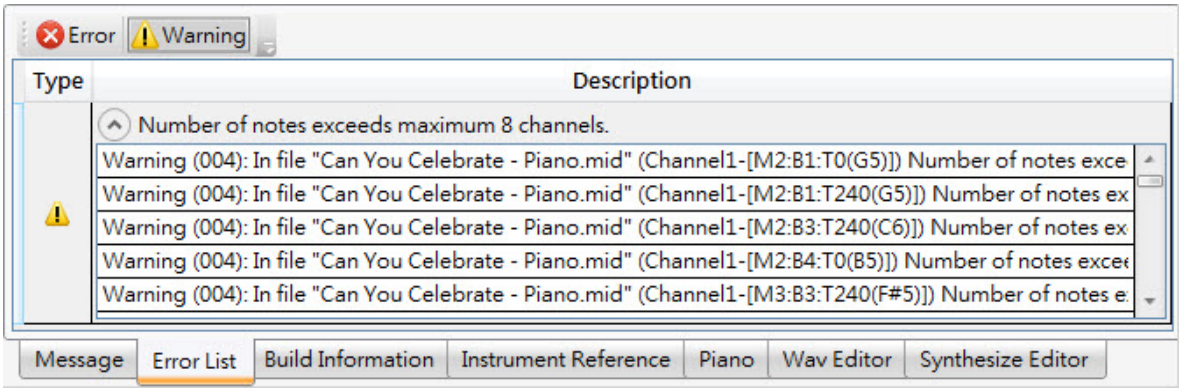
The details can be clicked to expand as shown below:



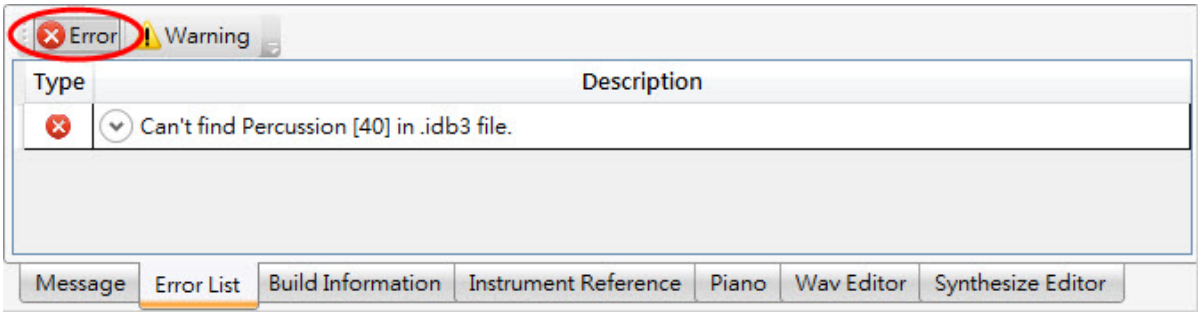
◆ **Warning information only**



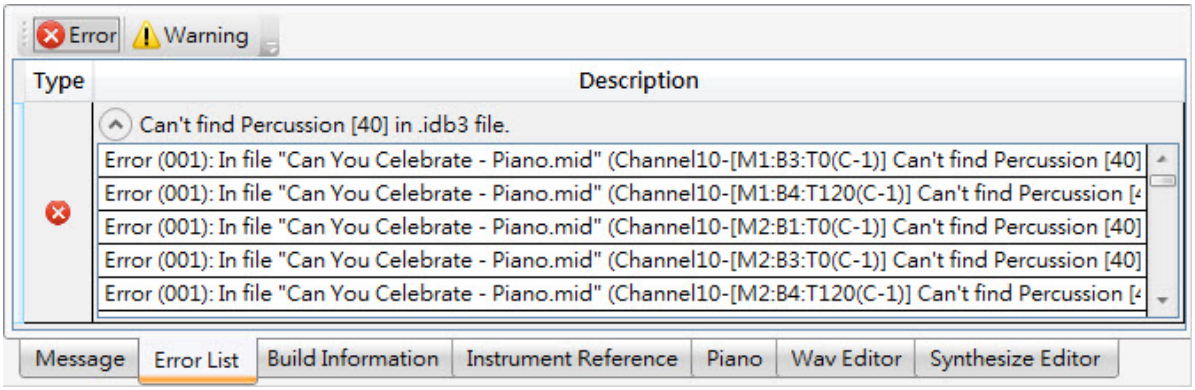
The details can be clicked to expand as shown below:



◆ **Error information only**



The details can be clicked to expand as shown below:



3.9.3 Build Information

The Build Information tab shows the subpatches information used by .mid files in the current project. User can export or print the information by using toolbar.

Export: Export the content of the Build Information and save as .html file.

Print: Print the content of the Build Information.

MIDI	GM No.	Name	Source	Sample Rate (Hz)	Pitch			Mode	ROM Size (Word)				Time (Sec.)
									Timbre		Envelope	MIDI	
					Base	Min	Max		Head	Tail			
TwinkleLittleStar.mid	010	Music_Box	Ins010_C5_1.wav	16,000	C5	C5	G6	Head + Tail	1,968	64	14	1,219	0.41
			Ins010_C6.wav	16,000	C6			Head + Tail	2,784	64	12		
	011	Vibraphone	Ins011_E4_2.wav	13,184	E4	B3	F5	Head + Tail	3,424	176	36		
			Ins011_E5_2.wav	13,170	E5			Head + Tail	2,064	64	34		
	000	Acoustic_Grand_Piano	Ins000_Cs5_3.wav	15,510	C#5	D4	C6	Head + Tail	3,824	32	14		
			Ins000_C6_3.wav	16,760	C6			Head + Tail	2,976	64	16		
			Ins000_E4_2.wav	19,776	E4			Head + Tail	3,632	64	14		
	033	Electric_Bass_finger	Ins033_A2_2.wav	15,781	A2	C3	E5	Head + Tail	1,328	160	12		
			Ins033_A3_2.wav	16,842	A3			Head + Tail	560	80	14		
			Ins033_A4_3.wav	16,036	A4			Head + Tail	5,120	1,024	12		
			Ins033_A5_3.wav	16,128	A5			Head + Tail	2,416	304	12		

Each column is described as follows.

MIDI: The filename of .mid file.

GM No.: The number of instrument.

Name: The instrument name.

Source: The wav source.

Sample Rate (Hz): The sample rate of wav source.

Pitch–Base: The base pitch.

Pitch–Min: The used minimum pitch of Subpatch.

Pitch–Max: The used maximum pitch of Subpatch.

Mode: The synthesize mode includes Head + Tail, Head Only and Tail Only.

Timbre–Head: The occupied ROM size of the Head section, the unit is word.

Timbre–Tail: The occupied ROM size of the Tail section, the unit is word.

Envelope: The occupied ROM size of the envelope curve, the unit is word.

MIDI: The occupied ROM size of the converted .mid file, the unit is word.

Time: The occupied demo time of the converted .mid file, the unit is second.

Estimated CPU Loading: Estimate the CPU loading of MIDI playback.The unit is %. When it exceeds 100%, abnormalities or noise may occur. This information only supports NX1 series.

	ROM Size (Word)	Time (Sec.)
Timbre	32,382	10.79
MIDI	1,219	0.41
Timbre & MIDI	33,601	11.20

Each column is described as follows.

ROM Size (Word): The ROM size of Timbre, MIDI and Timbre & MIDI, the unit is Word. NX1 project uses the unit of Byte.

Time (Sec.): The Time length of Timbre, MIDI and Timbre & MIDI. The unit is Second.

3.9.4 Instrument Reference

The Instrument Reference tab shows the information of the used instruments of selected .mid file. User can export or print the content by toolbar.

Export: Export the content of the Instrument Reference and save as .html file.

Print: Print the content of the Instrument Reference.

Order	GM No.	Name	Source	Sample Rate (Hz)	Pitch			Mode	Quality	ROM Size (Word)			Time (Sec.)
					Base	Min	Max			Timbre		Envelope	
										Head	Tail		
0	000	Acoustic_Grand_Piano	Ins000_Cs5_3.wav	15,510	C#5	A4	F#5	Head + Tail	PCM + PCM	3,824	32	14	1.29
			Ins000_C6_3.wav	16,760	C6	G5	G6	Head + Tail	PCM + PCM	2,976	64	16	1.02
1	025	Acoustic_Guitar_steel	Ins025_A3_3.wav	14,080	A3	C1	C4	Head + Tail	PCM + PCM	2,864	80	12	0.99
			Ins025_F4_2.wav	16,790	F4	C#4	A4	Head + Tail	PCM + PCM	3,728	208	12	1.32
			Ins025_D5_2.wav	14,095	D5	A#4	A5	Head + Tail	PCM + PCM	2,304	128	12	0.81
2	033	Electric_Bass_finger	Ins033_A2_2.wav	15,781	A2	C1	D#3	Head + Tail	PCM + PCM	1,328	160	12	0.50
0	035	Acoustic_Bass_Drum_P35	Per035_Acoustic Bass Drum_1.wav	16,000	B1	-	-	Head Only	PCM	752	0	4	0.25
1	040	Electric_Snare_P40	Per040_Electric Snare_1.wav	18,000	E2	-	-	Head Only	PCM	2,352	0	4	0.79
2	042	Closed_Hi_Hat_P42	Per042_Close Hi-Hat_1.wav	22,050	F#2	-	-	Head Only	PCM	1,360	0	4	0.45
3	046	Open_Hi_Hat_P46	Per046_Open Hi-Hat_1.wav	22,050	A#2	-	-	Head Only	PCM	33,360	0	4	11.12
4	070	Maracas_P70	Per070_Maracas_1.wav	22,050	A#4	-	-	Head Only	PCM	1,200	0	4	0.40

Each column is described as follows.

Order: The sequential number.

GM No. : The number of instrument.

Name: The instrument name.

Source: The wav source.

Sample Rate (Hz): The sample rate of wav source.

Pitch–Base: The base pitch.

Pitch–Min: The minimum pitch of Subpatch.

Pitch–Max: The maximum pitch of Subpatch.

Mode: The synthesize mode includes Head + Tail, Head Only and Tail Only.

Quality: The quality of subpatch includes ADPCM and PCM.

Timbre–Head: The occupied ROM size of the Head section, the unit is word. NX1 project uses the unit of Byte.

Timbre–Tail: The occupied ROM size of the Tail section, the unit is word. NX1 project uses the unit of Byte.

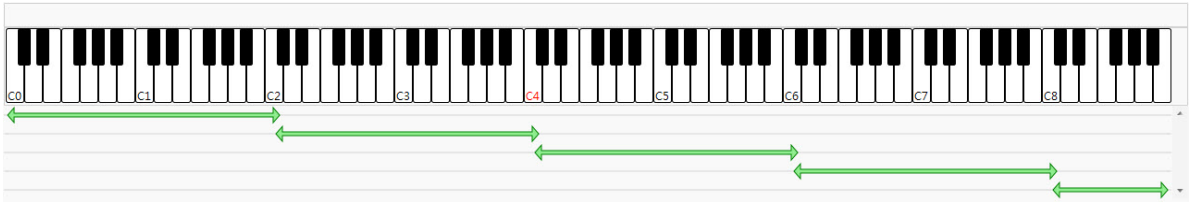
Envelope: The occupied ROM size of the envelope curve, the unit is word. NX1 project uses the unit of Byte.

Time: The occupied ROM of the subpatch caculated as 6K sampling rate for IC, the unit is second.

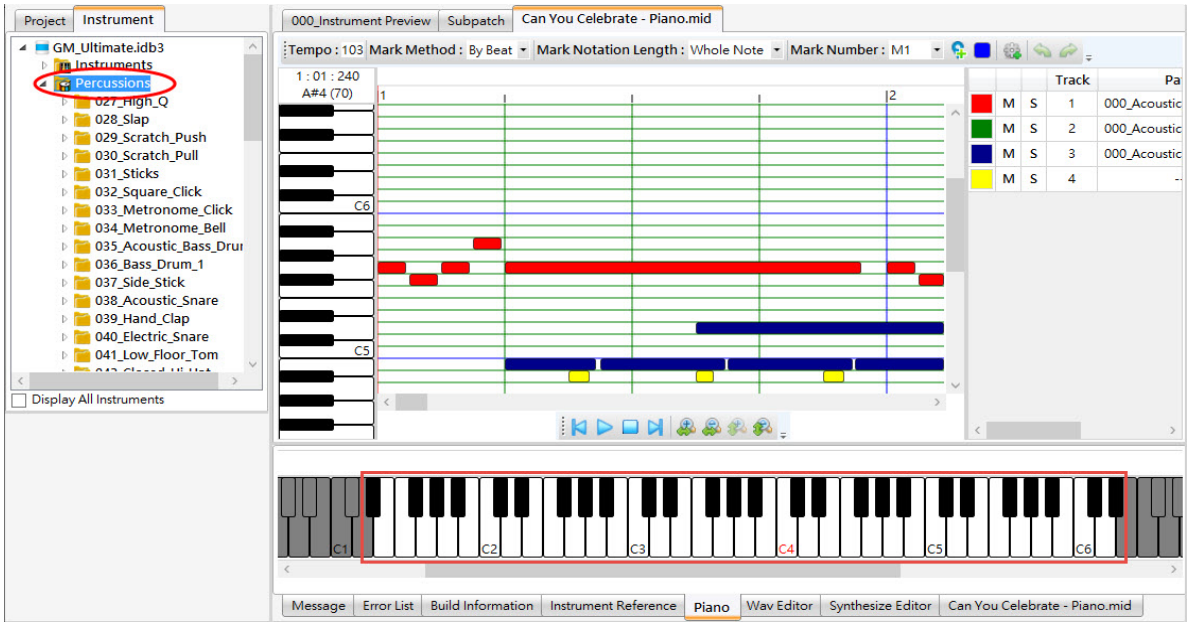
3.9.5 Piano

User can edit the pitch range of all subpatches of a specified instrument and playback each of the synthesized pitch in this area.

The following example illustrated there are 5 subpatches in this specified instrument. User can press on the piano key to listen to the synthesized result.



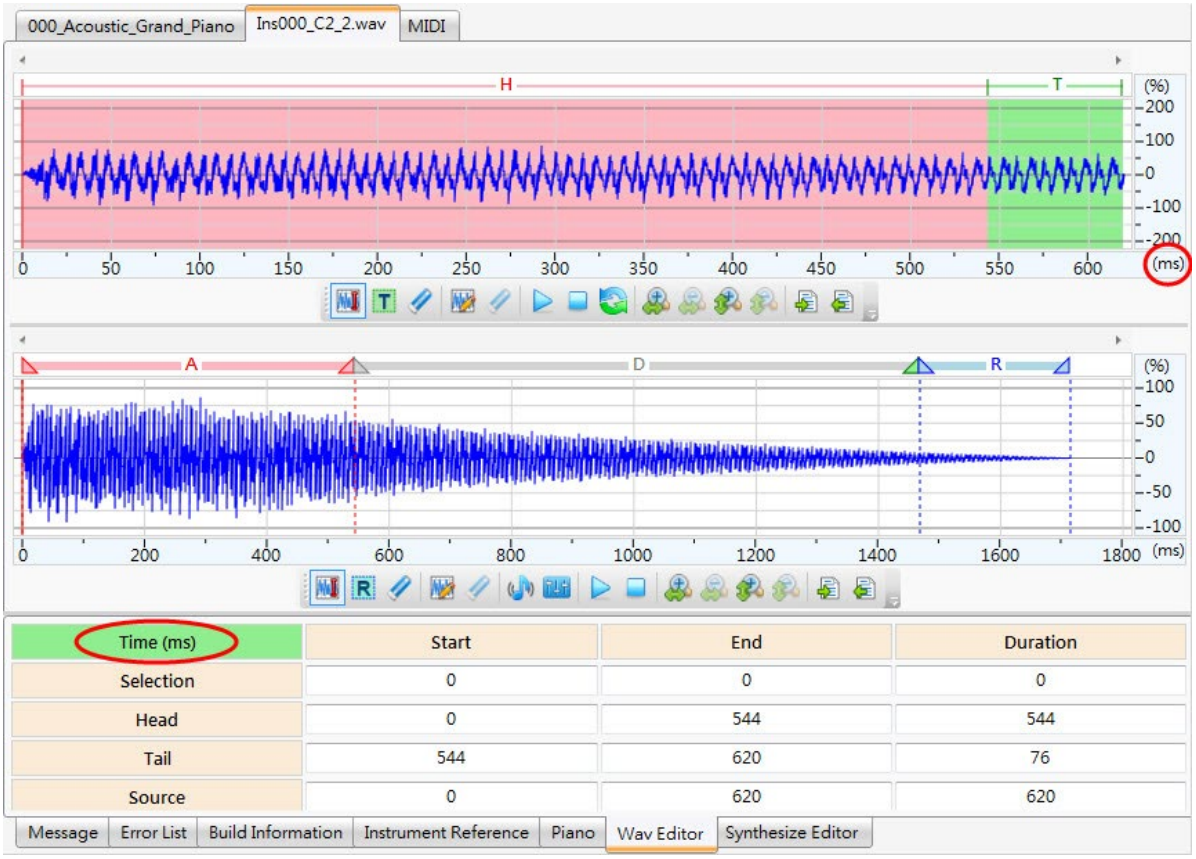
The user can play percussion timbres after clicking Percussions in Instrument Manager as shown below.



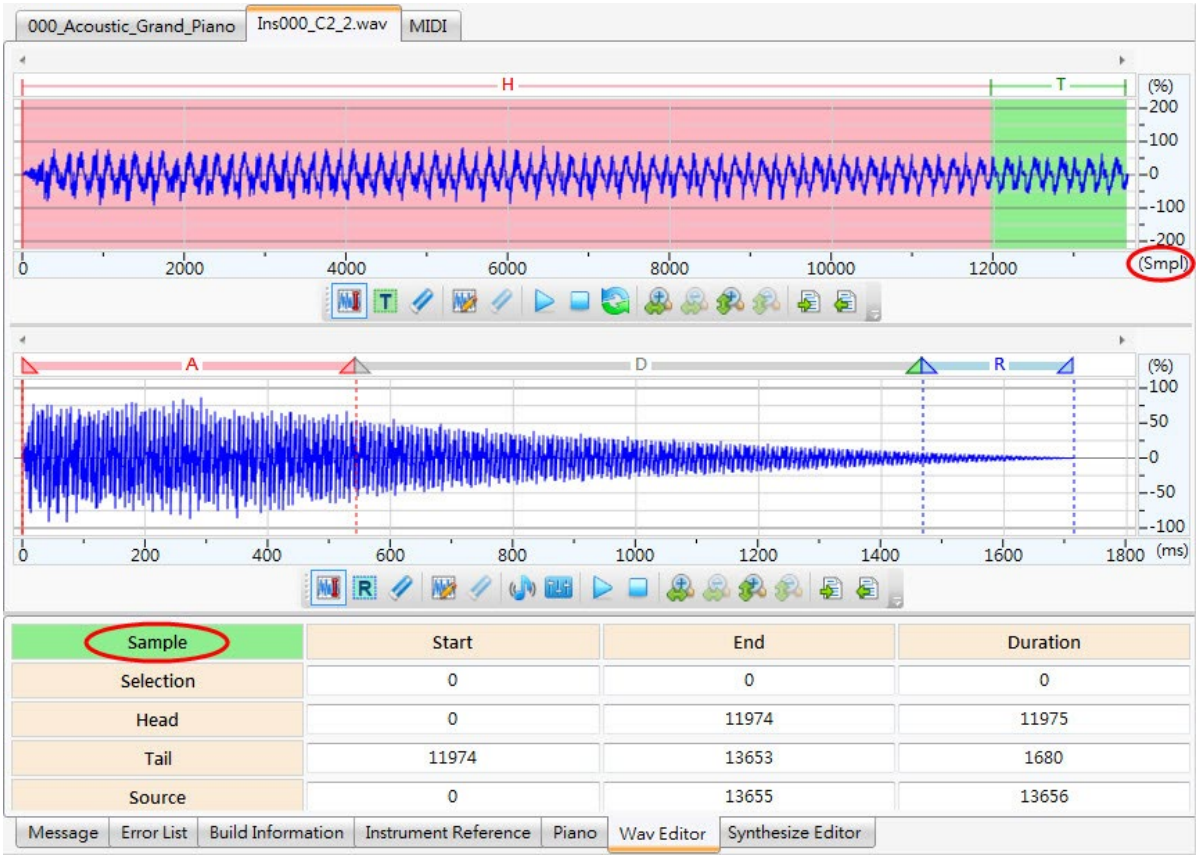
3.9.6 Wav Editor

The Wav Editor shows basic information of Selection, Head, Tail and Source. The unit can be ms or sample by double clicking the left mouse button on the horizontal ruler.

The unit of Horizontal scale is ms.



The unit of Horizontal scale is sample.

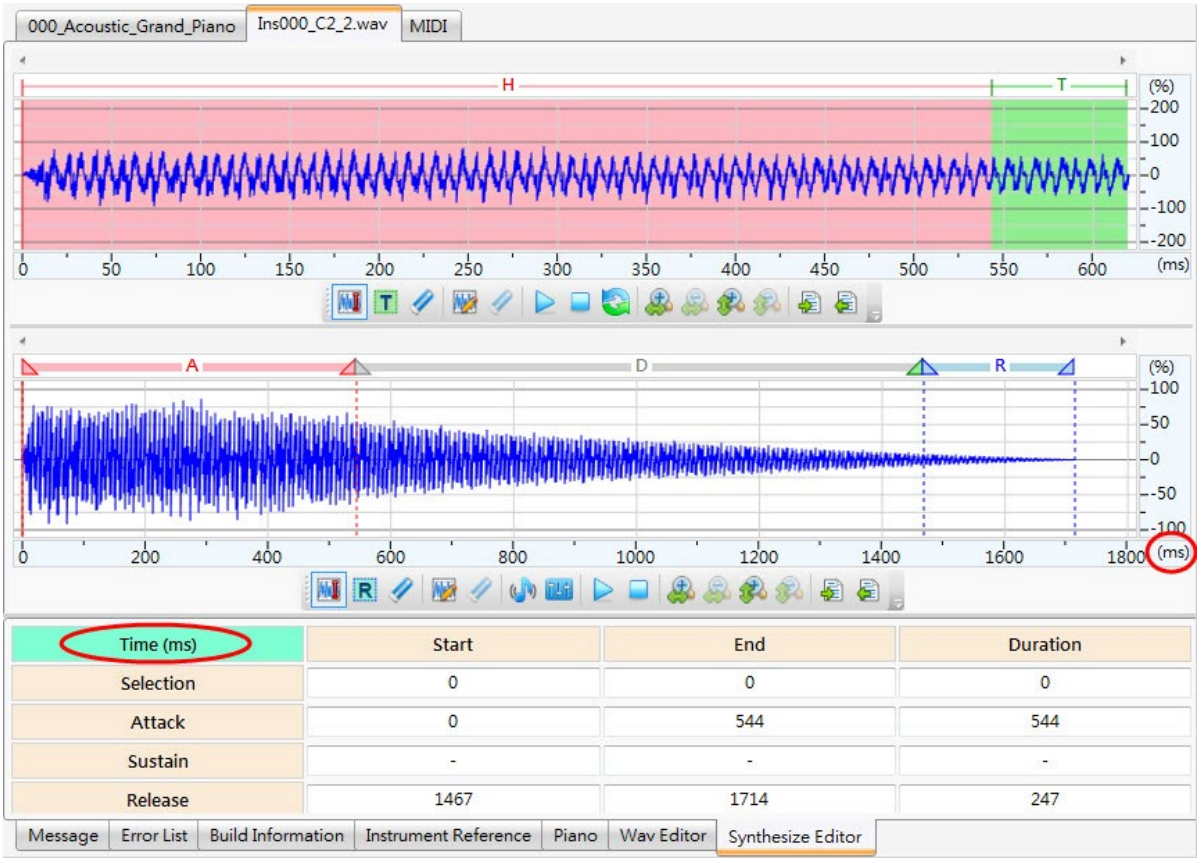


Note: When the unit of horizontal ruler is sample, user can enter values into the Start, End and Duration columns of Selection by keyboard.

