MA-5
Authoring Tool
User's Manual
(ATS-MA5-SMAF Edition)

Ver.1.4.0

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YAMAHA Corporation

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Introduction

MA-5 Authoring Tool is the application software for authoring, correcting, and verifying the contents for portable terminals. The operating systems for running this software include Windows®2000 and Windows®XP.

The use of this application allows a conversion from SMF (***Standard MIDI file***) into Synthetic Mobil Application Format (***hereafter called "SMAF"***) which is proposed by YAMAHA, editing of voices, editing of management information, and verification of voice generation by MA-5 emulator.

Recommended Operating Environment

The recommended operating environment for this Authoring Tool is as follows.

Compatible Operation System	Microsoft® Windows® XP Microsoft® Windows® 2000
CPU / Clock	Pentium®, Celeron™, or compatible processor/ 800MHz or more
Memory	64MB or more
Required hard disk space	40MB or more

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Revision History

Ver.	Date	Description	
1.0.0	2003/04/25	Newly Released	
1.0.1	2003/05/07	(omitted)	
1.0.2	2003/6/13		
1.1.0	2003/9/12		
1.2.0	2004/01/19		
1.3.3	2004/11/4	1.	VLD-MA3 was added to the Voice Library.
		3.1	Application Window GUI was entirely changed.
		3.3.6	Humanoid Voice Website link was added to HELP.
		3.8	LED/MTR bar Operation check lamp was newly added.
		all	In MA-5 mode, a voice can be saved in MA-3/MA-5 format（vm3/vm5）.
		all	Note "CH without NOTE cannot be designated as HV channel" was added.
		all	Responses with addition of HV Sequence Edit View
		4.6.3	Play button on HV-ScriptEdit dialog
			"When no HV channel is designated, it cannot be played back.
		4.14	HVType was added to Preference.
1.4.0	2005/9/30	1.	Description of Karaoke Scoring Section setting function was added.
		2.	The figure of the startup window was replaced.
		3.1	Images of tool window and tool bar were replaced. Explanation was corrected.
			Images of each menu were replaced.
		3.3	The image of Menu bar was replaced.
		3.3.1	New file creation function "New" was added.
		3.3.2	Note for "Export to Voice List" was added.
		3.3.4	Transpose function was added.
		3.3.6	The figure of Help was replaced. URL was changed.
		3.7	The figure of the tool bar was replaced.
			New file creation function "New" was added.
			Note for "Export to Voice List" was added.
		4.1	Description of a file loading by drag-and-drop was added to File List Window.
		4.2	An image of the Score Window was replaced.
			Description of No.8 HV in the table was changed.
			"No.16 Karaoke" was added.
			"No.17 Stream PCM Edit" was added.
			"No.18 HV Sequence Edit" was added.
			"No.19 Cue Point Setting Column" was added. Karaoke Scoring section setting column was added.
			A subsection for explanation of Cue Point Setting was added.
		4.2.1	Description of Karaoke Scoring section was added.
		4.2.2	An image of the Piano Roll Window was replaced.
		4.2.4	Karaoke Scoring Section setting column was added.
			Explanation of Cue point setting was added.
			Caution for HV Sequence Edit View was deleted.
		4.2.8	The figure of Event List window was replaced.
			Description of Karaoke Scoring section designation event was added.
			Setting method of Karaoke Scoring Section was added.
		4.2.9	Karaoke setting dialog was added.
		4.4	The figure of Voice Assign Map was replaced. Order of the function was changed.
		4.4.1	Editing function of the default bank voice was added.
		4.4.2	The figure of Voice Assign Map was replaced. Note was added.

Ver.	Date	Description	
		4.5.3	The figure of Stream PCM Assign Map was replaced.
		4.12	The way to set the change rate of Velocity Change was changed.
		4.15	Description of Transpose function was added.
		4.16	The image of Preference was replaced. Numbering was changed.
		4.18	The figure of About Authoring Toll was replaced.
		4.19.1	The figure of Voice Edit window was replaced. "All Sound Off" was added to No.34 and 39. Description of No.38 "DrumKey Assign" was changed.
		4.19.2	The figure of Voice Edit window was replaced. Description of No.8 "Load Wave File" was corrected. "All Sound Off" was added to No.24 and 29. Description of No.38 "DrumKey Assign" was changed.
		4.19.4	The figure of Voice Edit window was replaced. Description of No.1 to 5 was corrected.
		4.19.5	An image of HV Voice Edit was replaced. No.9 "HV-Script display column" was added. No.12 "Stop button" was added.
		5.2.5	Error messages for WaveData were added.
		5.2.6	An error was added to message related to user's operation.
		5.3.4	Error messages were added to Warning message.
		5.3.6	Error messages were added to Verification message.

1. About MA-5 Authoring Tool

Possible to Create a Content for both MA-3 and MA-5

By using MA-5 Authoring Tool, both MA-3 contents and MA-5 contents can be created by changing AT-mode. For details about "***AT-Mode***", see the following. (p. 23, 62)

Independence of MA-5 Authoring Tool and Sequencer

MA-5 Authoring Tool is independent application software that is used together with general-purpose MIDI sequencer. Therefore, the user is allowed to select the most familiar sequencer. All operations up to conversion to SMAF file can be made by performing sequence using your sequence software, and performing editing of voices and editing of management information using MA-5 Authoring Tool.

Maximum of Enabling Simultaneous Voices

MA-5 Authoring tool has "***FM16 mode***", "***FM32 mode***", and "***ALL64 mode***." The maximum of enabling simultaneous sound generation depends on the mode setting, or whether using or not using AL Channel.

MA-3 Mode

	FM Synthesizer	PCM Synthesizer	Stream PCM	Total
FM16 Mode	16	8	2	26
FM32 Mode	32	8	2	42

MA-5 Mode

The maximum of enabling simultaneous sound generation without AL channel are described as follows.

	FM Synthesizer	PCM Synthesizer	Stream PCM	HV	Total
FM16 Mode	16	16	2	1	35
FM32 Mode	32	16	2	1	51
ALL64 Mode	32	32	Disable	Disable	64

The maximum of enabling simultaneous sound generation with AL channel are described as follows.

	AL	FM Synthesizer	PCM Synthesizer	Stream PCM	HV	Total
FM16 Mode	1	15	15	2	1	34
FM32 Mode	1	31	15	2	1	50
ALL64 Mode	Disable	32	32	Disable	Disable	64

In PCM synthesizer, you can use your favorite sound as the maximum of 16 notes (***without AL channel***) by FM16/FM32 mode and the maximum of 32 notes (***with a size limitation***) by ALL64 mode by reading the sound file (***AIFF, WAVE***) of 16bitPCM (***encoding to 4bitADPCM***) or 8bitPCM (***encoding to 8bitPCM***), and by performing the frequency change, envelopes change, loop points setup, etc..

Event Viewer Function

This function allows confirming the event information on Score Window by reading SMF. In addition, it allows verifying the contents of SMF on "***Event List Window***" or "***Piano Roll Window***." During a confirmation of the playback, "***Piano Roll Window***" advances synchronously. Furthermore, it allows performing an editing of music information.

Real Time Voice Editing Function

The read SMF data can be confirmed on "***Event Viewer***." In a voice change, voice change in real time is possible.

Stream PCM Pasting Function

By using this function, StreamPCM files to perform a synchronized playback with channel sequence can be read and assigned. In addition, the exclusive data to applicable channels and applicable notes can be transmitted to MA-5 emulator when it is assigned. For the reasons, an editing and verification of Stream PCM can be performed easily by combining the external MIDI sequencer with MA-5 Authoring Tool