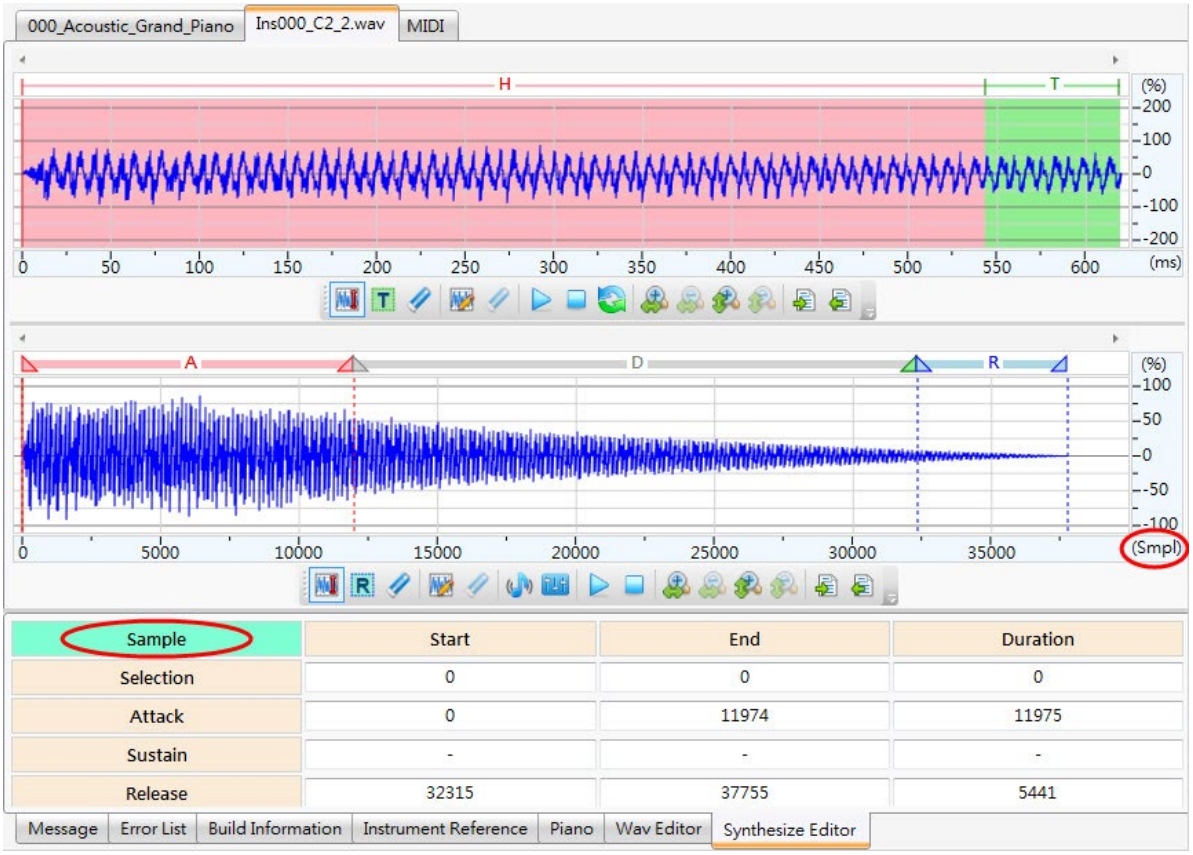
3.9.7 Synthesize Editor

The Synthesize Editor area shows the basic information of Selection, Attack, Sustain and Release. The unit can be ms or sample by double clicking the left mouse button on the horizontal ruler.

The unit of Horizontal scale is ms.



The unit of Horizontal scale is sample.



Note: When the unit of horizontal ruler is sample, user can enter values into the Start, End and Duration columns of Selection by keyboard.

3.9.8 MIDI

This area shows the used instrument pitch range of the .mid file.

Used Patch	Min Pitch	Max Pitch
GM037	B1	B2
GM049	C#4	E5
GM099	G#3	E6
GM107	C#3	C#4
Perc056	-	-

Used Patch: The serial number of General(GM) or Percussion(Perc).

Min Pitch: The used lowest pitch of the patch.

Max Pitch: The used highest pitch of the patch.

3.10 Wav Manager

The Wav Manager contains the wav sources of instrument database. User can add / delete / play the file by the toolbar.

The descriptions of toolbar are as follows.

Add: Add the desired wav source file, the supported file type is .wav.

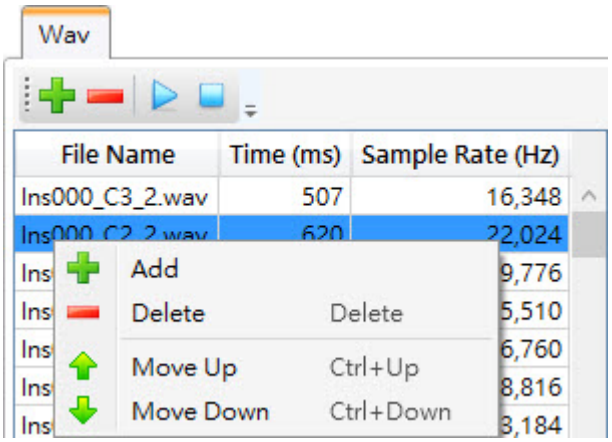
Delete: Delete the current selected wav source.

Play: Play the current selected wav source.

Stop: Stop the playback.

Move Up: Move the selected wav source up.

Move Down: Move the selected wav source down.



3.11 Envelope Manager

The Envelope Manager has 3 tabs: Ev1, Ev2 or Ent5. The Ev1 tab stores the envelope files of Wav Editor, the Ev2 / Ent5 tab stores the envelope files of Synthesize Editor, Ent5 is only for NY5+ Compact projects, the rest projects use Ev2.

◆ **Ev1 Manager**

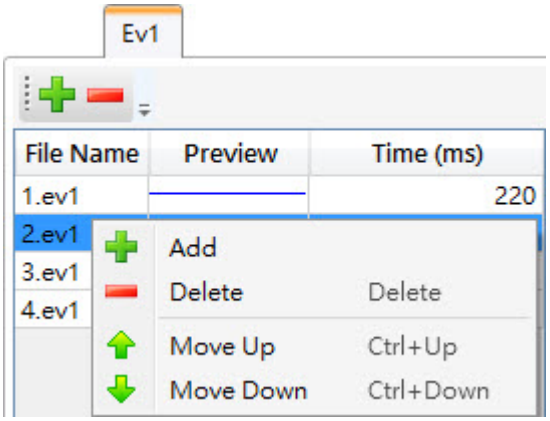
Each column is described as follows.

File Name: The file name of envelope.

Preview: Preview the waveform of envelope.

Time: The time length of envelope, the unit is ms.

Location: The file path of envelope.



The descriptions of tool bar are as follows.

Add: Add an envelope file, and its file extension is .ev1.

Delete: Delete the current selected envelope file.

Move Up: Move the selected envelope file up.

Move Down: Move the selected envelope file down.

◆ **Ev2 Manager**

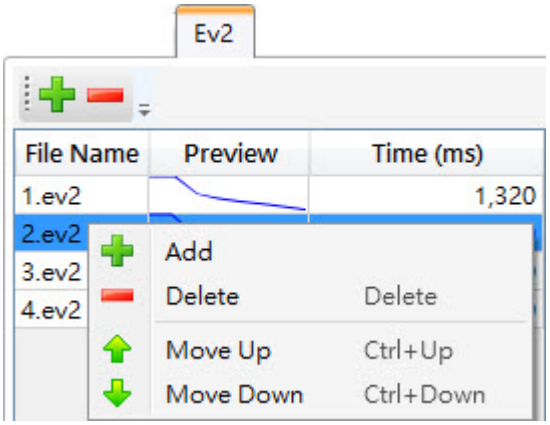
Each column is described as follows.

File Name: The file name of envelope.

Preview: Preview the waveform of envelope.

Time: The time length of envelope, the unit is ms.

Location: The file path of envelope.



The descriptions of tool bar are as follows.

Add: Add an envelope file, and its filename extension is .ev2.

Delete: Delete the current selected envelope file.

Move Up: Move the selected envelope file up.

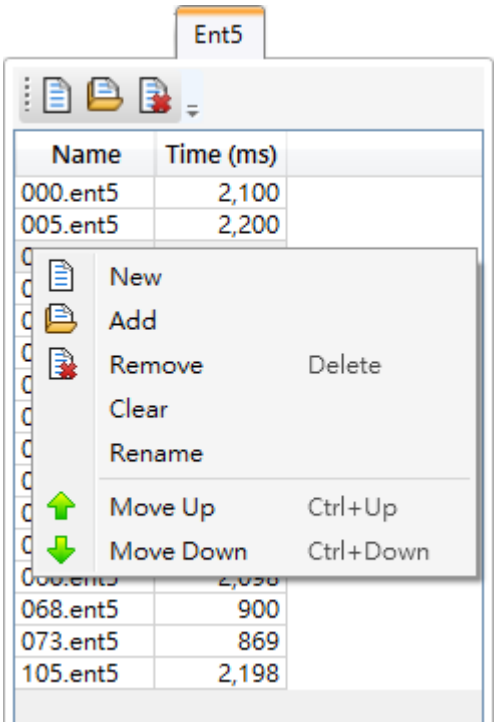
Move Down: Move the selected envelope file down.

◆ **Ent5 Manager**

Each column is described as follows.

File Name: The file name of envelope.

Time: The time length of envelope, the unit is ms.



The descriptions of tool bar are as follows.

New: Add a default envelope file, and its filename extension is .ent5.

Add: Add an envelope file, and its filename extension is .ent5.

Remove: Remove the current selected envelope file.

Clear: Clear all the envelope files.

Rename: Rename the current selected envelope file.

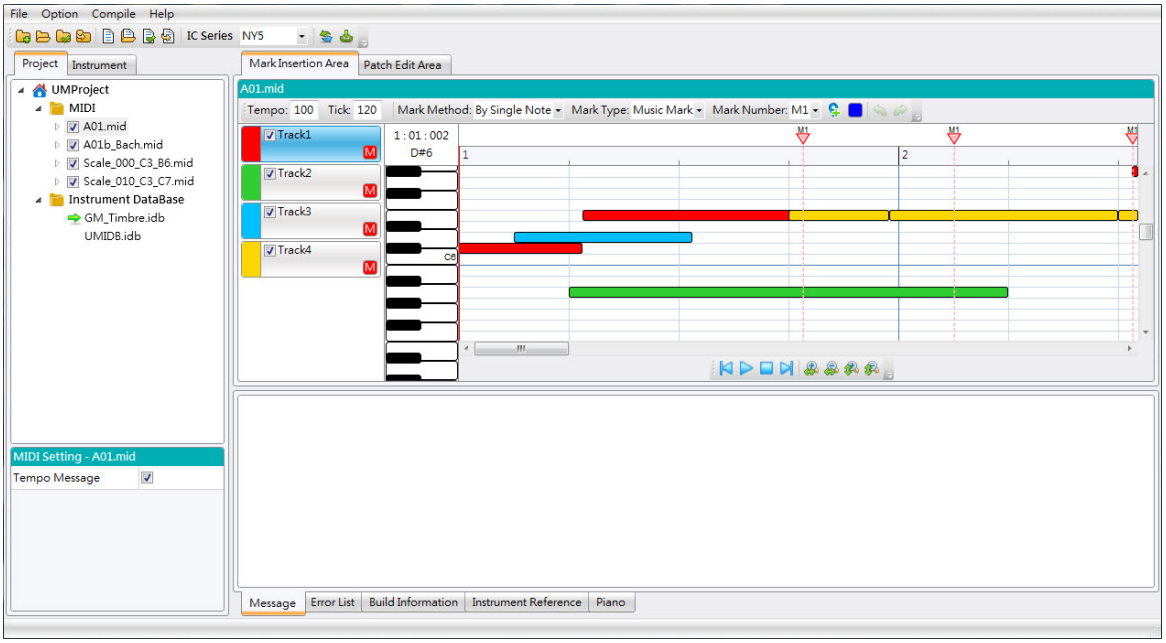
Move Up: Move the selected envelope file up.

Move Down: Move the selected envelope file down.

4 NY2 / NY5 Series Interface

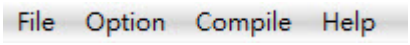
User can easily execute Recent Projects, Open Project or New Project via clicking the corresponding buttons on the main page of *Q-MIDI.*

The screen of *Q-MIDI* NY2 /NY5 contains: Menu, Toolbar, Project Manager, Instrument Manager, MIDI Setting Window, Mark Insertion Area, Patch Editor Area and Information Window. The following chapters will introduce every function respectively.

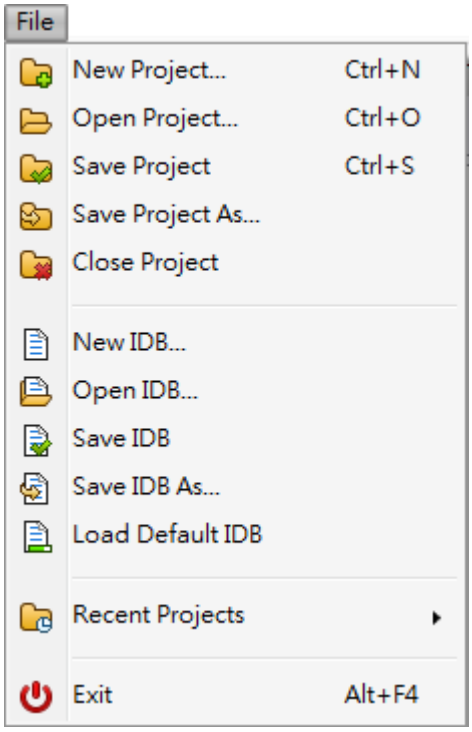


4.1 Menu

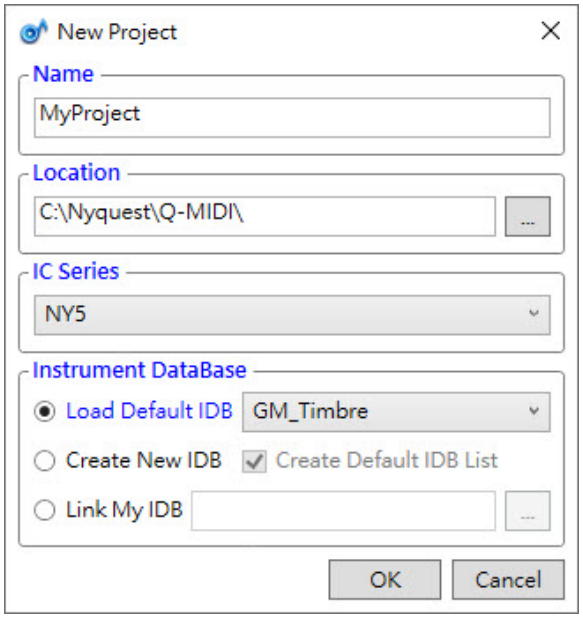
The menu bar contains: File, Option, Compile and Help.

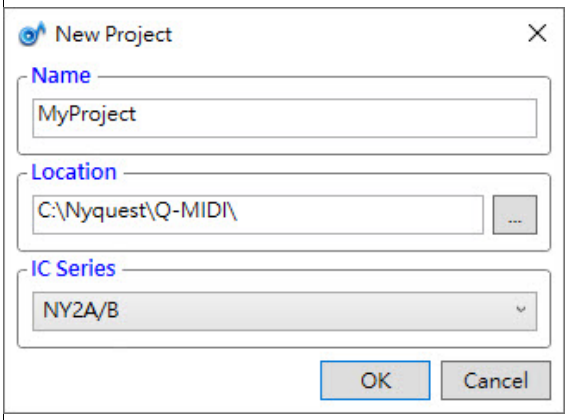


4.1.1 File



New Project…: A *Q-MIDI* project's file extension is .mpj2. The New Project window of NY5 and NY2A/2B/2C are shown as pictures below.





- **Name:** Project Name.
- **Location:** The file path of projects.
- **IC Series:** IC Series supports NY5, NY2A/2B and NY2C.
- **Load Default IDB:** Load the built-in default instrument databases: GM_Timbre. Please refer to the corresponding documentation in the installation directory for a detailed summary of these IDB content. This option does not support NY2A/NY2B/NY2C.
- **Link My IDB:** To specify the desired instrument database. This option does not support NY2A/NY2B/NY2C.
- **Create New IDB:** Create a new instrument database. This option does not support NY2A/NY2B/NY2C.

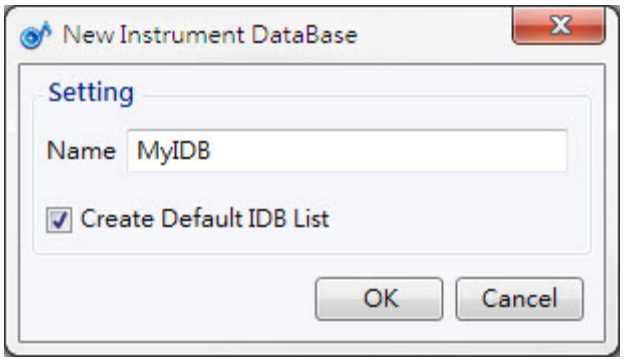
Open Project…: Open the previous edited project file, the filename extensions could be .mpj (*Q-Melody* project file), .mpj2 (*Q-MIDI* NY2/NY5 series project file) and .sprj (*Q-Studio* project file). This option does not support the *Q-Melody* and *Q-Studio* project files of NY5A(A).

Save Project: Save the current editing project file.

Save Project As…: Save the current project to the specified file path.

Close Project: Close the current project.

New IDB…: Create a new IDB file and its file extension is .idb as shown below. This option does not support NY2A/NY2B/NY2C.

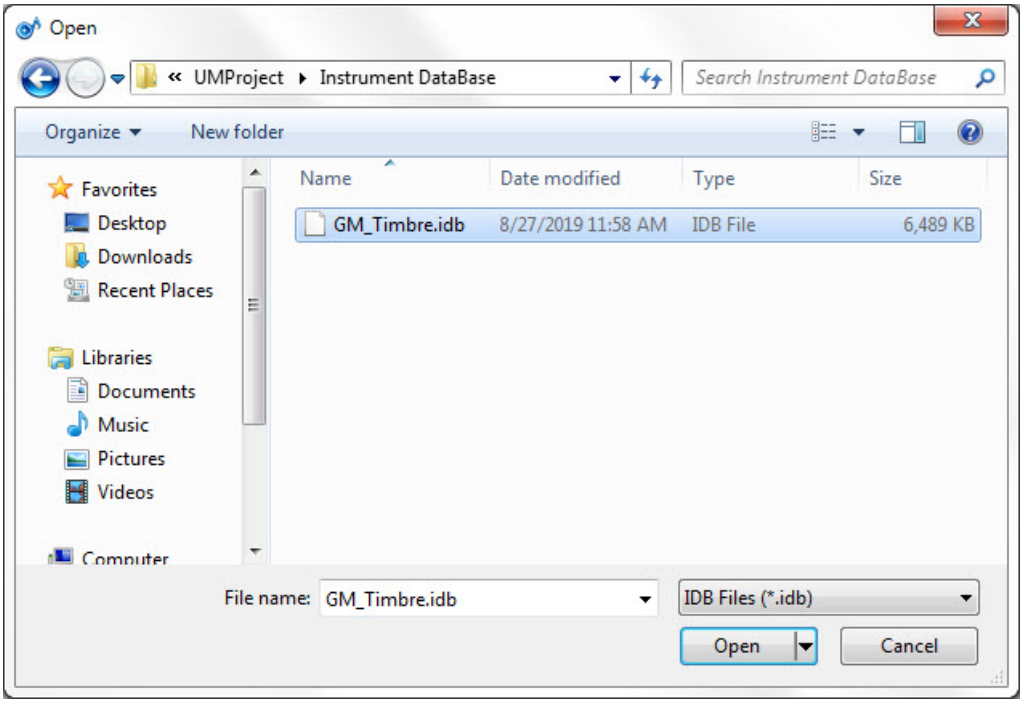


- **Name:** The name for the new created instrument database.
- **Create Default IDB List:** When user ticks this option, *Q-MIDI* will create a default IDB List under the directory of Instrument and Percussions.

After ticking the ”Create Default IDB List”:

When user doesn’t tick this option:

Open IDB…: Open the previous edited IDB file, the filename extension is .idb. This option does not support NY2A/NY2B/NY2C.



Save IDB: Save the current IDB file. This option does not support NY2A/NY2B/NY2C.

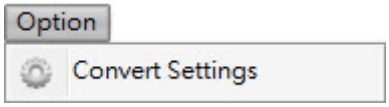
Save IDB As…: Save the current IDB file to the specified directory. This option does not support NY2A/NY2B/NY2C.

Load Default IDB: Load the built-in IDB, GM_Timbre. For the contents of the default IDB, please refer to the corresponding documentation in the Document of the installation directory. This option does not support NY2A/NY2B/NY2C.

Recent Projects: List of the most recently used projects.

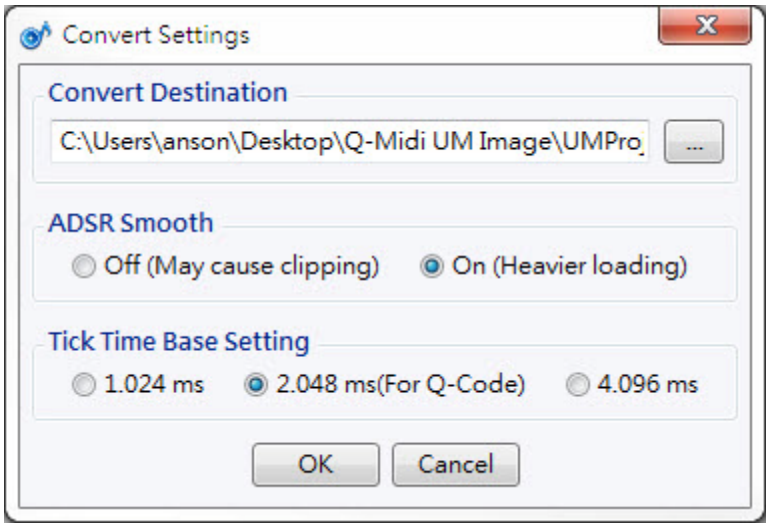
Exit: Exit *Q-MIDI*.

4.1.2 Option



Convert Settings: Set the options for converting files. This option does not support NY2A/NY2B/NY2C.

The Convert Setting window of NY5series is shown below.



Convert Destination: Provides user to set the storage path of the converted .md2 file. (The default filename and the project name is the same).

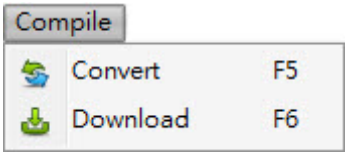
ADSR Smooth: When the option "On" is ticked, *Q-MIDI* will execute program to compensate for the connection time that between AD and SR to make it smooth (it costs system resource). When the option is off, *Q-MIDI* won't execute the compensation to save system resource. This setting affects the range of instrument simulation.

Tick Time Base Setting: Set the time base is for making the use of IC resources more effective, options are 1.024ms, 2.048ms and 4.096ms. No matter which option is set, the beat length must be the multiple of time base. The longer the tick time base, the lower the accuracy for the tick time (since large interval in-between ticks will result in poor resolution). Low resolution tick time takes less IC resources, which means these unused resources can be utilized to run other complicated operation. The default value of Tick Time Base is 2.048ms.

Note:

1. ***When ADSR Smooth option is enabled, the latency after AD wave file played will be shortened to one sample, and then play the SR wave.***
2. ***Currently, the Tick Time Base for Q-Cod is fixed as 2.048ms.***

4.1.3 Compile



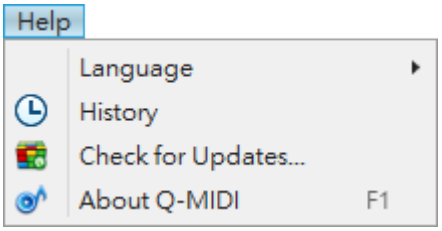
Convert: Convert the current editing IDB files and the selected MIDI files of NY5 to .md2 file for used in *Q-Code* program. Convert the selected MIDI files of NY2A/2B/2C to .t2x file for *Q-Tone* program.

Download: Convert the current editing IDB files and the selected MIDI files of NY5 to .bin file, and then download it via *Q-Writer* for rehearsal. This option does not support NY2A/NY2B/NY2C.

The corresponding functions of the buttons after downloading are described as follows:

Pin	Function
PA0	Play
PA1	Play the previous song
PA2	Play the next song
PA3	Pause or resume
PB0	Stop playing
PB1	Volume +1
PB2	Volume -1
PB3	Speed up or resume

4.1.4 Help



Language: Switch the language as English, simplified Chinese or traditional Chinese for *Q-MIDI* UI.

History: View the revision history of *Q-MIDI.*

Check for Updates…: Check for the latest version of *Q-MIDI.* This function will connect to the Internet.

About Q-MIDI: Show current *Q-MIDI* version and the contact information for technical support.

4.2 Toolbar

Toolbar is under the menu bar. The buttons on toolbar provide shortcuts to activate functions that are commonly used, which allows user to access desired functions quickly without selecting them from the menu bar.

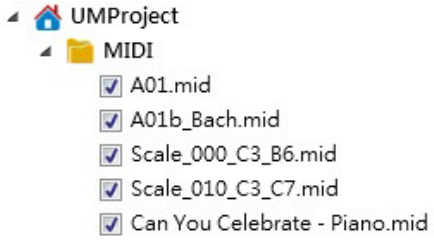
The descriptions of toolbar menu items are as follows:

Icon	Function	Descriptions
	New Project…	Create a project (.mpj2).
	Open Project…	Open the previous edited project file, the filename extensions could be .mpj (*Q-Melody* project file), .mpj2 (*Q-MIDI* NY2/NY5 series project file) and .sprj (*Q-Studio* project file). This option does not support the *Q-Melody* and *Q-Studio* project files of NY5A(A)
	Save Project	Save the current project.
	Save Project As…	Save the current project to the specified file path.
	New IDB…	Create a new IDB file (.idb). This option does not support NY2A/NY2B/NY2C.
	Open IDB…	Open an existing IDB (.idb) file. This option does not support NY2A/NY2B/NY2C.
	Save IDB	Save currently used IDB file. This option does not support NY2A/NY2B/NY2C.
	Save IDB As…	Save the currently used IDB file to the specified file path. This option does not support NY2A/NY2B/NY2C.
IC Series NY5	**IC Series**	Shows the used IC series of the current project. User can change the IC series via the drop-down menu.
	Convert	Convert the current editing IDB files and the selected MIDI files of NY5 to .md2 file for used in *Q-Code* program. Convert the selected MIDI files of NY2A/2B/2C to .t2x file for used in *Q-Tone* program.
	Download	Convert currently used IDB and the selected MIDI file of NY5 to .bin file, and then is downloaded to IC via *Q-Writer*. This function doesn't support NY2A/2B/2C.

4.3 Project Manager

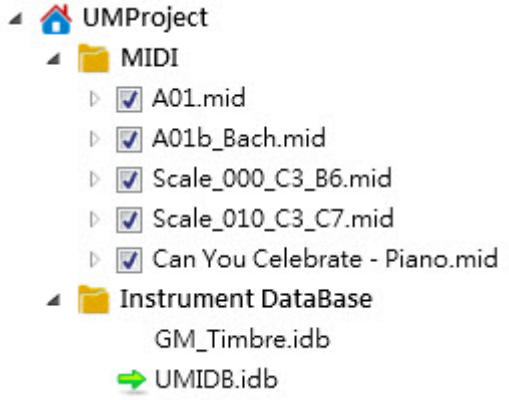
4.3.1 NY2A / 2B / 2C Series

User can add .mid files. The interface is shown below.



4.3.2 NY5 Series

User can add .mid files and set the instruments of IDB file. The interface is shown below.



Take the above picture for example, the .mid file uses 4 kinds of instruments. The detail is shown below.

[GM010 to GM010] Min(A5), Max(C#7)

Red underline means General(GM) or Percussion(SFX).

Blue underline means this instrument number expressed in 3-digit number.

Green underline means the minimum and maximum pitch of this instrument.

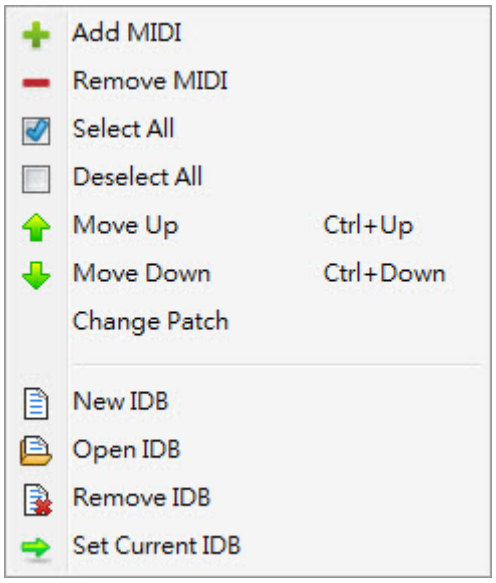
Orange underline means the instrument is adjusted to new instrument.

Note: The supported GM MIDI basic format of NY5:

1. ***Support sounds from a maximum of 4 channels simultaneously. Each channel can generate one sound at one time.***
2. ***Support user customized Patch; maximum of 128 pitched instrument and 128 unpitched percussions.***
3. ***Support GM MIDI Patch change.***
4. ***Support GM MIDI Tempo change. (Q-Code only supports 27 tempos)***
5. ***Support GM MIDI Insert Mark.***
6. ***Do not support GM MIDI volume control. (However, different envelop can be applied)***

4.3.3 Right-Click Menu

Press the right mouse button in the Project Manager area to open the shortcut menu to edit .mid and IDB. The menu is shown below.



Add MIDI: Add the specified .mid file to the project. After adding, the default status will be ticked which means that the .mid file needs to be included in the converted file

Remove MIDI: Remove all the ticked .mid files.

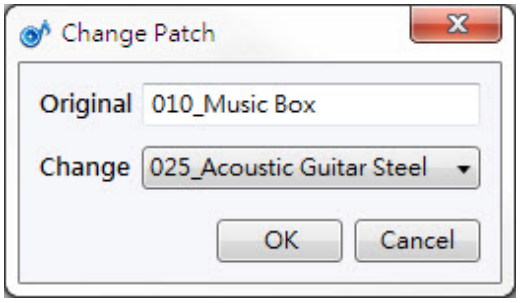
Select All: Tick all the .mid files.

Deselect All: Deselect all the ticked .mid files.

Move Up: Move the selected mid file up to change the playback order after Download.

Move Down: Move the selected mid file down to change the playback order after Download

Change Patch: Change the instrument of the selected patch as shown below. This option does not support NY2A/NY2B/NY2C.



Original: The original instrument.

Change: Select the desired instrument. The drop-down menu is according to the current used instruments of IDB.

New IDB: Create a blank IDB file and add to project. This option does not support NY2A/NY2B/NY2C.

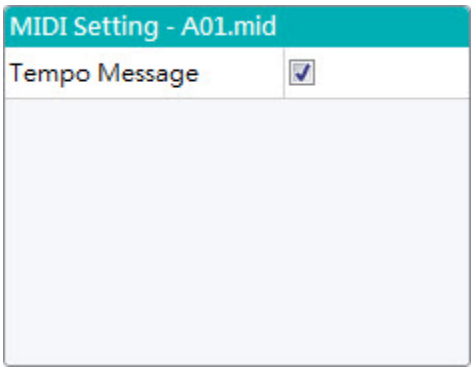
Open IDB: Open the previous edited IDB file, the filename extension is .idb. This option does not support NY2A/NY2B/NY2C.

Remove IDB: Remove the selected IDB file. This option does not support NY2A/NY2B/NY2C.

Set Current IDB: Set the selected IDB to be the library that is used when playing the .mid file. This option does not support NY2A/NY2B/NY2C.

4.3.4 MIDI Setting

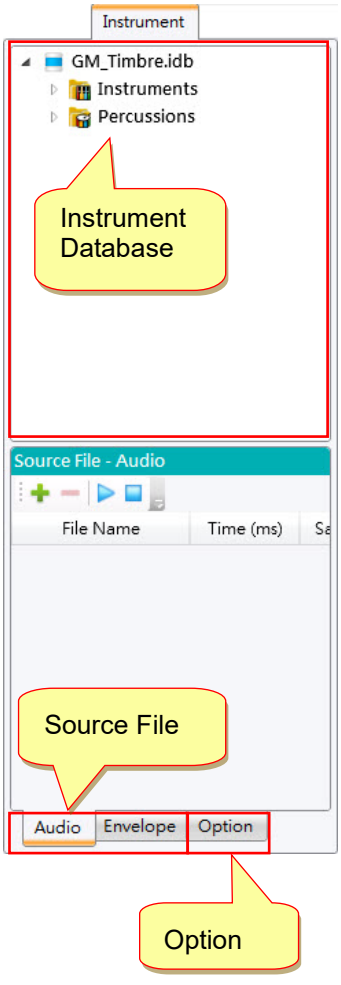
Click the MIDI in the Project Manager to set the.mid options. This option does not support NY2A/NY2B/NY2C.



Tempo Message: Tick to output the tempo message or not. This setting affects whether or not a tempo change event occurs during a file conversion.

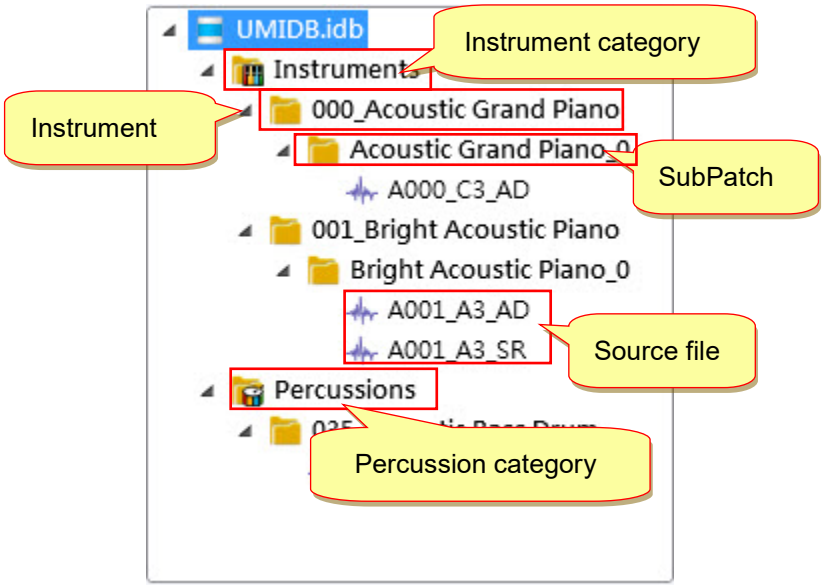
4.4 Instrument Manager

The Instrument Manager provides Instrument and Percussion for user to edit. The tab is composed of the following three parts: Instrument Database, Source File and Option. This setting does not support NY2A/NY2B/NY2C.



4.4.1 NY5 Instrument Database

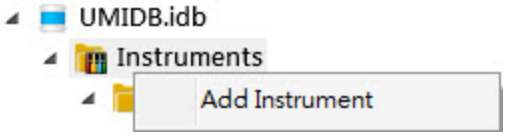
The instrument database .idb includes two basic categories: Instrument and Percussion. User can set different types of Patch files based on needs. The Instrument category can be set more than one Patch according to the needed pitch range, and the Patch can be set as “Head”, “Tail” or “ADSR” source file based on different types. The Percussion category only allows one source file.



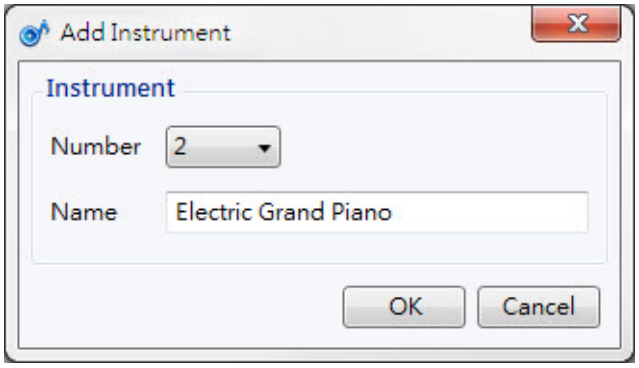
4.4.2 Instrument Database Shortcut Menu

The shortcut menu will show different lists based on different items.

◆ **Instruments category shortcut menu**



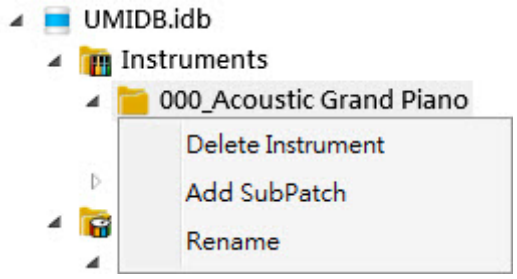
Add Instrument: Add instrument as shown below.



Number: The instrument serial number is from 0~127, and only unused numbers are available.

Name: Set the instrument name. The naming is based on the instrument serial number but changeable.

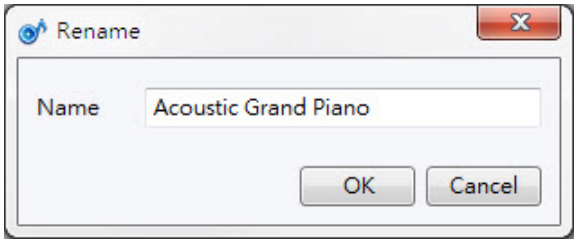
◆ **Instrument item shortcut menu**



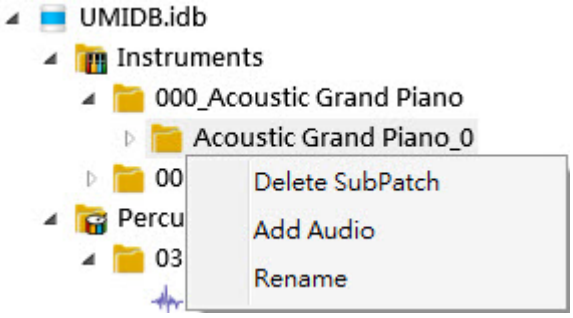
Delete Instrument: Delete the selected instrument.

Add SubPatch: Add SubPatch automatically under the selected item based on instrument name.

Rename: Rename the instrument name as shown below.

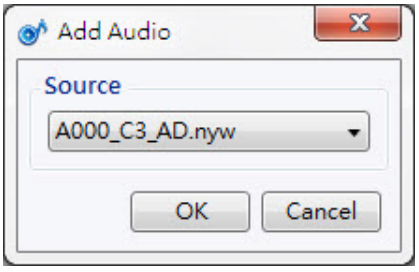


◆ **SubPatch item shortcut menu**



Delete SubPatch: Delete the selected subpatch.

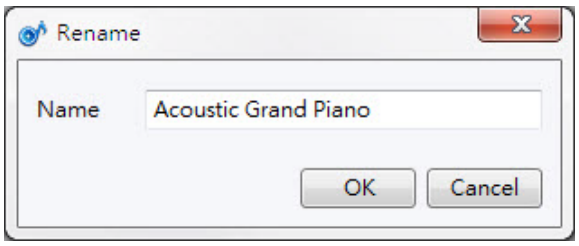
Add Audio: Add new audio files. Please add audio files to the source file list first.



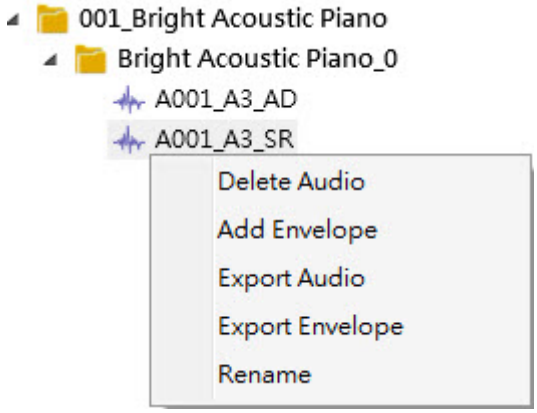
Note:

1. ***Each subpatch only can add one wave (Head) that larger than 85 samples and one 256-sample wave (Tail). The subpatch mode is ADSR.***
2. ***If user only adds one wave that larger than 85 samples, the subpatch mode is Head.***
3. ***If user only adds one 256-sample wave, the subpatch mode is Tail.***

Rename: Rename the instrument name as shown below.

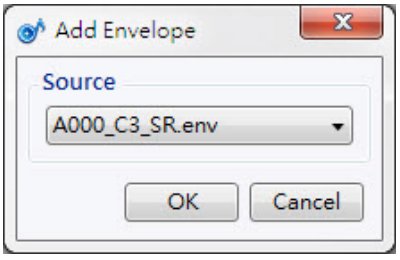


◆ **Audio files item shortcut menu**

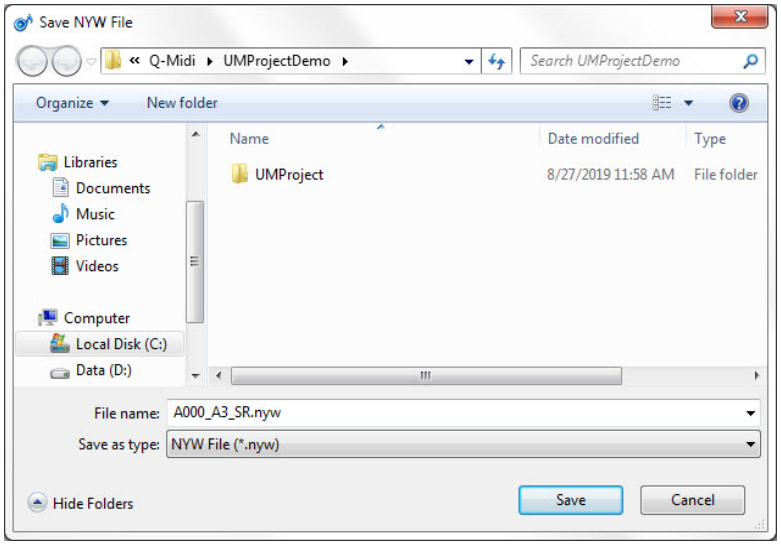


Delete Audio: Delete the selected audio file.

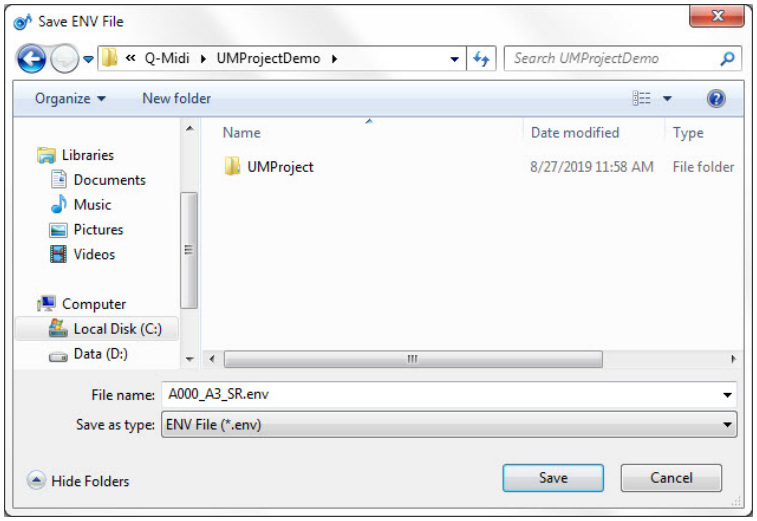
Add Envelope: Add envelope to the Tail mode of audio file. Please add envelope file to the envelope file list first as shown below.



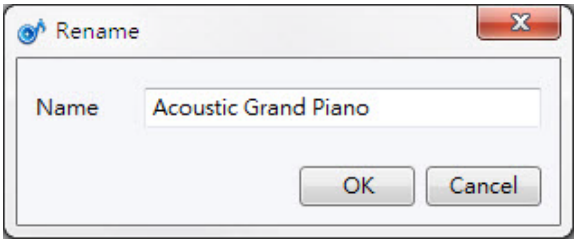
Export Audio: Export the filename extension as .nyw audio file.



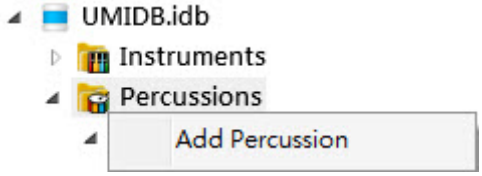
Export Envelope: User can select the .env file of Tail mode to export.



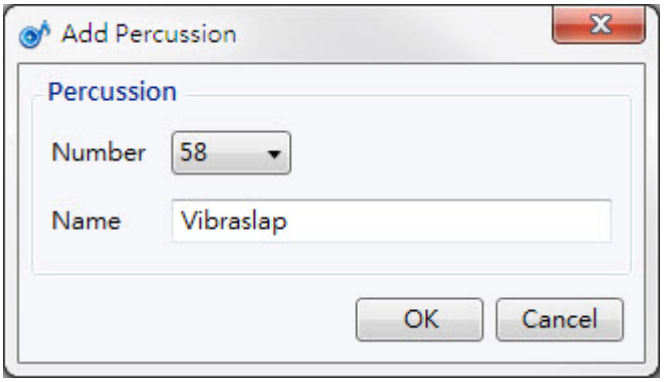
Rename: Rename the audio filename.



◆ **Percussions category shortcut menu**



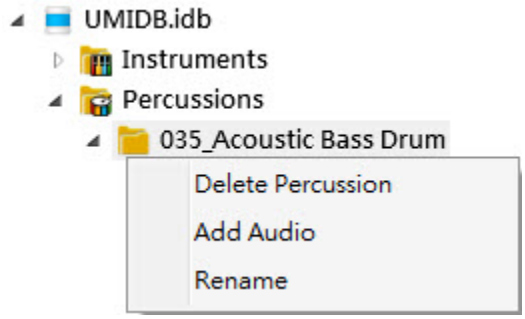
Add Percussion: Add Percussion instrument.



Number: The percussion serial number is from 0~127, and only unused numbers are available.

Name: Set the percussion name. The naming is based on the percussion serial number but changeable.

◆ **Percussion item shortcut menu**

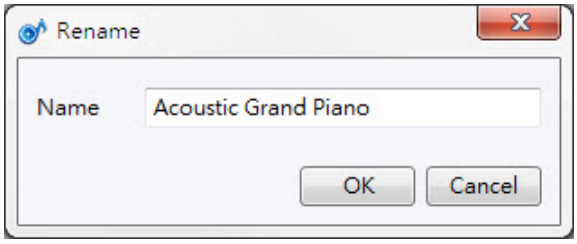


Delete Percussion: Delete the select Percussion.

Add Audio: Add new audio files. Please add audio files to the source file list first.

Note: The Percussion only can add one wave (Head) that larger than 85 samples.

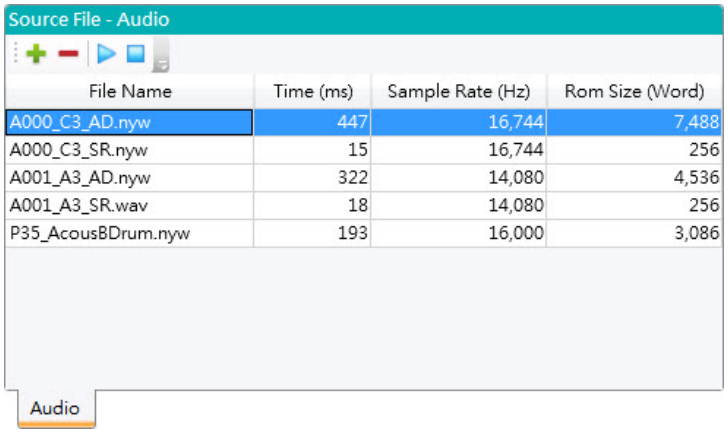
Rename: Rename the instrument name.



4.4.3 Source File

The source file includes 2 types: audio file and envelope file. User can add audio and envelope files to the instrument database through this setting.

◆ Audio



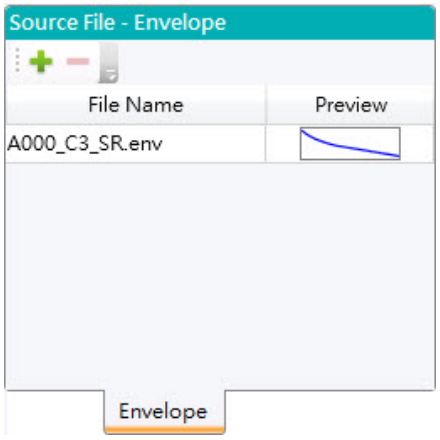
Add: Add the audio file, the supported file types are 16-bit .wave and .nyw.

Delete: Delete the selected files.

Play: Play the current selected file.

Stop: Stop the playback.

◆ Envelope

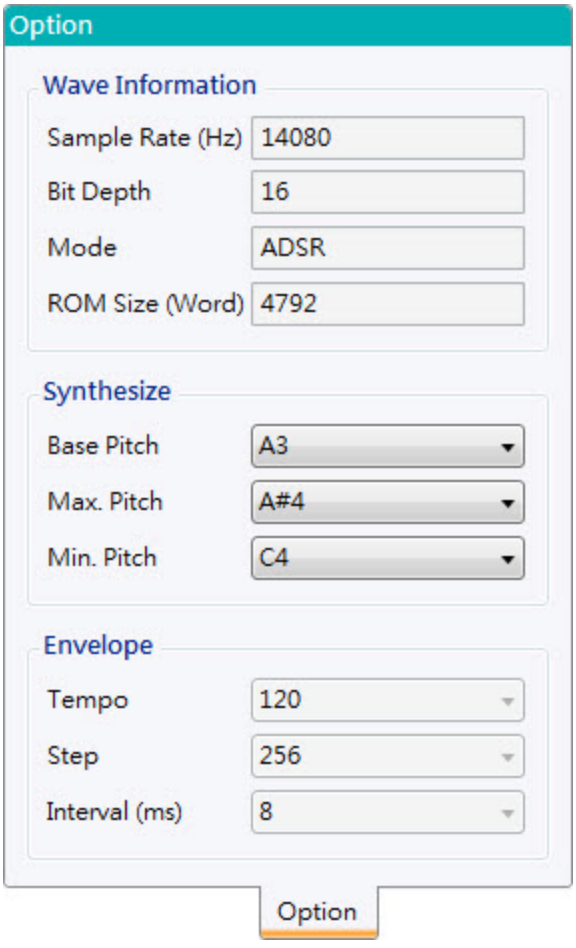


Add: Add the envelope file, the supported file type is .env.

Delete: Delete the selected envelopes.

4.4.4 Option

This part of user interface window is for setting or showing related data of patch. “Synthesize Option” includes “Wave Information”, “Synthesize Option” and “Envelope Option”. The details are as follows.



◆ **Wave Information:** It shows the current wave related information of the audio file.

Name	Description
Sample Rate	Sampling rate of audio data, the unit is Hz.
Bit Depth	Bit count per sample.
Mode	NY5 series currently offers three timbre modes, namely Head, Tail and ADSR mode. Tool will automatically distinguish corresponding mode according to the selected audio file. Head Mode: This mode stands for sounding the audio file once per MIDI note. Tail Mode: This mode stands for repeatedly sounding the 256 samples of audio file as need per MIDI note. ADSR Mode: This mode stands for the synthesized patch which is comprised of two main components: a full wave sound file (AD section) and a 256 samples audio file (SR section).
ROM Size	Occupied ROM size of audio file, the unit is Word.

◆ **Synthesize:** Intonation related settings of pitch.

Name	Description
Base Pitch	Set the base pitch of patch. The available range is C1~B8.
Max. Pitch	Set the maximum pitch. The range setting is according to user's requirement or IC hardware limitation. After setting maximum pitch, trail-listening function will be disabled if it exceeds the range. The available range is C1~B8.
Min. Pitch	Set the minimum pitch. The range setting is according to user's requirement or IC hardware limitation. After setting the minimum pitch, trail-listening function will be disabled if it exceeds the range. The available range is C1~B8.

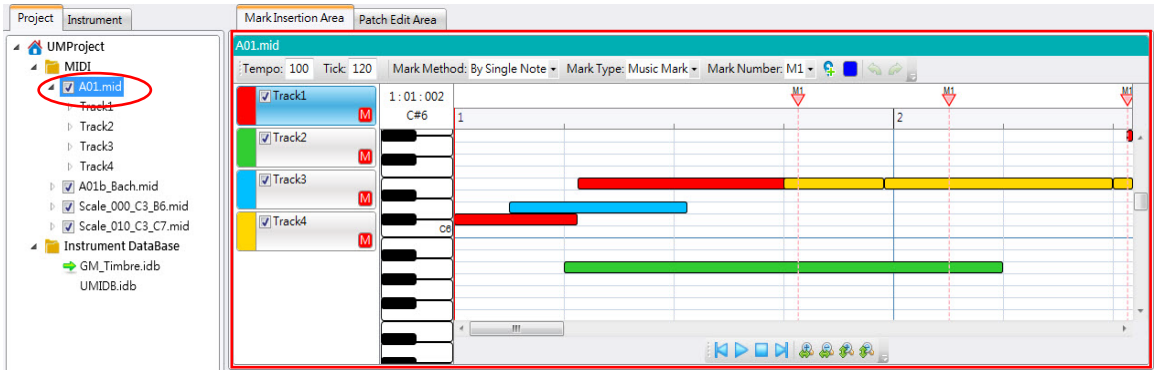
◆ **Envelope:** Configuration of envelope data. (Available under "Env Mode" only.)

Name	Description
Tempo	Set play speed. Available option includes 60, 120 and 240. It is in accordance with beat. When user set this parameter, it will influence beat length of synthesized patch on X axis.
Step	Data count in words of envelope file. The available options are 256 and 512. When 256 is set, it takes 256-word data length for this envelope namely.
Interval	It is the minimum piece of envelope. The available option is 8ms. This is the criterion unit of time which affects the duration for changing to next envelope node.

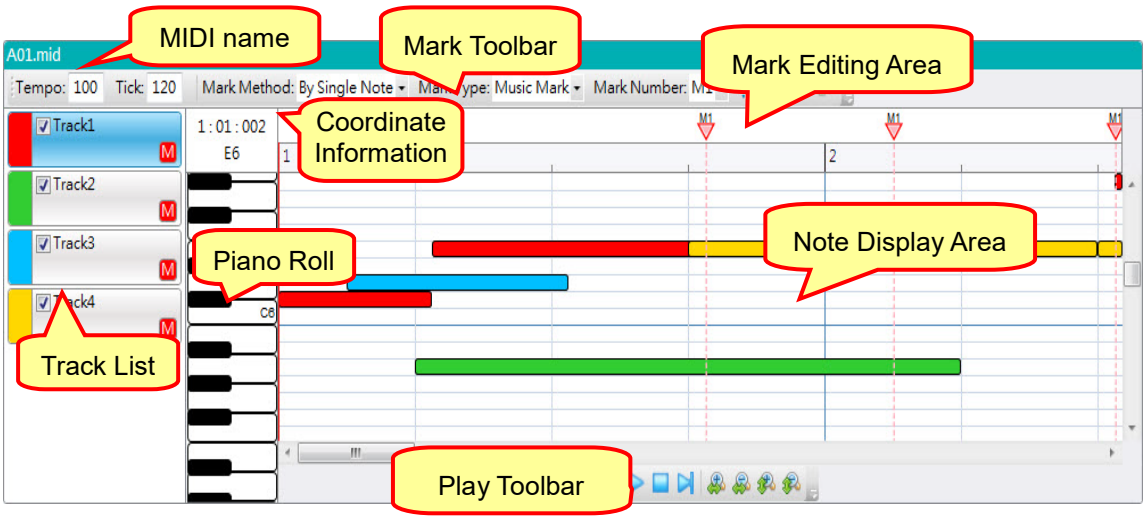
4.5 Mark Insertion Area

Mark Insertion Area provides *Q-Code, Q-Tone* and *NYIDE* implementation of the corresponding action, such as follow the rhythm of the music to flash. Instructions are as follows.

Double-click the left mouse click to display the MIDI in the Project Management area, as shown below:

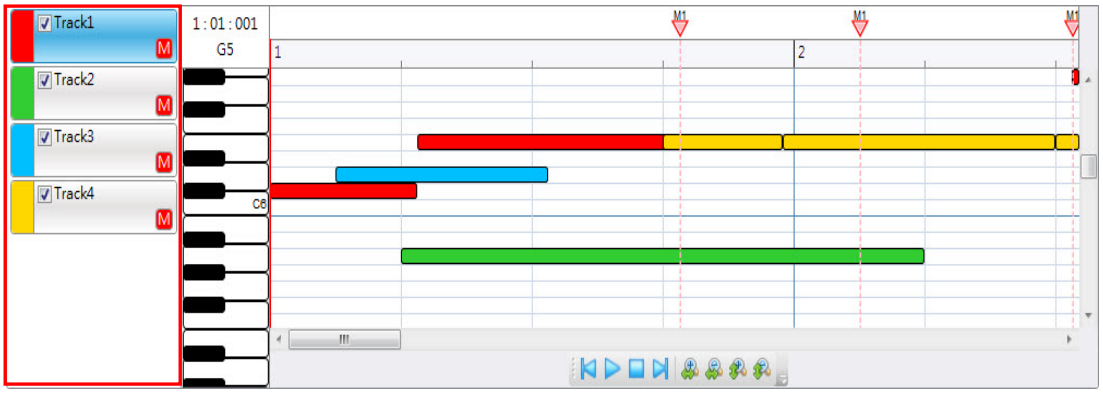


The Mark Insertion includes MIDI name, Mark Toolbar, Coordinate Information, Piano Roll, Mark Editing Area, Note Display Area, Play Toolbar and Track List.



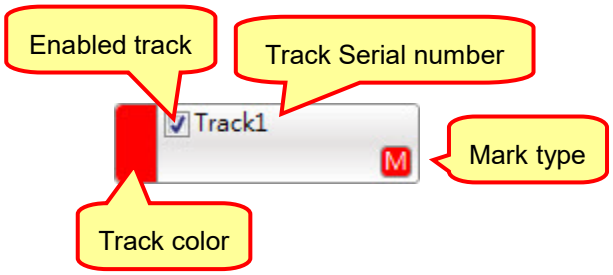
4.5.1 Track List

Track List displays all the track numbers of entire MIDI, user can set the notes from track, and each track can be switched on/off its mark types.



4.5.1.1 Track Item

The Track item includes the enabled track, track color, track serial number, and mark type.



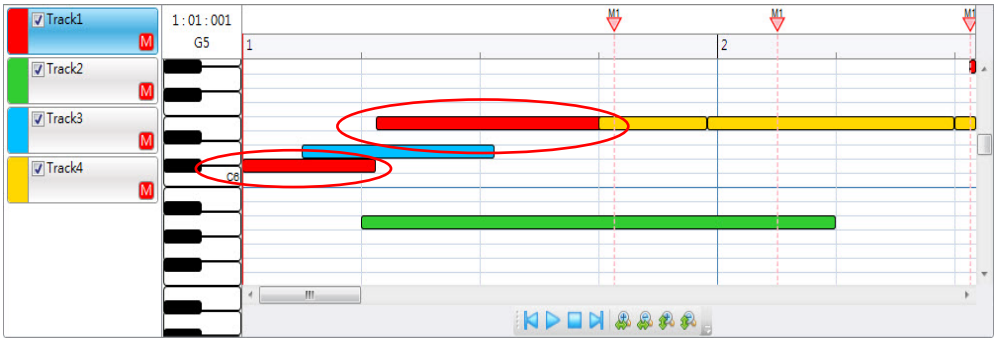
4.5.1.2 Track Serial Number

The current track serial number.

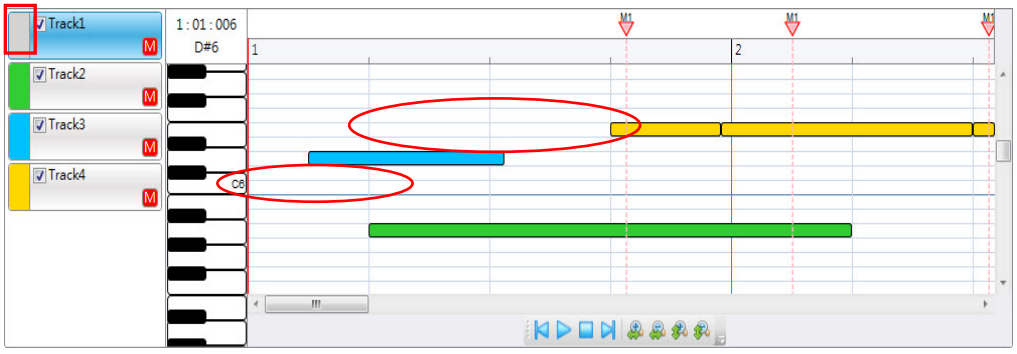
4.5.1.3 Track Color

The Note Display Area will show the track color according to this area. User can switch off/on the display of the selected track.

The following illustration shows the red color of Track 1.



After clicking the left mouse on the Track1, the track color will turn to grey from red as shown below.



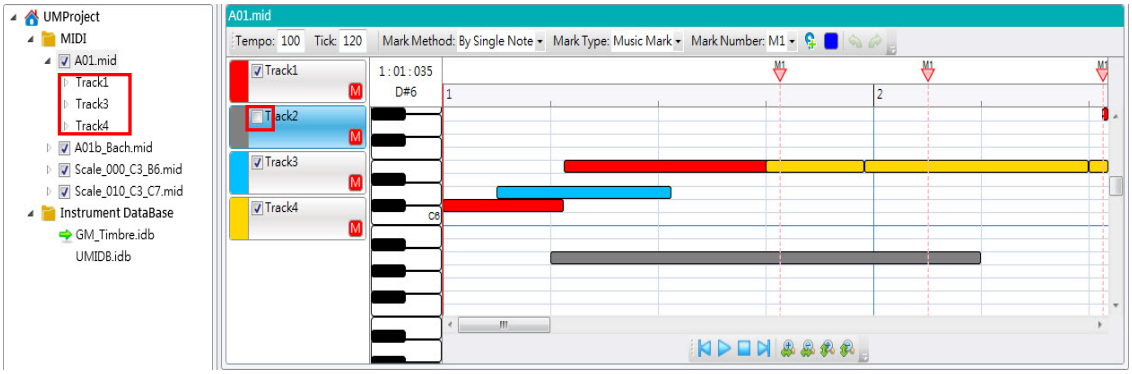
Note:

1. ***NY5 supports 4 channels. Only the enabled tracks will show the color, and the rest will be grayed-out.***
2. ***NY2A/2B/2C supports 2 channels. Only the enabled tracks will show the color, and the rest will be grayed-out.***

4.5.1.4 Enabled Track

The enabled track function is applied for the file conversion, the MIDI will convert file according to the selected tracks. NY5 supports track1~4. This option does not support NY2A/NY2B/NY2C.

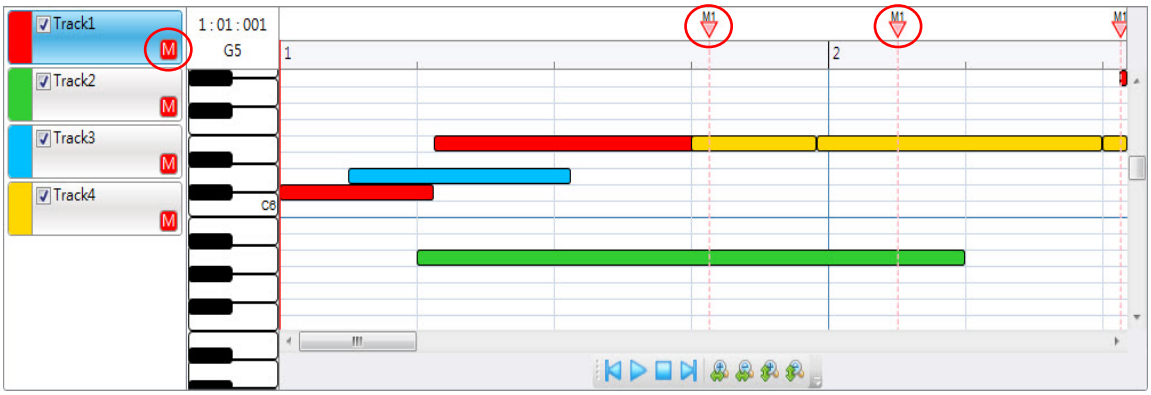
When the enabled track is unticked, the track color will be grayed-out, and the display of MIDI track from the Mark Insertion Area will be changed as well. As shown below.



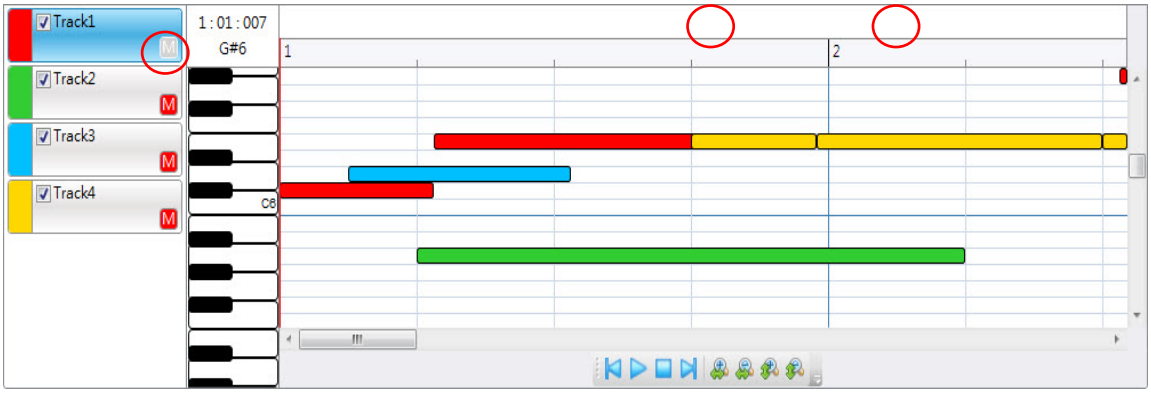
4.5.1.5 Mark Types

According to the selected IC series and track number, *Q-MIDI* will show the supported mark types. User can switch on/off the display of mark types by clicking mouse.

Switch on the red mark of Track 1 as shown below.

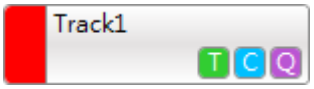


Switch off the rea mark of Track 1 as shown below.



1. Insertion Mark Type of NY2A/2B

Currently, there are three types of marks available for NY2A/2B, namely Timbre Mark, Combine Mark and QLED Mark. Their functions will be described in the following section.



◆ **Timbre Mark**

There are two kinds of Timbre Marks: one is for the default square wave, and the other is for the user-defined timbre. When Timbre Mark is applied, the timbre of this single track is changed from the inserted mark to the next mark or end of the music. Codes for Timbre marks are as below.

T1 [Square]: Square timbre will be applied to the current music note.
T2 [Patch]: User defined timbre will be applied to the current music note.

Note: Users can set their own timbre from the Patch page in Q-Tone.

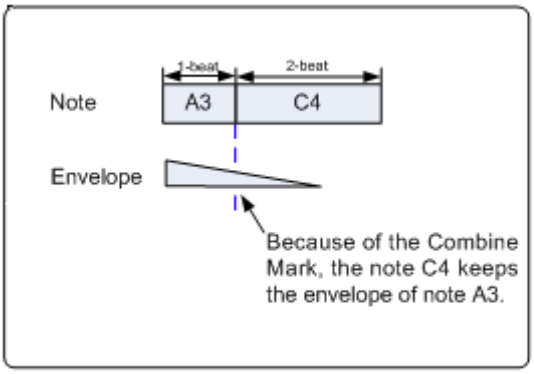
◆ **Combine Mark**

There is only one kind of Combine Mark. When Combine Mark is applied, it combines the current note with the previous one by keeping the envelope unchanged. The code for Combine Mark is as below.

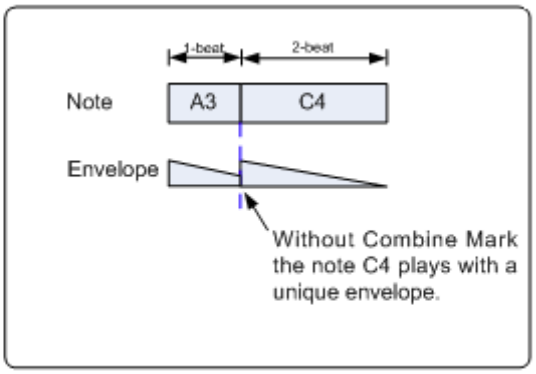
C1 [Combine]: The tick time of current music note will be combined with that of previous music note and they will share the same envelope. If combine mark is applied consecutively to several music notes within the range of a complete envelope (for example: 4 beats), the effect of decrescendo can be accomplished.

For example:

When Combine Mark is inserted on the note C4 in the combine track, so it will keep the envelope unchanged, as the left figure below, when the note C4 is played. If the envelope length is defined as 2-beat and there is no Combine Mark, it will play as the right figure below.



With Combine Mark Inserted on note C4.



Without Combine Mark on note C4.

◆ **QLED Mark**

There are eight kinds of QLED Marks. When QLED Mark applied, it outputs different kinds of signals according to user's assignment. The codes for QLED are as below.

Q1 [Flash_Note]: Output flash that depends on music note. Each flash lasts 1/8 beat.

Q2 [Flash_Env]: Output flash that depends on envelope. Each flash lasts 1/8 beat. The intensity of flash will depend on Envelope as well.

Q3 [100%]: Set brightness of current music note output to 100%.

Q4 [66%]: Set brightness of current music note output to 66%.

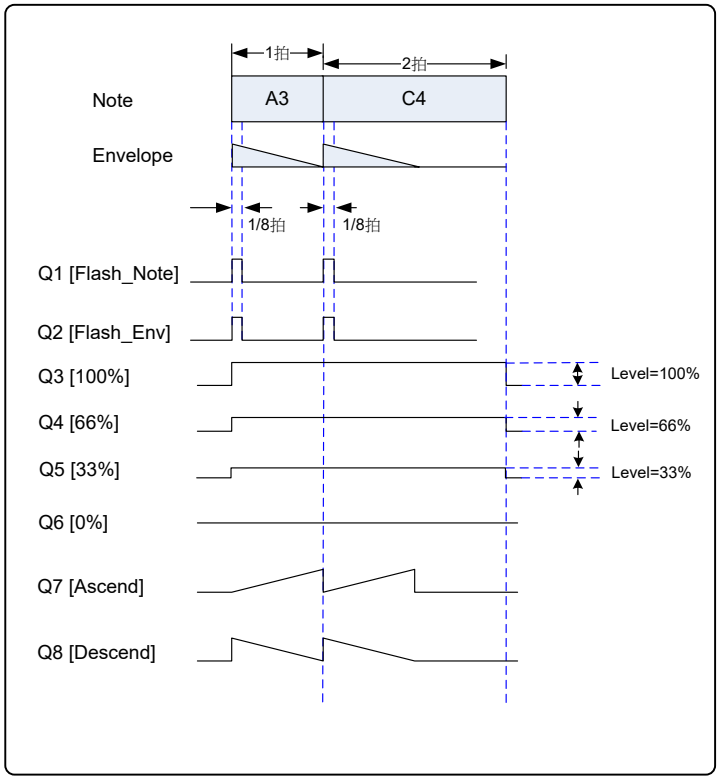
Q5 [33%]: Set brightness of current music note output to 33%.

Q6 [0%]: Set brightness of current music note output to 0%.

Q7 [Ascend]: Current music note output will change from dark to bright depending on envelope length.

Q8 [Descend]: Current music note output will change from bright to dark depending on envelope length.

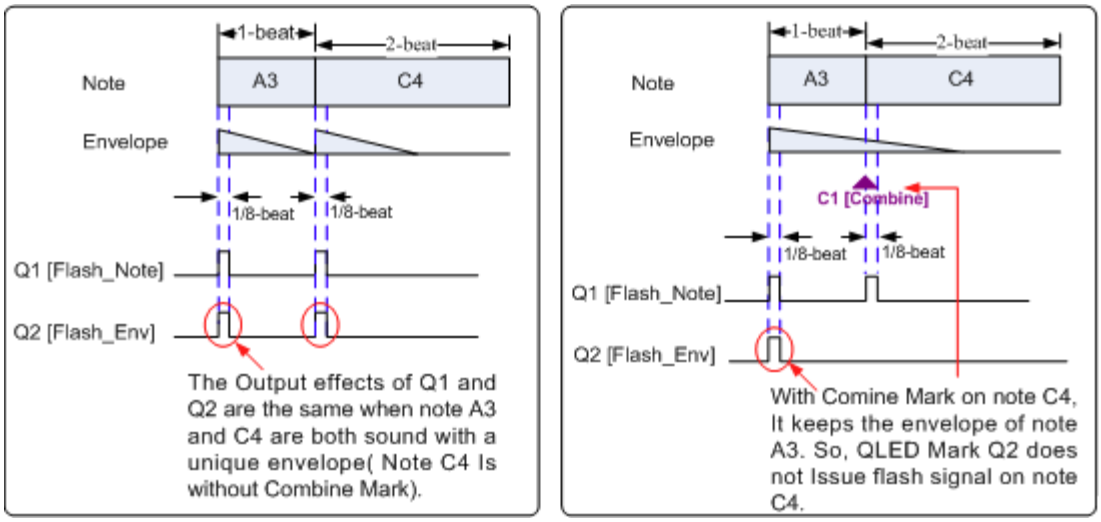
Output Pin: Set the output pin of QLED, the range is O1～O5.



Note:

1. ***NY2A: Output of IO1 is according to notes on Track 1 and QLED marks.***
2. ***NY2B: Output of IO1 is according to notes on Track 1 and QLED marks, and output of IO2 is according to notes on Track 2 and QLED marks.***

3 From the figure above, the effects of Q1 and Q2 seem the same, but it shows difference when Combine Mark applied. When Combine Mark is applied, the envelope keeps unchanged, thus Q2 [Flash_Env] issues signal at start of the envelope only, rather than each note.



2. Insertion Mark Type of NY2C

Currently, there are five types of marks available for NY2C, namely Timbre Mark, Combine Mark, QLED Mark, Brightness Mark, and Envelope Length Mark. Their functions will be described in the following section.

◆ **Timbre Mark**

There are two kinds of Timbre Marks: one is for the default square wave, and the other is for the user-defined timbre. When Timbre Mark is applied, the timbre of this single track is changed from the inserted mark to the next mark or end of the music. The codes for Timbre Mark are as below.

T1 [Square] : Square timbre will be applied to the current music note.

T2 [Patch] : User defined timbre will be applied to the current music note.

Note: Users can set their own timbre from the Patch page in Q-Tone.

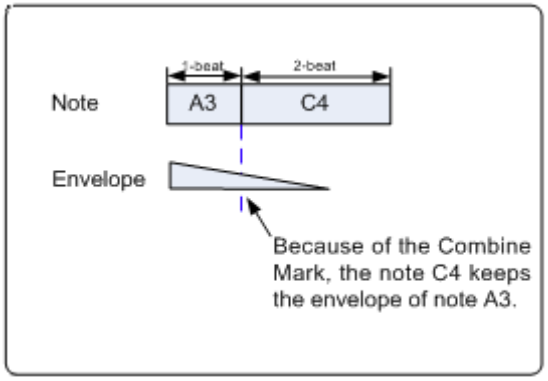
◆ **Combine Mark**

There is only one kind of Combine Mark. When Combine Mark is applied, it combines the current note with the previous one by keeping the envelope unchanged. The code for Combine Mark is as below.

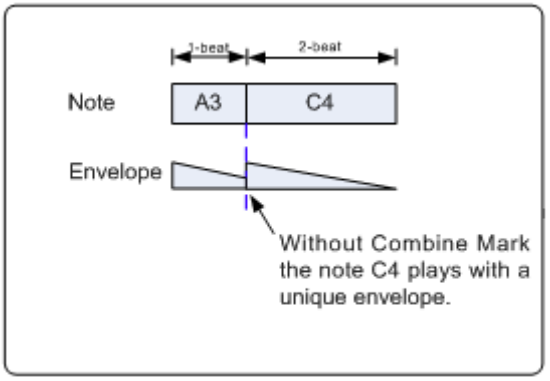
C1 [Combine]: The tick time of current music note will be combined with that of previous music note and they will share the same envelope. If combine mark is applied consecutively to several music notes within the range of a complete envelope (for example: 4 beats), the effect of decrescendo can be accomplished.

For example:

When a Combine Mark is inserted on the note C4 in the combine track, so it will keep the envelope unchanged, as the left figure below, as the note C4 is played. If the envelope length is defined as 2-beat and there is no Combine Mark, it will play as the right figure below.



With Combine Mark Inserted on note C4.



Without Combine Mark on note C4.

◆ **QLED Mark**

There are eight kinds of QLED Marks. When QLED Mark applied, it outputs different kinds of signals according to user's assignment. The codes for QLED Mark are as below.

Q1 [Flash_Note]: For track 1, output flash that depends on music note. Each flash lasts 1/8 beat.

Q2 [Flash_Env] : For track 1, output flash that depends on envelope. Each flash lasts 1/8 beat. The intensity of flash will depend on envelope as well.

Q3 [8Hz] : For track 1, set the frequency of the current music note output to 8 Hz.

Q4 [16Hz] : For track 1, set the frequency of the current music note output to 16 Hz.

Q5 [LED_On]: For track 1, set LED On for the current music note output.

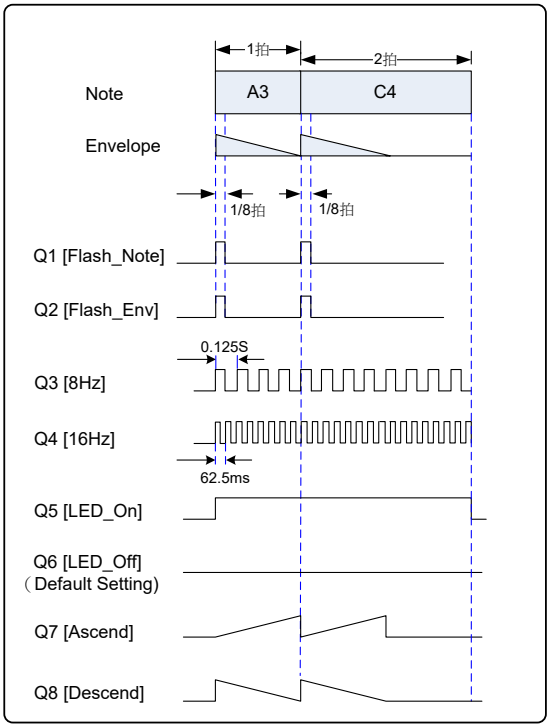
Q6 [LED_Off]: For track 1, set LED Off for the current music note output.

Q7 [Ascend]: For track 1, current music note output will change from dark to bright depending on the envelope length.

Q8 [Descend]: For track 1, current music note output will change from bright to dark depending on the envelope length.

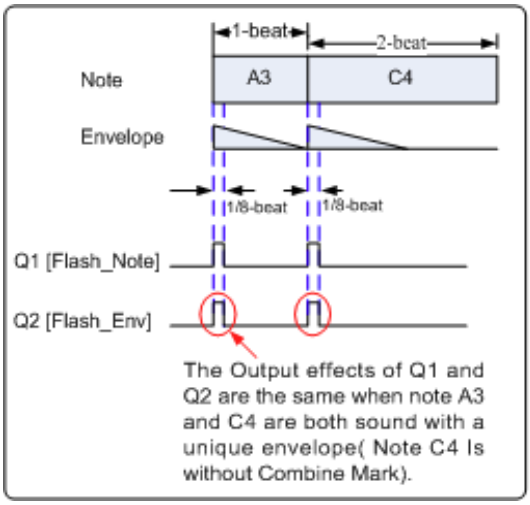
Output Pin: Set the output pin of QLED, the range is O1~O5.

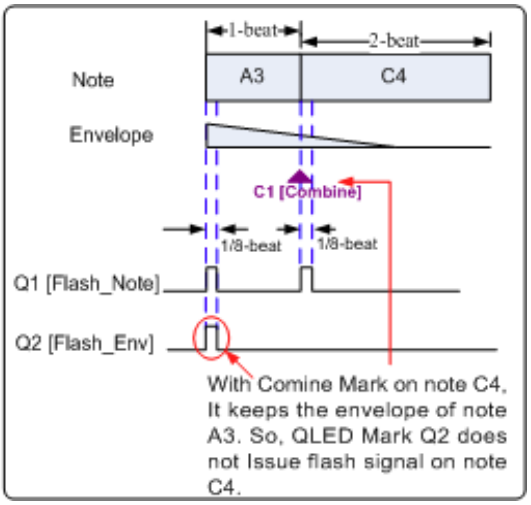
The figure below shows how outputs work when QLED Marks applied.



Note:

1. ***QLED Marks for all los must comply with notes of Track 1.***
2. ***From the figure above, the effects of Q1 and Q2 seem the same, but it shows difference as Combine Mark applied. As Combine Mark is applied, the envelope keeps unchanged, thus Q2 [Flash_Env] issues signal at start of the envelope only, rather than each note.***





◆ **Brightness Mark**

There are four kinds of Brightness Marks. When it applied with QLED Mark, the brightness of output signals are controlled by the Brightness Mark. Codes for Brightness Mark are as below.

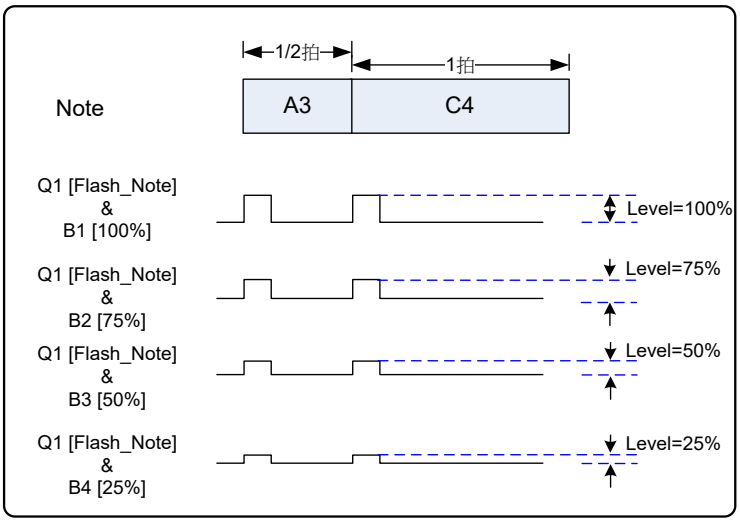
B1 [100%]: For track 1, set brightness of current music note output to 100%.

B2 [75%]: For track 1, set brightness of current music note output to 75%.

B3 [50%]: For track 1, set brightness of current music note output to 50%.

B4 [25%]: For track 1, set brightness of current music note output to 25%.

The figure below shows the difference when Q1 [Flash_Note] applied with different Brightness Marks (B1~B4).



Note: In NY2C, Brightness Mark will only work if its output pin is set accordingly with that of QLED Mark. (For example: when Output1 (O1) was selected for the output pin of QLED Mark the same output pin, Output1 (O1), must be selected for Brightness Mark in order for it to work). All output of IO pins are according to notes on Track 1 and Brightness marks.

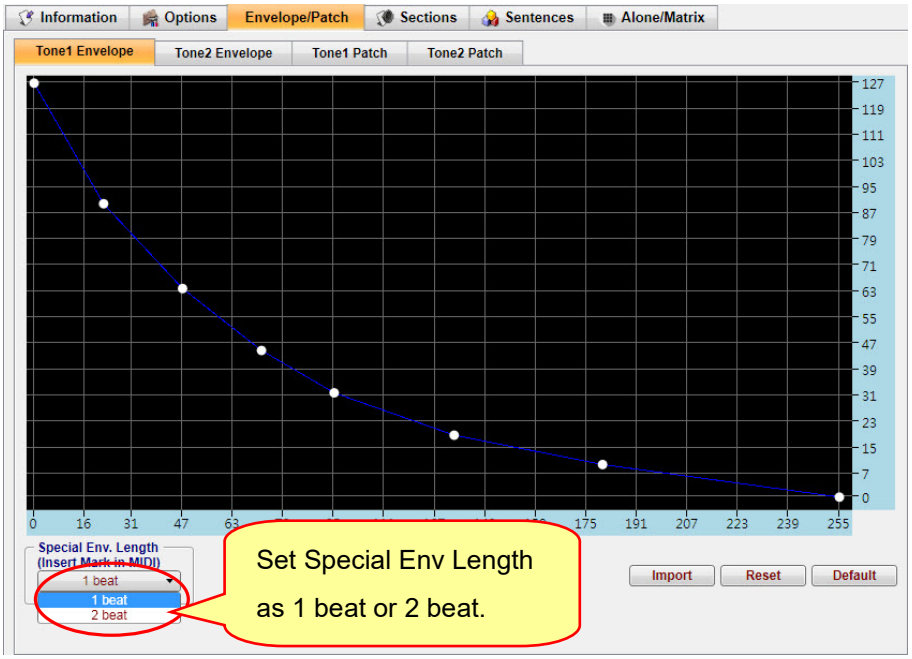
◆ **Envelope Length Mark**

There are two kinds of Envelope Length Marks: one is for special length, and the other is for normal length. When Envelope Length Mark applied, it will play up the envelope within the user-defined duration.

E1 [Special Length]: Output of the current music note will depend on minor envelope, which shortens the length of envelope to one beat or two beats

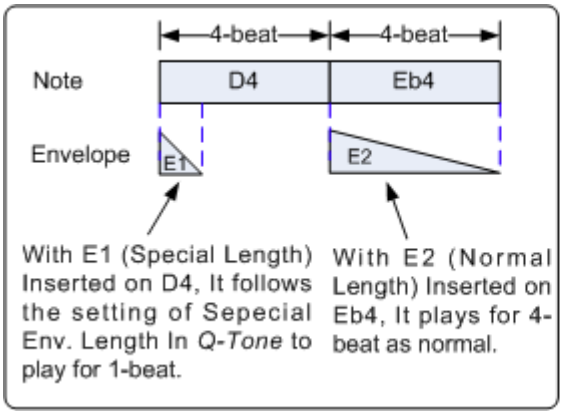
Note:

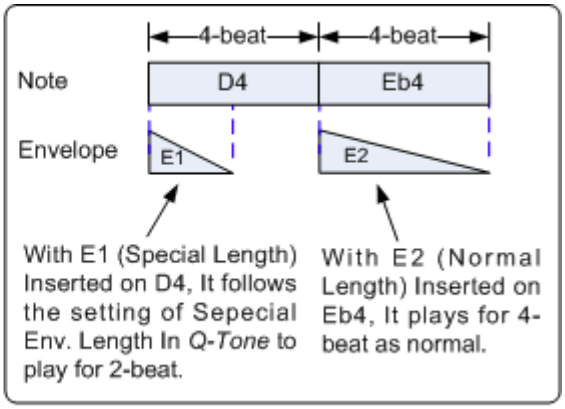
1. ***Default is [Normal Length], and [Special Length] Mark must be inserted to enable the setting of "Special Env. Length" in Q-Tone's Envelope/Path page***
2. ***"Special Env. Length" in Q-Tone's Envelope/Path page could be set as 1 beat or 2 beat.***



E2 [Normal Length]: Output of the current music note will depend on major envelope.

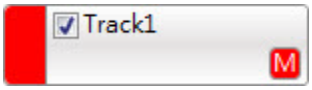
If the normal length is 4 beat and the special length is 1 beat, then D4 plays for 1 beat and Eb4 plays for 4 beats, as the left figure shows below. But if the normal length is 4 beat and the special length is 2 beat, then D4 plays for 2 beats while Eb4 remains playing for 4 beats, as the right figure shows below.





3. Insertion Mark Type of NY5

NY5 series only support 1 mark type: Music Mark.

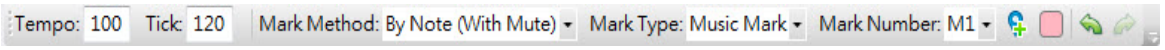


◆ **Music Mark**

The Music mark range is M1~M255.

4.5.2 Mark Toolbar

Mark Toolbar provides Tempo, Basic Insert Method, Advanced Insert Method, Undo and Redo functions, that can simplify and shorten editing mark process. The following instructions:



4.5.2.1 Tempo: The beats per minute. According to the current cursor line position display tempo information.

If the MIDI tempo is not supported by IC spec, *Q-MIDI* will prompt the original MIDI tempo and change to the MIDI tempo supported by the IC when the cursor moves to the Tempo column as shown below.

4.5.2.2 Tick: The ticks per beat (quarter note).

4.5.2.3 Mark Method: There are 5 kinds of insertion method to choose: By Beat, By Note (With Mute), By Note (Without Mute) , By Pitch and by single note.

- **By Beat:** When the length of the note is equal to the length of specified Notation Length, mark at the beginning of the note.

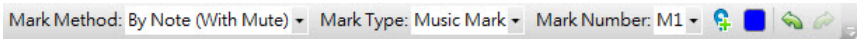
Mark Notation Length: Set note length, there are Whole Note, Half Note, Quarter Note, Eighth Note, Sixteenth Note and Thirty-Second Note.

Mark Type: The supported mark types are different because of its IC series project.

Mark Number: The total number of marks is different because of the mark types.

Mark Color: There are 24 colors to choose.

- **By Note (With Mute):** Mark according to the start time of each note, including mute note.

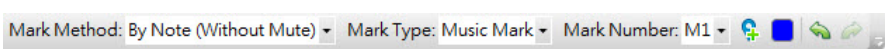


Mark Type: The supported mark types are different because of its IC series project.

Mark Number: The total number of marks is different because of the mark types.

Mark Color: There are 24 colors to choose.

- **By Note (Without Mute):** Mark according to the start time of each Note, not including mute note.

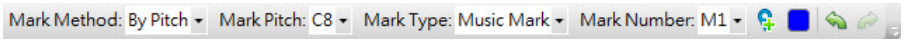


Mark Type: The supported mark types are different because of its IC series project.

Mark Number: The total number of marks is different because of the mark types.

Mark Color: There are 24 colors to choose.

◆ **By Pitch:** Mark at the start time of note with the specified pitch.



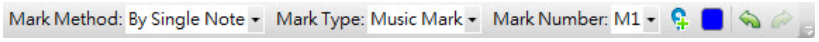
Mark Pitch: Set the pitch from C1~B8.

Mark Type: The supported mark types are different because of its IC series project.

Mark Number: The total number of marks is different because of the mark types.

Mark Color: There are 24 colors to choose.

◆ **By Single Note:** Move cursor to single note and mark at the start time of note.



Mark Type: The supported mark types are different because of its IC series project.

Mark Number: The total number of marks is different because of the mark types.

Mark Color: There are 24 colors to choose.

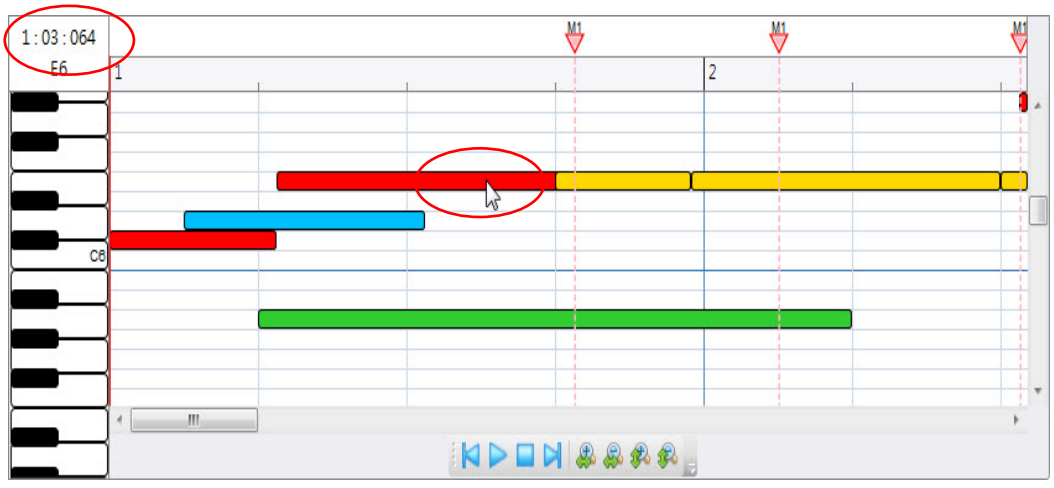
4.5.2.4 Insert Mark: Insert the mark based on the set conditions or use hotkey M to insert a mark.

4.5.2.5 Undo: Undo the last Mark action.

4.5.2.6 Redo: Redo the last restored Mark action.

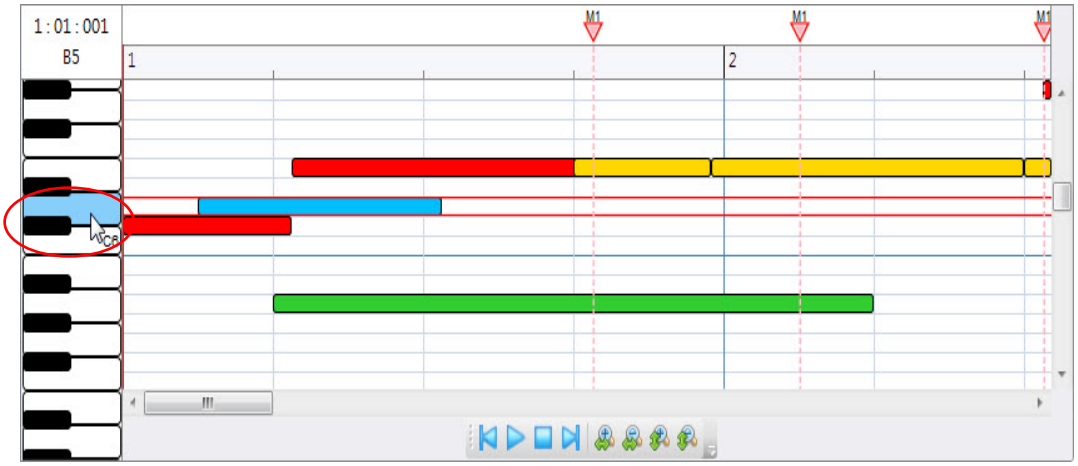
4.5.3 Coordinate Information

Show the current mouse position. The following marked mouse position is in the first measure, third beat, 64th tick and corresponding pitch is E.6



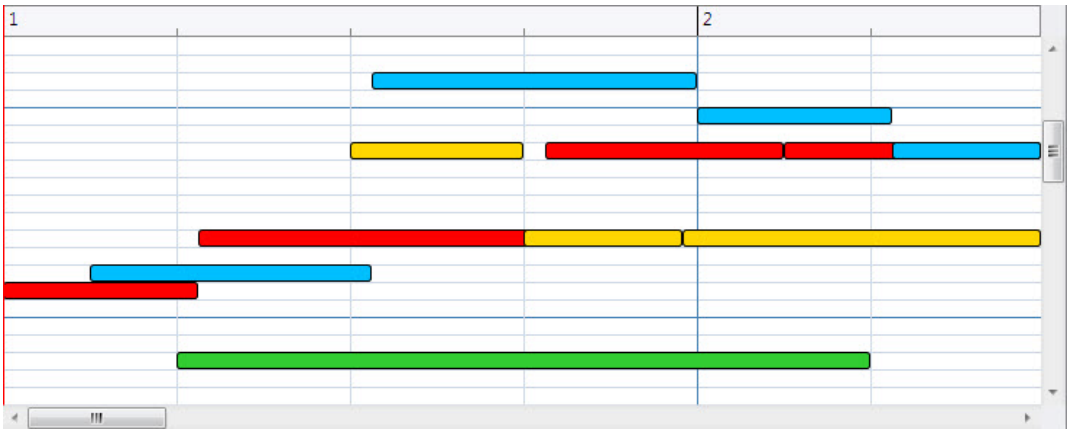
4.5.4 Piano Roll

Show the pitch of all notes.



4.5.5 Note Display Area

Note Display Area shows the start time and length of all notes in MIDI.



4.5.6 Play Toolbar

Go To Start: Move the cursor to the beginning of the MIDI.

Play: Play MIDI from the position of cursor line.

Stop: Stop palying.

Go To End: Move the cursor to the end of the MIDI.

Zoom In Horizontally: According to the current position of the cursor line horizontal direction to enlarge.

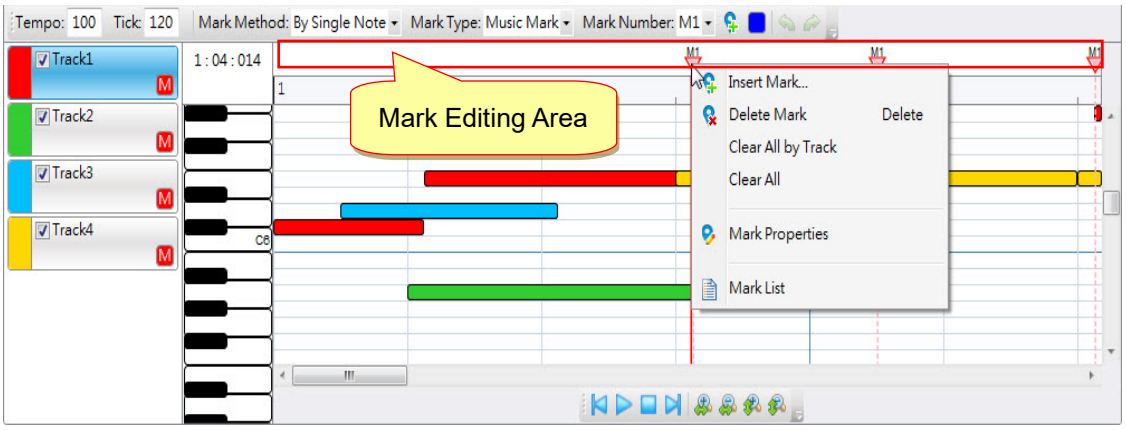
Zoom Out Horizontally: According to the current position of the cursor line horizontal direction to narrow.

Zoom In Vertically: Increase the vertical scale resolution of display.

Zoom Out Vertically: Decrease the vertical scale resolution of display.

4.5.7 Mark Editing Area

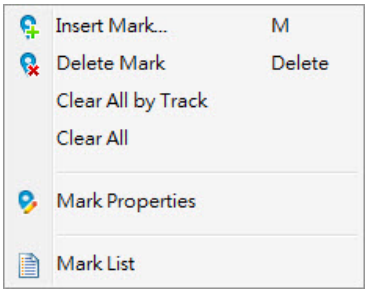
This area Click the left mouse button to move the red cursor line to the inserted position in Mark Editing Area, or click the right mouse button to open the context menu to edit marks.



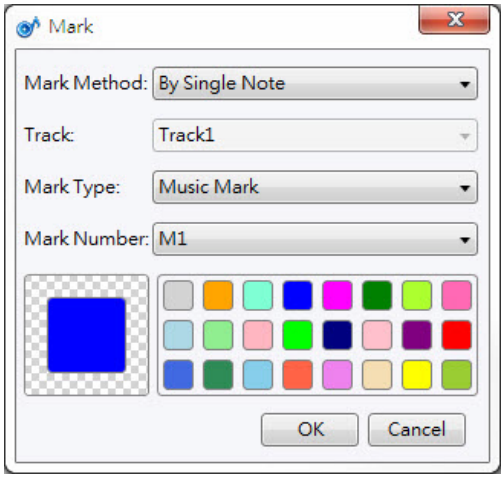
The icon of insertion mark:

The number above the triangle is the mark serial number, the colors of triangle is user-defined

The context menu



Insert Mark: Mark at the current location.



Mark Method: Select the insertion method. Please refer to chapter 4.5.2.3

Tack: Shows the current track number.

Mark Type: The supported mark types is different because of the IC series.

Mark Number: The total number of marks is different because of the mark types.

Mark Color: There are 24 colors to choose.

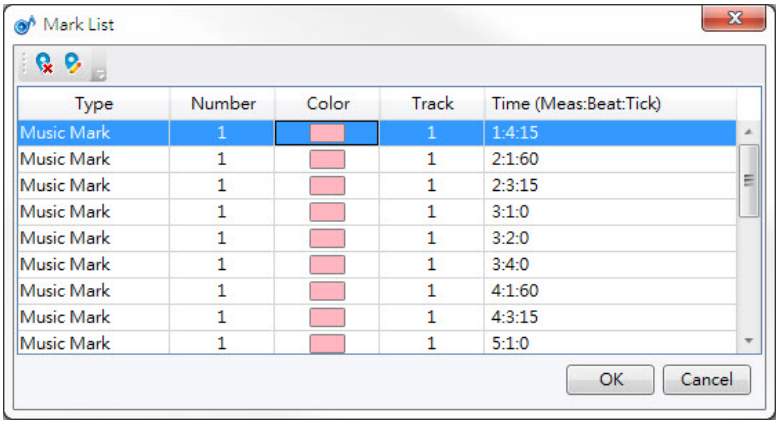
Delete Mark: Delete the inserted Mark.

Clear All by Track: Delete the inserted Mark supported by Track.

Clear All: Delete all inserted Marks.

Mark Properties: Edit the currently selected Mark Properties.

Mark List: List all mark information.

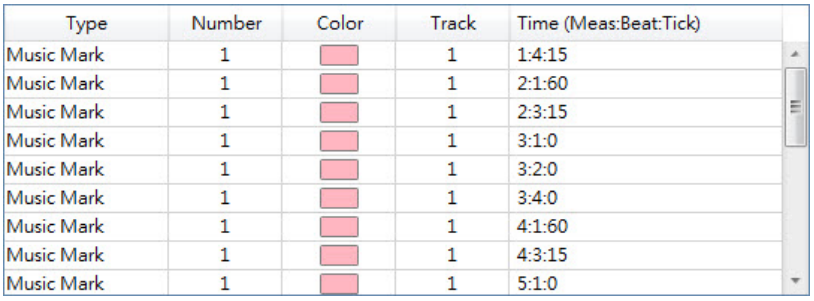


The toolbar provides Delete Mark and Edit Mark.

Delete Mark: Delete one or more selected marks in the mark table.

Edit Mark: Edit the selected mark in the mark list.

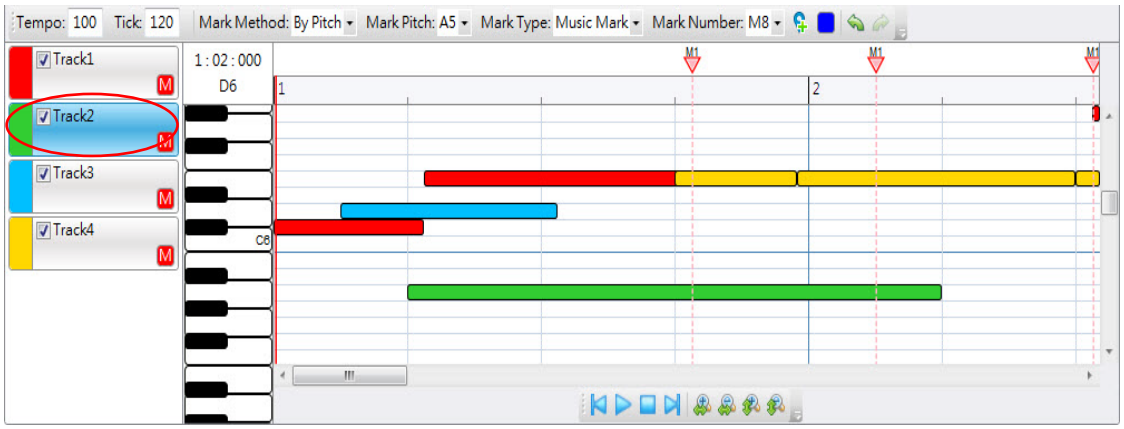
The mark list displays mark Type, Number, Color, Track and Time (M:B:T) as shown below.



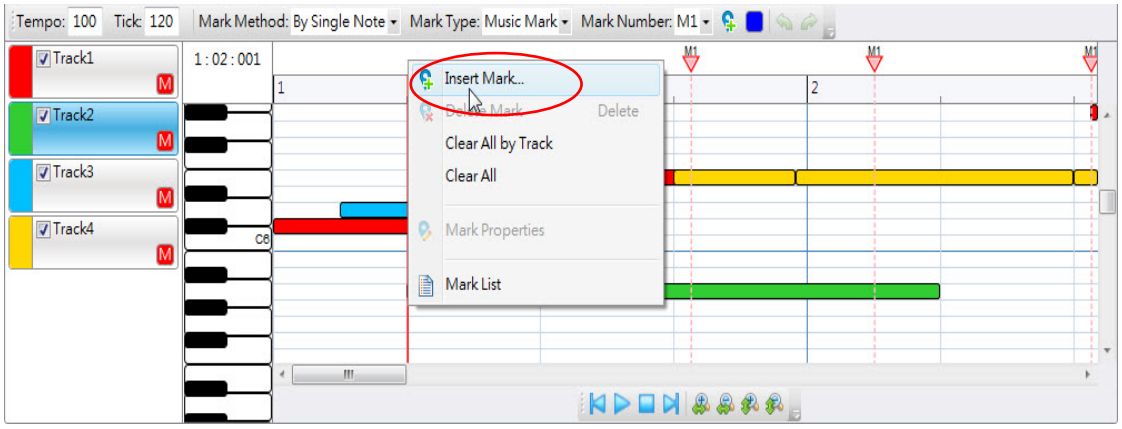
4.5.8 The Examples of Insertion Mark

This example shows how to insert marks through the context menu in the method of By Single Note.

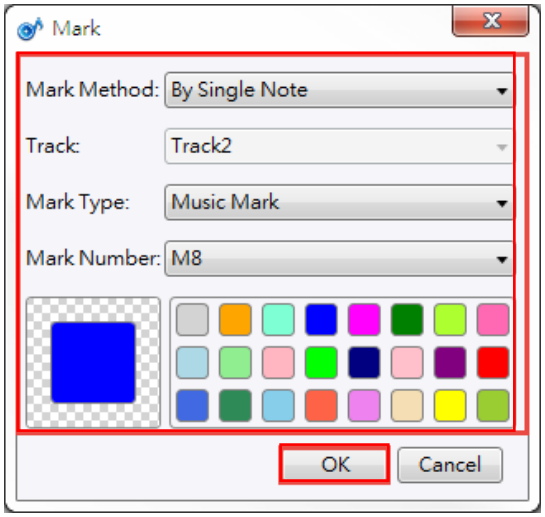
1. Select the target track for inserting marks.



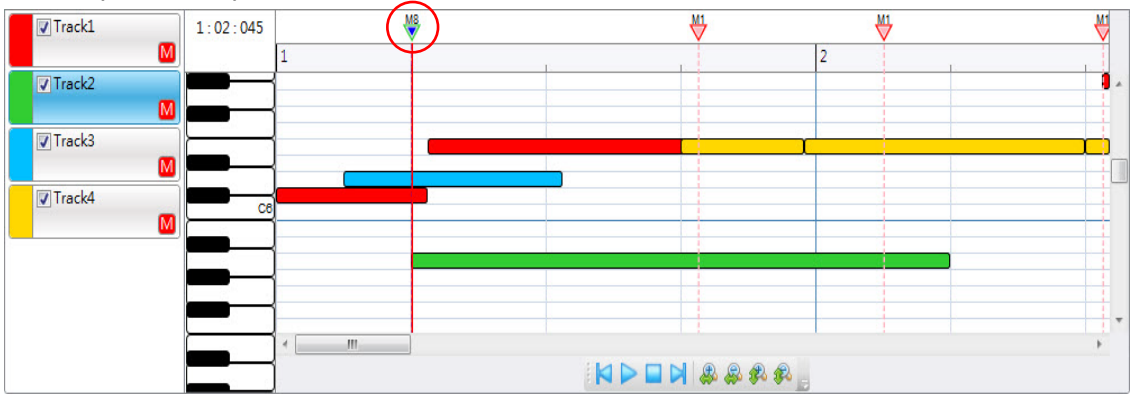
2. Move the cursor line to the start position of the target, then right-mouse click for selecting “Insert Mark” from context menu.



3. Shows the Mark window and set the related settings, then press OK..

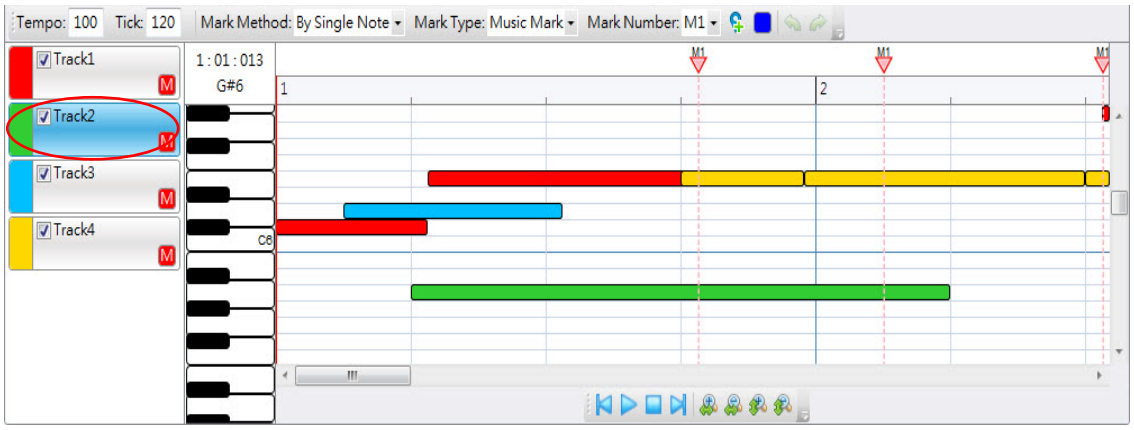


4. The steps are completed.

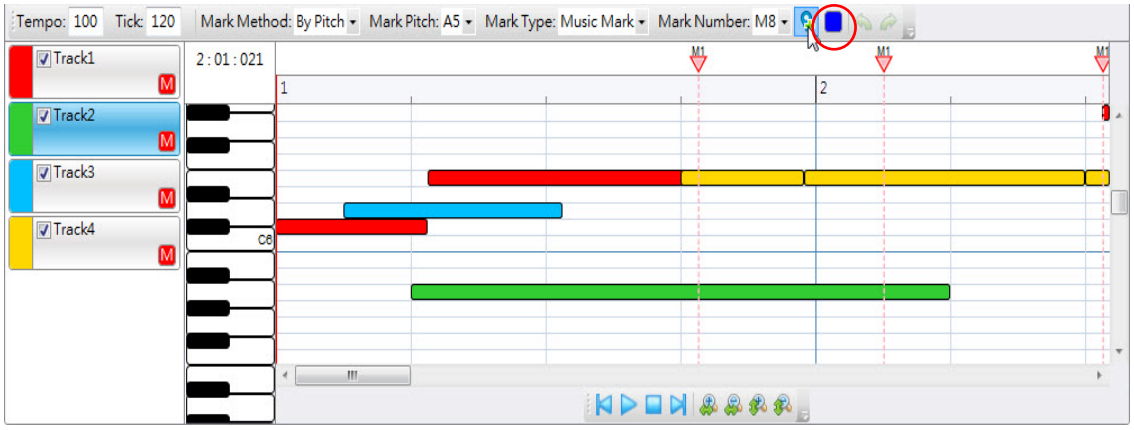


This example shows how to insert marks through the context menu in the method of By Pitch.

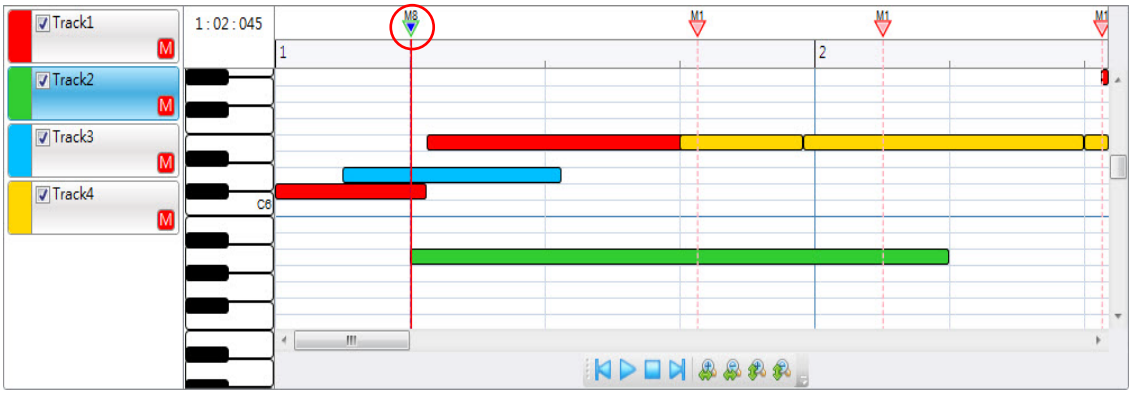
1. Select the target track for inserting marks.



2. Select the Mark Method as By Pitch. Set the Mark Pitch of the insertion mark as A5, the M8 as the mark Number, and the Mark color is Blue. Then click the Insert Mark icon on tool bar or use hotkey M to insert.

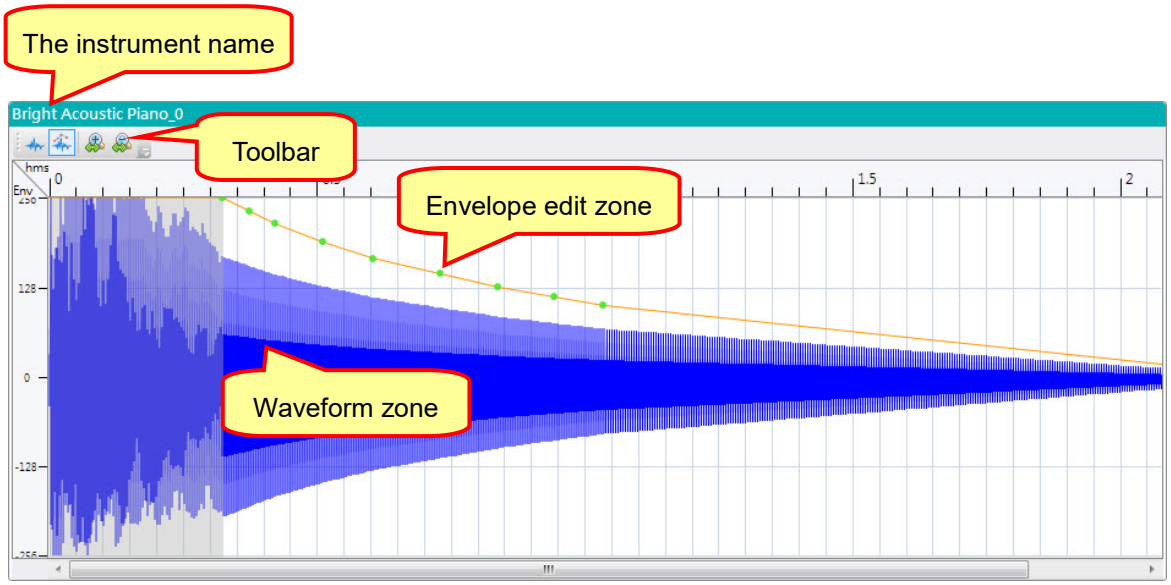


3. The steps are completed.



4.6 Patch Edit Area

The functions of Patch Edit Area includes: toolbar, waveform zone and envelope edit zone. The waveform display zone includes the original audio file waveform and the synthesized waveform display, and the user can switch the mode through the button on the toolbar.



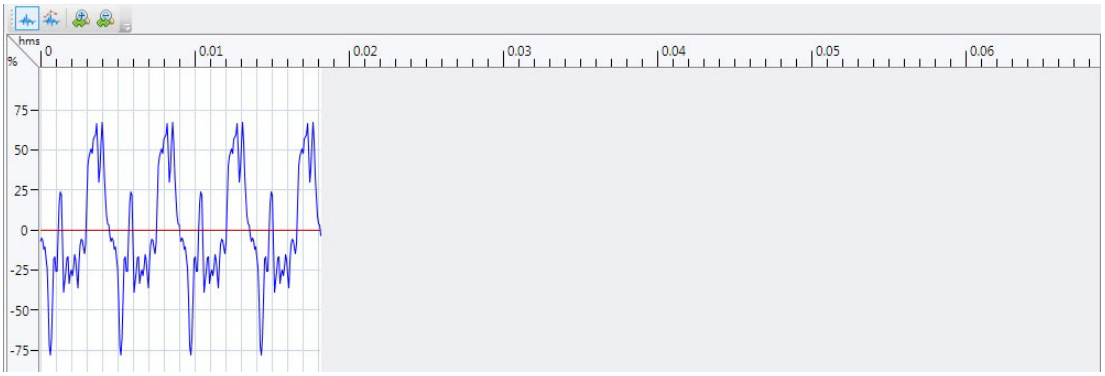
4.6.1 Toolbar

- **The original audio file mode:** Shows the original audio file in the waveform zone.
- **The envelope edition mode:** Shows the synthesized waveform that applied envelope in waveform zone, and user can edit in the envelop edit zone
- **Zoom In Horizontally:** Zoom in horizontally.
- **Zoom Out Horizontally:** Zoom out horizontally.

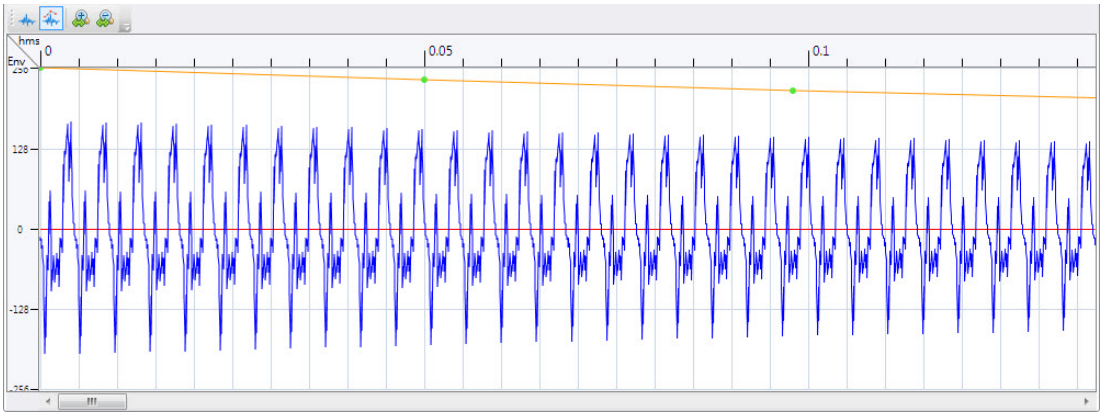
4.6.2 Waveform Display Zone

The waveform display zone includes 2 modes: the waveform of original audio file and the synthesized waveform.

The following figure is the waveform of original audio file.



The following figure is the synthesized waveform that applied envelope.



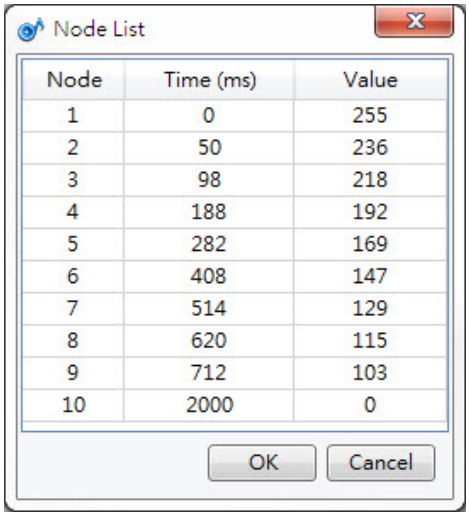
4.6.3 Envelope Edit Zone

User can switch the original waveform to the envelope edition mode through the toolbar. *Q-MIDI* will build a default Envelope curve above the synthesized waveform. User can edit or adjust the envelop curve directly or through the “Add Envelope” function of the IDB.

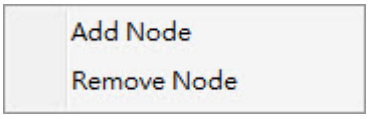
Context Menu

◆ **Reset Envelope:** Reset the edited Envelope curve as initial value.

◆ **Node List:** Show the Node List window to add or delete nodes.



Context Menu



◆ **Add Node**: Add the envelope node.

Time: Set the node time.

Value: Set the node value.

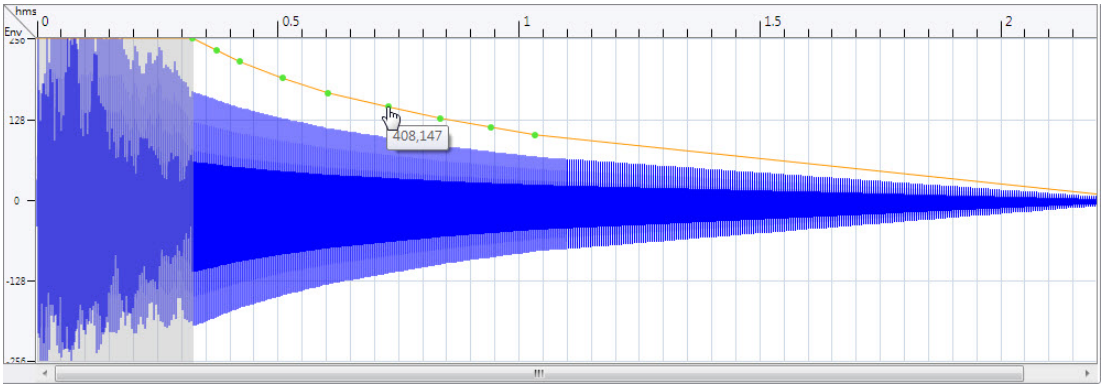
◆ **Remove Node:** Delete the envelope nodes.

Export Audio: Export the filename extension .nyw audio file.

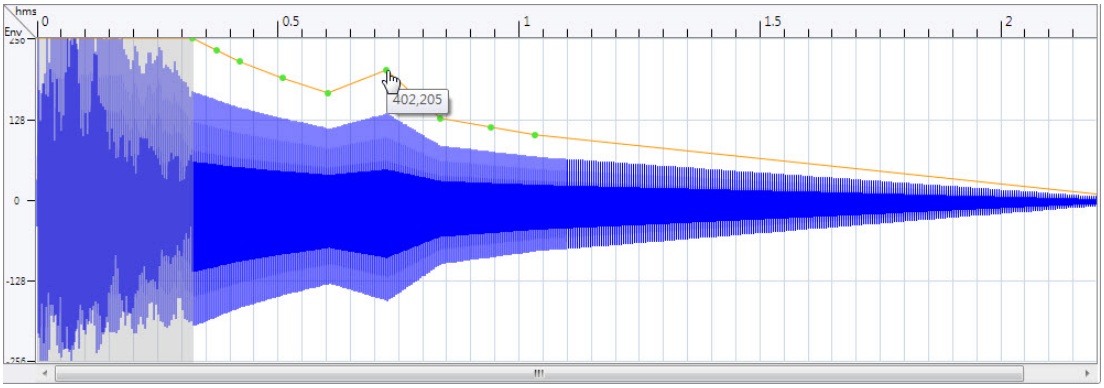
Export Envelope: Export the selected .env file from the audio file of Tail type.

Adjust the envelope curve.

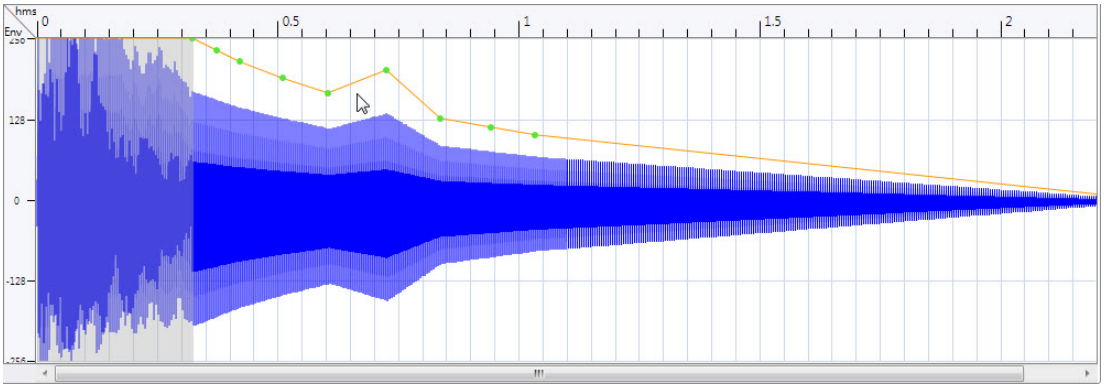
1. Move the cursor to the target envelope point.



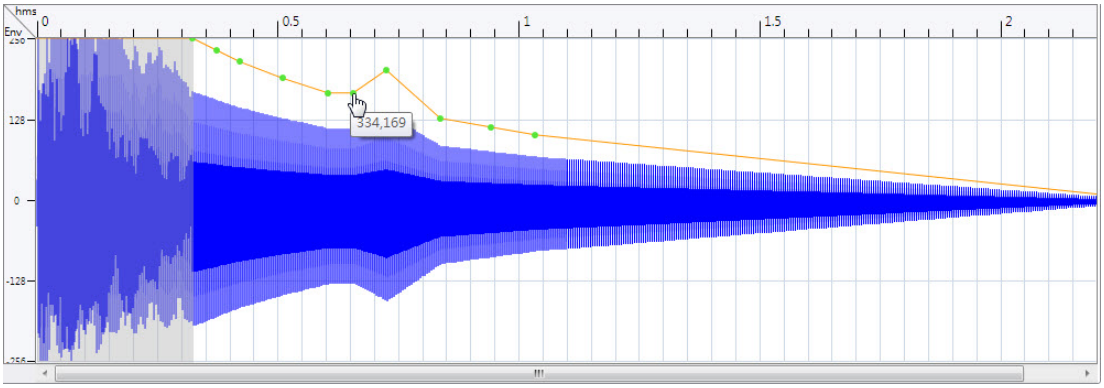
2. Click left-mouse on the point and drag to adjust the curve.



3. Click left-mouse on blank area to add a new envelope point.



4. Add a new envelope point and drag to adjust the curve.



4.7 Information Window

The Information Window includes the following tab: Convert Message, Error List, Build Information,

Instrument Reference, and Piano.

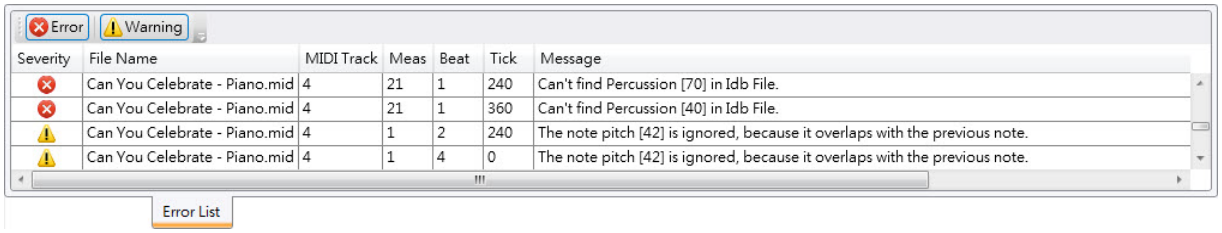
The NY2A/2B/2C series project only shows the Convert Message and Error List tabs.

4.7.1 Covert Message

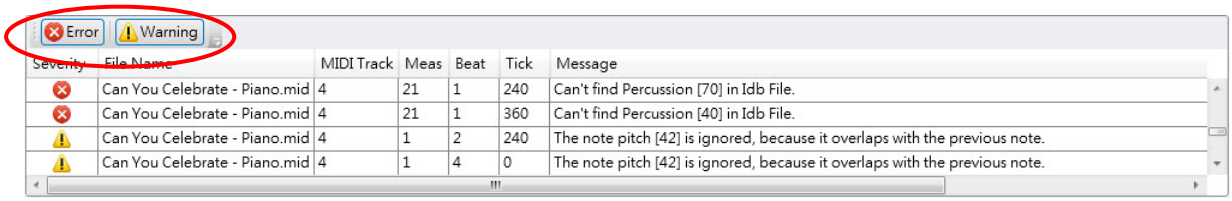
Shows conversion information (success or fail) upon converting all MIDI files.

4.7.2 Error List

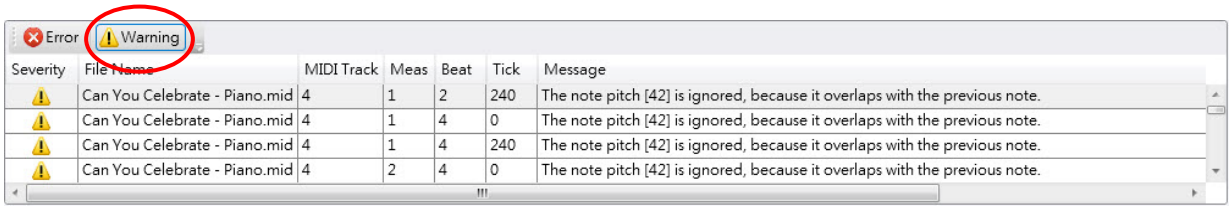
After executing the Convert, Download and Export Resources functions, *Q-MIDI* will display the error and warning messages. User can filter the message type through the buttons on the toolbar.



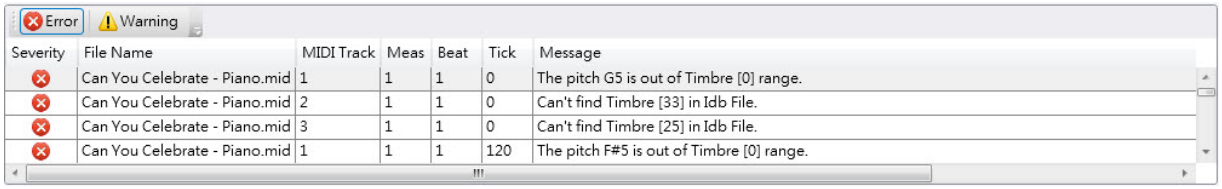
◆ **Display all error and warning messages.**



◆ **Display warning messages only**

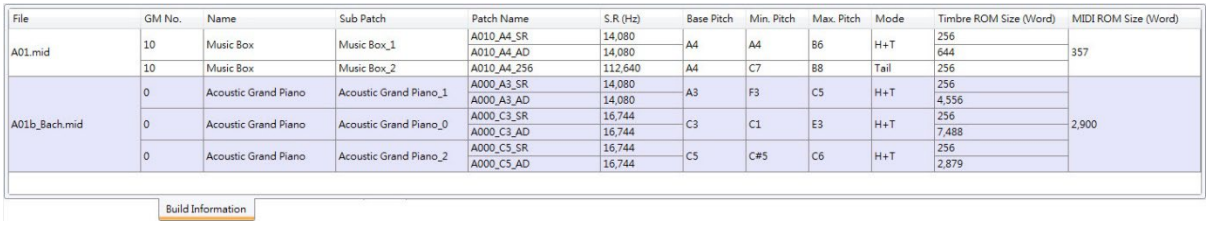


◆ **Display error messages only**



4.7.3 Build Information

Display all used Subpatch information of mid from the project.



File	GM No.	Name	Sub Patch	Patch Name	S.R (Hz)	Base Pitch	Min. Pitch	Max. Pitch	Mode	Timbre ROM Size (Word)	MIDI ROM Size (Word)
A01.mid	10	Music Box	Music Box_1	A010_A4_SR	14,080	A4	A4	B6	H+T	256	357
				A010_A4_AD	14,080					644	
	10	Music Box	Music Box_2	A010_A4_256	112,640	A4	C7	B8	Tail	256	
A01b_Bach.mid	0	Acoustic Grand Piano	Acoustic Grand Piano_1	A000_A3_SR	14,080	A3	F3	C5	H+T	256	2,900
				A000_A3_AD	14,080					4,556	
	0	Acoustic Grand Piano	Acoustic Grand Piano_0	A000_C3_SR	16,744	C3	C1	E3	H+T	256	
				A000_C3_AD	16,744					7,488	
	0	Acoustic Grand Piano	Acoustic Grand Piano_2	A000_C5_SR	16,744	C5	C#5	C6	H+T	256	
				A000_C5_AD	16,744					2,879	

Build Information

The descriptions for the columns of file information are below.

File: MIDI filename.

GM No.: The serial number index of the General MIDI.

Name: Display the set instrument name of IDB.

Sub Patch: Display the Sub Patch name created in the Instrument Database.

Patch Name: Display the Patch name created in the Instrument Database.

S. R (Hz): Display the sample rate of timbre.

Base Pitch: Display the base pitch for the corresponding timbre.

Min. Pitch: Display the minimum pitch available for the corresponding timbre.

Max. Pitch: Display the maximum pitch available for the corresponding timbre.

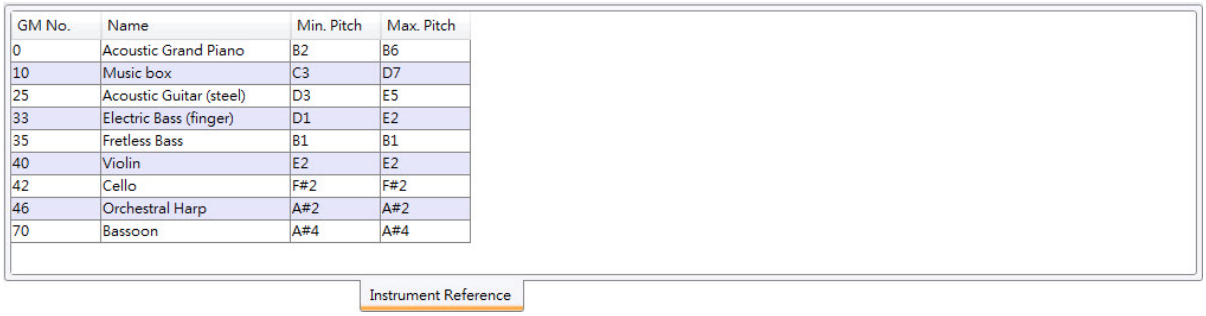
Mode： Display the mode available for the corresponding timbre; Head supports full wave, Tail supports sample with 256 bits and H+T supports ADSR mode.

Timbre ROM Size (Word): Display the ROM Size which is taken to fit the data of a timbre.

MIDI ROM Size (Word): Display the ROM Size which is taken to fit the data of MIDI.

4.7.4 Instrument Reference

Display the information of all used instruments in MIDI project.



GM No.	Name	Min. Pitch	Max. Pitch
0	Acoustic Grand Piano	B2	B6
10	Music box	C3	D7
25	Acoustic Guitar (steel)	D3	E5
33	Electric Bass (finger)	D1	E2
35	Fretless Bass	B1	B1
40	Violin	E2	E2
42	Cello	F#2	F#2
46	Orchestral Harp	A#2	A#2
70	Bassoon	A#4	A#4

The column descriptions are as follows:

GM No.: The serial number index of the General MIDI.

Name: Display the set instrument name of IDB.

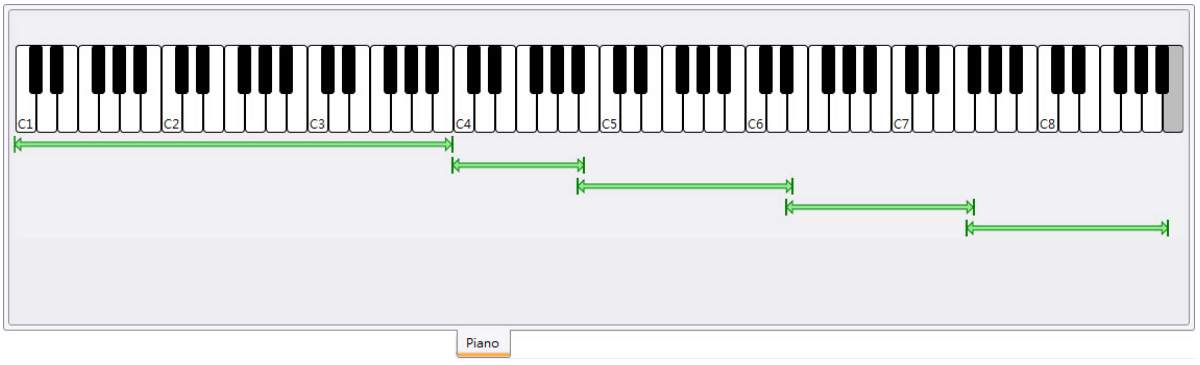
Min. Pitch: Display the minimun pitch for the used timbre of MIDI.

Max. Pitch: Display the maximun pitch for the used timbre of MIDI.

4.7.5 Piano

User can use piano bar to have a trial listen on synthesized result. When mouse pointer hovers on active keys of piano bar, the icon of mouse pointer will change to finger symbol. Left-click on active key can have a trial listen.

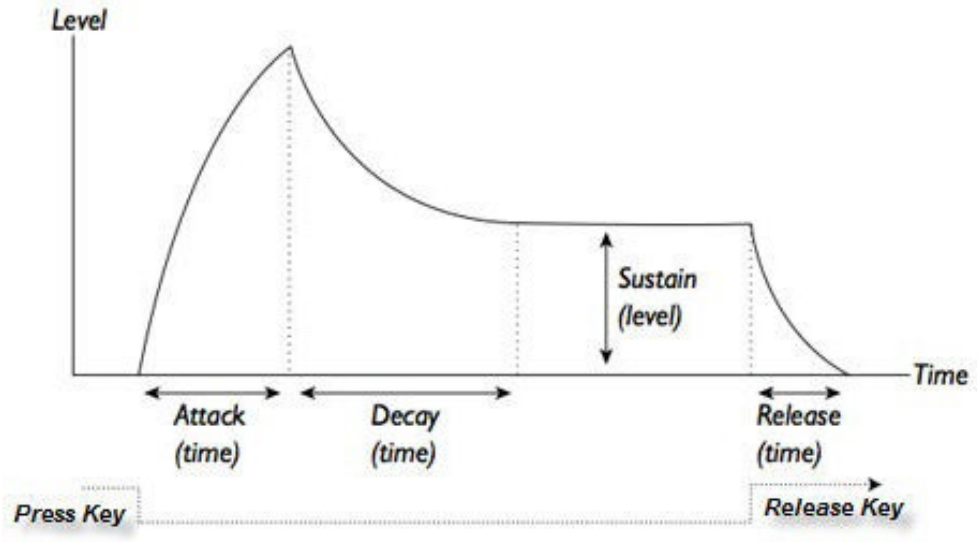
User can also set max/min pitch. Move mouse pointer to boundary and drag it to change the range of pitch.



5 Appendix 1 (NY5+ / NY6 / NY7 / NX1 Series)

5.1 ADSR Section

The following illustration and description is taking the example of the pressed and released key.



Attack: The attack time is the duration when the key is pressed, the sound runs up to peak.

Decay: The decay time is the duration when the sound subsequently runs down from peak.

Sustain: The sustain time is the duraiton when the sound is in sustain level.

Release: The release time is the duration when sound run down to zero after the key is released.

5.2 The Feature Summary of *Q-MIDI*

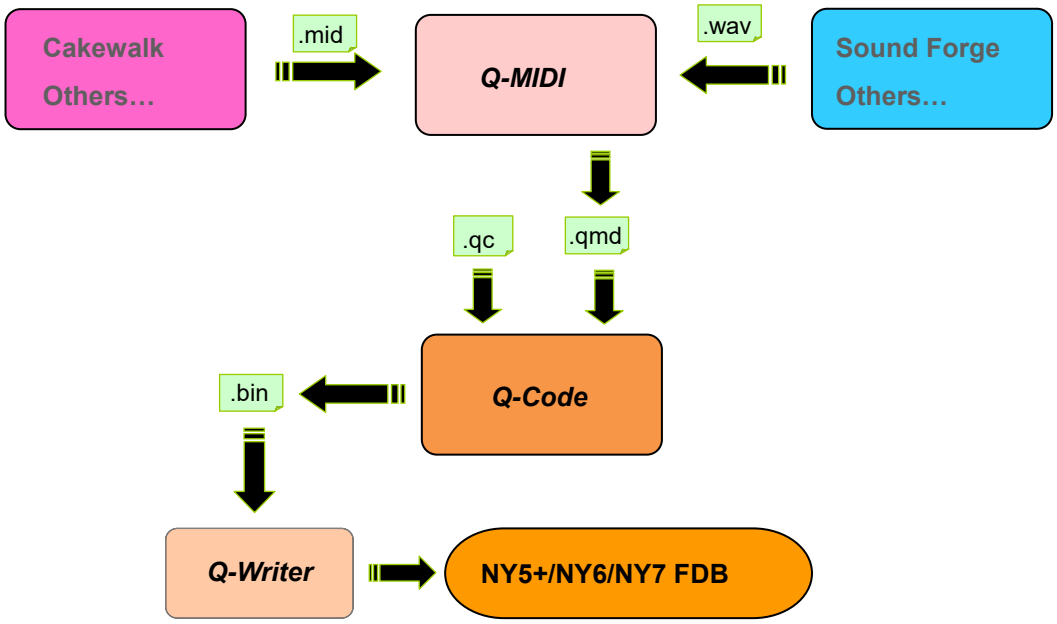
1. NY5+ supports up to 4 channels,NY6 supports up to 6 channels, NY7 supports up to 8 channels and NX1 supports up to 16 channels at the same time audible, one note of each channel can be played simultaneously.
2. NY5+/NY6/NY7 subpatches support pitch range from C1 to B8; NX1 subpatches support pitch range from C0 to B8.
3. Support 128 instruments and 128 percussions.
4. Support 16-level Channel Volume.
5. NY5+/NY6 support 64-level Velocity, NY7 and NX1 support 128-level Velocity.
6. Support Patch Change.
7. For NY5+ series, the supported range of Pitch Wheel is+/- 4 semitones. For NY6/NY7/NX1 series, the supported range of Pitch Wheel is +/- 12 semitones.
8. NY7 series supports Modulation, range from 0 to 127.
9. Support Tempo ranging from 8 to 250 and Tempo Change.
10. Support Insert Marker Insertion.

5.3 Cross table of Percussion and Keyboard Pitch

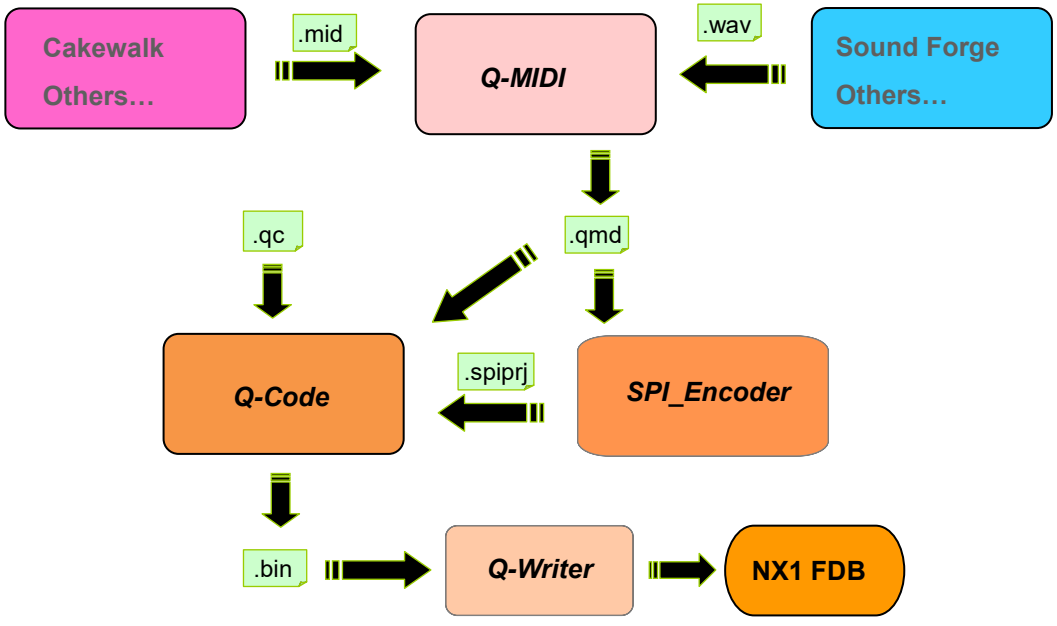
Percussion vs. Keyboard Pitch					
No.	**Pitch**	**Name**	**No.**	**Pitch**	**Name**
000	--	--	036	C2	Bass Drum 1
001	--	--	037	C#2	Side Stick
002	--	--	038	D2	Acoustic Snare
003	--	--	039	D#2	Hand Clap
004	--	--	040	E2	Electric Snare
005	--	--	041	F2	Low Floor Tom
006	--	--	042	F#2	Closed Hi_Hat
007	--	--	043	G2	High Floor Tom
008	--	--	044	G#2	Pedal Hi_Hat
009	--	--	045	A2	Low Tom
010	--	--	046	A#2	Open Hi_Hat
011	--	--	047	B2	Low Mid_Tom
012	C0	--	048	C3	High Mid_Tom
013	C#0	--	049	C#3	Crash Cymbal 1
014	D0	--	050	D3	High Tom
015	D#0	--	051	D#3	Ride Cymbal 1
016	E0	--	052	E3	Chinese Cymbal
017	F0	--	053	F3	Ride Bell
018	F#0	--	054	F#3	Tambourine
019	G0	--	055	G3	Splash Cymbal
020	G#0	--	056	G#3	Cowbell
021	A0	--	057	A3	Crash Cymbal 2
022	A#0	--	058	A#3	Vibraslap
023	B0	--	059	B3	Ride Cymbal 2
024	C1	--	060	C4	High Bongo
025	C#1	--	061	C#4	Low Bongo
026	D1	--	062	D4	Mute Hi Conga
027	D#1	High Q	063	D#4	Open Hi Conga
028	E1	Slap	064	E4	Low Conga
029	F1	Scratch (Push)	065	F4	High Timbale
030	F#1	Scratch (Pull)	066	F#4	Low Timbale
031	G1	Sticks	067	G4	High Agogo
032	G#1	Square (Click)	068	G#4	Low Agogo
033	A1	Metronome (Click)	069	A4	Cabasa
034	A#1	Metronome (Bell)	070	A#4	Maracas
035	B1	Acoustic Bass Drum	071	B4	Short Whistle
072	C5	Long Whistle	100	E7	--

Percussion vs. Keyboard Pitch					
No.	**Pitch**	**Name**	**No.**	**Pitch**	**Name**
073	C#5	Short Guiro	101	F7	--
074	D5	Long Guiro	102	F#7	--
075	D#5	Claves	103	G7	--
076	E5	High Wood Block	104	G#7	--
077	F5	Low Wood Block	105	A7	--
078	F#5	Mute Cuica	106	A#7	--
079	G5	Open Cuica	107	B7	--
080	G#5	Mute Triangle	108	C8	--
081	A5	Open Triangle	109	C#8	--
082	A#5	Shaker	110	D8	--
083	B5	Jingle Bell	111	D#8	--
084	C6	Belltree	112	E8	--
085	C#6	Castanets	113	F8	--
086	D6	Mute Surdo	114	F#8	--
087	D#6	Open Surdo	115	G8	--
088	E6	--	116	G#8	--
089	F6	--	117	A8	--
090	F#6	--	118	A#8	--
091	G6	--	119	B8	--
092	G#6	--	120	C9	--
093	A6	--	121	C#9	--
094	A#6	--	122	D9	--
095	B6	--	123	D#9	--
096	C7	--	124	E9	--
097	C#7	--	125	F9	--
098	D7	--	126	F#9	--
099	D#7	--	127	G9	--

5.4 NY5+/NY6/NY7 Development Flowchart



5.5 NX1 Development Flowchart



6 Appendix 2 (NY2 / NY5 Series)

6.1 Description of NY5 Patch Mode

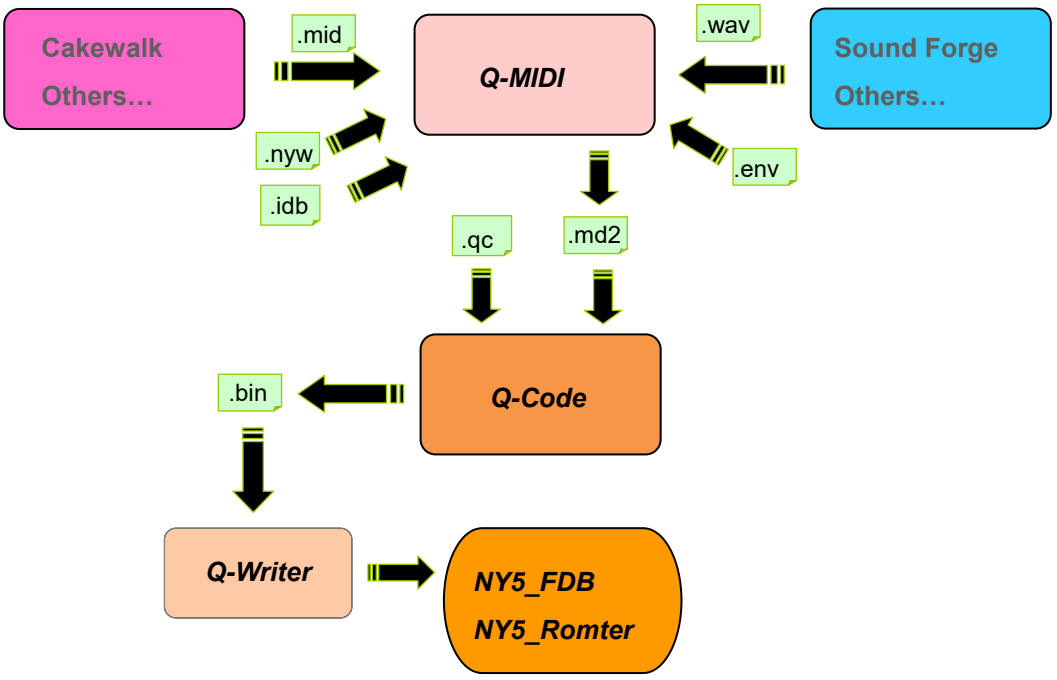
Mode	Description
Head	Head mode stands for sounding the audio file once per MIDI note. In Head mode, IC will play from the first sample to the last sample. Pros: It allows simulated audio files to display accurately the real timbre of instrument. Cons: 1. Excessive ROM Size. 2. For the IC specification limitation, when a note finishing playing in head mode, system will force to stop before next note playback, then a “pop” sound may be issued. 3. The play duration of note will be different according to pitch frequency. The higher the pitch, the shorter the play duration; the lower the pitch, the longer the play duration.
Tail	Tail mode stands for repeatedly sounding the 256 samples of audio file as need per MIDI note. In Tail mode, the actual IC playback timbre is: consecutively 256 samples audio files with synthesized envelope. Pros: It takes less ROM Size for 256 samples. Cons: The simulation result has the gap between actual instrument sound due to there is only 256 samples taken for loops.
ADSR	ADSR mode stands for the synthesized patch which is comprised of two main components; initially plays a full wave sound file then plays a 256 samples audio file. In ADSR mode, the actual IC playback timbre is: initially plays a full wave sound file then consecutively plays 256 samples audio file in loop with synthesized envelope. Pros: 1. Simulation result is quite close to head mode. 2. It takes much less ROM Size than head mode. Cons: As ADSR mode is executed with interruption, when playing melody in ADSR mode, users can not use the interrupt function simultaneously.

6.2 Cross Reference Table of Percussion Number, Pitch and Name

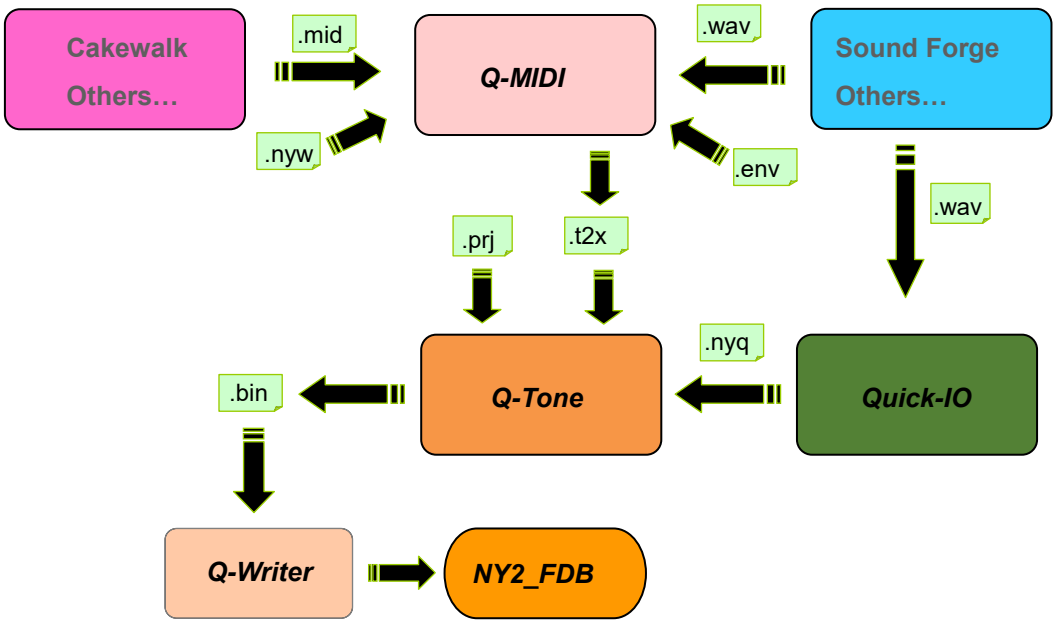
Percussion vs. Keyboard Pitch					
No.	*Pitch*	*Name*	*No.*	*Pitch*	*Name*
001	C0	--	037	C#2	Side Stick
002	C0	--	038	D2	Acoustic Snare
003	C0	--	039	D#2	Hand Clap
004	C0	--	040	E2	Electric Snare
005	C0	--	041	F2	Low Floor Tom
006	C0	--	042	F#2	Closed Hi-Hat
007	C0	--	043	G2	High Floor Tom
008	C0	--	044	G#2	Pedal Hi-Hat
009	C0	--	045	A2	Low Tom
010	C0	--	046	A#2	Open Hi-Hat
011	C0	--	047	B2	Low-Mid Tom
012	C0	--	048	C3	Hi-Mid Tom
013	C#0	--	049	C#3	Crash Cymbal 1
014	D0	--	050	D3	High Tom
015	D#0	--	051	D#3	Ride Cymbal 1
016	E0	--	052	E3	Chinese Cymbal
017	F0	--	053	F3	Ride Bell
018	F#0	--	054	F#3	Tambourine
019	G0	--	055	G3	Splash Cymbal
020	G#0	--	056	G#3	Cowbell
021	A0	--	057	A3	Crash Cymbal 2
022	A#0	--	058	A#3	Vibraslap
023	B0	--	059	B3	Ride Cymbal 2
024	C1	--	060	C4	Hi Bongo
025	C#1	--	061	C#4	Low Bongo
026	D1	--	062	D4	Mute Hi Conga
027	D#1	--	063	D#4	Open Hi Conga
028	E1	--	064	E4	Low Conga
029	F1	--	065	F4	High Timbale
030	F#1	--	066	F#4	Low Timbale
031	G1	--	067	G4	High Agogo
032	G#1	--	068	G#4	Low Agogo
033	A1	--	069	A4	Cabasa
034	A#1	--	070	A#4	Maracas
035	B1	Acoustic Bass Drum	071	B4	Short Whistle
036	C2	Bass Drum 1	072	C5	Long Whistle

Percussion vs. Keyboard Pitch					
No.	**Pitch**	**Name**	**No.**	**Pitch**	**Name**
073	C#5	Short Guiro	101	F7	--
074	D5	Long Guiro	102	F#7	--
075	D#5	Claves	103	G7	--
076	E5	Hi Wood Block	104	G#7	--
077	F5	Low Wood Block	105	A7	--
078	F#5	Mute Cuica	106	A#7	--
079	G5	Open Cuica	107	B7	--
080	G#5	Mute Triangle	108	C8	--
081	A5	Open Triangle	109	C#8	--
082	A#5	--	110	D8	--
083	B5	--	111	D#8	--
084	C6	--	112	E8	--
085	C#6	--	113	F8	--
086	D6	--	114	F#8	--
087	D#6	--	115	G8	--
088	E6	--	116	G#8	--
089	F6	--	117	A8	--
090	F#6	--	118	A#8	--
091	G6	--	119	B8	--
092	G#6	--	120	C9	--
093	A6	--	121	C#9	--
094	A#6	--	122	D9	--
095	B6	--	123	D#9	--
096	C7	--	124	E9	--
097	C#7	--	125	F9	--
098	D7	--	126	F#9	--
099	D#7	--	127	G9	--
100	E7	--			

6.3 NY5 Flow Chart



6.4 NY2 Flow Chart



7 Revision History

Version	Date	Description	Modified Page
1.0	2013/08/31	Formal release.	-
1.1	2013/11/27	1. Modify *Q-MIDI* UI. 2. Add the descriptions of Output Folder function. 3. Add Setting selection and Project Setting functions. 4. Add Chip Series selection. 5. Add Voice Output selection. 6. Add Dynamic Allocation function. 7. Modify the maximum parameter of Fade Out Tick as 15. 8. Add Music and its descriptions. 9. Modify NY7 Converting Rules. 10. Modify NY7 Flowchart.	- 9 11, 25 11 11 12 13 14, 31 50 53
1.2	2014/02/28	1. Remove the Envelope Editing Zone. 2. Remove the settings of long and short timbre. 3. Modify *Q-MIDI* UI. 4. Add the descriptions of the “Convert to MD3” function. 5. Modify the descriptions of WavEditor function. 6. Modify the descriptions of EnvelopeEditor function. 7. Modify the items of Synthesize Option. 8. Modify the descriptions of Summary. 9. Modify the output file of Convert function as .md3 file. 10. Add operations of editing Tail section. 11. Add operations of EnvelopeEditor function. 12. Modify the definitions of Compile. 13. Add the file description of .md3 to appendix. 14. Modify NY7 Flowchart.	- 8 10 17 19 21 23 25 37 38 42 50 53
1.3	2014/05/21	1. Modify the WavEditor interface. 2. Add new functions to WavEditor. 3. Modify the EnvelopeEditor interface. 4. Modify Synthesize Option. 5. Add Piano Bar. 6. Modify EnvelopeEditor icons and options of Import/Export. 7. Add the descriptions of Build Information and ROM size Information. 8. Add the file description of .en1 and en2 to appendix.	17 17 19 21 22 38, 43 45 50

Version	Date	Description	Modified Page
1.4	2014/08/12	Modify *Q-MIDI* feature summary.	50
2.0	2015/02/28	Update UI and provide the easy and quick operations for users to improve the sound quality and efficiency.	-
2.1	2015/05/25	1. Add Dynamic Allocation Function of Convert Settings. 2. Add information of instruments in mid file to Project Manager. 3. Add the Auto Range Function to Instrument Manager. 4. Add Loop Function to Wav Editor. 5. Add Vibrato and Vibrato Settings Function to Synthesize Editor. 6. Adjust percussion name.	11 14 15 21 32 58
2.2	2015/08/21	1. Add Merge IDB function. 2. Modify Voice Output of Convert Settings. When NY7A series is selected, the Voice Output will be DAC, PMW or PWM+DAC mode. 3. Add Total Rom Size Table to Build Information. The unit of ROM size is Word, and the unit of Time length is Second.	8, 10 11 53
2.3	2016/08/19	1. Add IC Series to New Project. 2. Add Encode Algorithm Setting to Open IDB. 3. Remove the Time Base of Convert Settings and add PWM Current function. Convert Settings support NY6. 4. Add Export Folder function on Toolbar. 5. Subpatch Property Window supports NY6. 6. Vibrato and Vibrato Settings do not support NY6. 7. Selection of Wav Editor supports keyboard input. 8. Selection of Synthesize Editor supports keyboard input. 9. NY6 supports up to 6 notes can be played simultaneously on 6 Channels and 64-level Velocity. 10. Update NY6/7 Development Flowchart.	8 10 11 14 19 32 57 59 65 67
2.4	2016/11/11	1. Add NX1 to IC Series. 2. Add NX1 to Convert Settings. 3. Remove the Export Resources function of Compile and Toolbar. 4. Add Save Selected Instruments As… function to Instrument Manager. 5. Add NX1 to Subpatch Property Window. 6. Add Zoom In Horizontally and Zoom Out Horizontally function to Wav Editor.	8 11 14, 15 17 20 23

Version	Date	Description	Modified Page
		7. Add Zoom In Horizontally and Zoom Out Horizontally function to Synthesize Editor. 8. Add the description about NX1 to the Feature Summary of *Q-MIDI*. 9. Add NX1 Development Flowchart.	32 58 60
2.5	2017/02/17	Add Mark Editor.	47
2.6	2017/05/16	1. Add [MIDI] to Menu bar. 2. Update the information of Instrument Table. 3. Add Zoom In Vertically and Zoom Out Vertically to Wav Editor. 4. Add Zoom In Vertically and Zoom Out Vertically to Synthesize Editor. 5. Add Play Toolbar to Mark Editor.	15 24 25 35 52
2.7	2017/08/16	1. Add NY8L series to New Project. 2. Add NY8L to Convert Settings. 3. Mark Editor supports three Mark types for NY8L and adds Tempo information. 4. Information Window only supports Message and Error List. 5. Add Env Manager and Instrument Manager.	9 15 46, 49, 55, 58 62 69, 70
2.71	2017/11/15	1. Adjust the Voice Output of NX1 Convert Settings to provide 16 levels. 2. Add Move Up and Move Down to the shortcut menu of Project Manager. 3. Adjust the pitch range display of subpatch in the Piano tab of Information Window in Instrument Manager.	14 18 20
2.8	2018/05/28	1. Allow setting Output Sample Rate to 32kHz for 12-ch MIDI with High Clock Frequency 24MHz in NX1. 2. Add the function description of corresponding button in Download of [Compile]. 3. Sustain section in NY6 / NY7 supports multi-point editing, while which in NX1 allows a flat line only.	15 16 37, 38, 44, 45
2.9	2018/08/24	1. Add Estimated CPU Loading in NX1 Convert Settings and remove Linking Relationship Table. 2. The Encode of Instrument Table supports multiple selections. 3. Sustain in NX1 project supports multi-point editing. 4. Adjust the message information of Error List. 5. Add the description of subpatch which pitch range supports in NY6/NY7/NX1 project.	14 26 38, 44 59, 60 110

Version	Date	Description	Modified Page
3.0	2019/02/25	Adjust illustration of the subpatch pitch range of piano key tab.	23, 63
3.1	2019/07/03	1. The Convert Settings of NX1 series removes the information of Estimated CPU Loading. 2. The Build Information of NX1 tab adds the information of Estimated CPU Loading.	- 61
4.0	2019/11/22	1. The Menu function removes [MIDI]. 2. The Project Manager adds Change Patch, Add, Remove and Export MIDI Package. 3. Add the settings of Mute, Solo, Key and Volume to Track List. 4. The Information Window add MIDI information page. 5. Add the Cross table of Percussion and Keyboard Pitch of NY6/NY7/NY8L/NX1. 6. Add the support for NY2 and NY5 series.	- 16 49 65 110 68, 113
4.1	2020/03/18	1. NX1 Convert settings add MIDI Pitch Shift Range and CPU Loading Analysis. 2. Add Rename to Instrument Manager. 3. Add Load Default IDB to File of [Menu]. 4. Add Move Up and Move Down to Project Manager. 5. Add Reset Envelope, Node List, Export Audio and Export Envelop to Envelope Edit Zone.	13 19 70 77 104
4.2	2020/10/28	1. Adjust the MIDI Channel from the NX1 Convert Settings menu. 2. Adjust the content of Project Manager menu. 3. Add Move Up / Move Down function to Instrument Manager. 4. Add Base Pitch / Min pitch / Max Pitch setting to Instrument Table. 5. Wav Manager, Envelope Manager and Instrument Manager add Move Up / Move Down function.	13 16 19 23 67, 68, 69
4.3	2021/04/06	1. Add NY5+ series to New Project…. 2. Add NY5+ series to Convert Settings. 3. Add NY5+ series to Subpatch Property Window. 4. Add the Head and Tail columns to Instrument Table. 5. The Mark Editor supports NY5+ series.	8 11 22 24 47

Version	Date	Description	Modified Page
4.4	2021/09/03	1. The Convert Settings for NY5+ PWM Current adds the Ultra option. 2. The Convert Settings for NX1 supports NX12/13FS.	11 14
4.5	2021/11/11	Remove NY8L.	-
4.6	2022/02/14	1. Add NY5plus_GM_Vintage and NY5plus_GM_LE to NY5+ IDB. 2. NX1 Convert Settings adds the Data Access Mode option.	8 13
4.7	2022/05/11	1. Adjust the New Project setting. 2. Add NX12/13FM IC series and the Interpolation setting to NX1 Convert Settings. 3. Add “Volume Up/Down” button to Download functions	8, 69 14 16, 73
4.8	2022/08/10	1. The New Project of NY5+ supports the Compact project types. 2. The Download function adds speed up and resume button. 3. The Subpatch Proprty Window adds the Env File function. 4. The Envelope Manager adds the Ent5 Manager for NY5+ Synthesize Editor.	8 17, 75 25 68, 69
4.9	2023/02/15	Modify the descriptions of NX1 Convert Settings and add NX11FS23 IC.	15
5.0	2023/08/15	1. Rename MX11FS23 as NX11FS. 2. Modify the description of NY5+ project file type. 3. Add Language function to [Help] menu.	- 8 18, 75
5.1	2023/11/07	1. IC body supports NX11FS21 and NX11FS22 for NX1 and adjust the UI layout and descriptions of Settings. 2. Adjust function descriptions of the pins from Download. 3. Add “Save Encode Mapping IDB As …” to the Instrument Manager. 4. The encoding of the subpatch supports PCM8 for NX1.	11 16 21 25
5.2	2024/01/29	1. Update the settings of High Clock Frequency for NX1EF series. 2. Adjust the display of CPU Loading window, and add the information of the .mid file with the largest CPU loading.	14 17 -
5.3	2024/08/29	1. Add MIDI Pitch Shift Range to Convert Settings of NY5+. 2. Add the restricted samples rule of NY5+ Tall Section.	11 29

Version	Date	Description	Modified Page
5.4	2024/11/06	1. Add Patch to Track List. 2. Add the description of percussion trail to Piano.	52 63
5.5	2025/02/19	Add NX1 EF High Clock Frequency supports 16MHz option.	14
5.6	2025/08/27	The Melody Mark option of the Advanced Insert Mark adds Max.	47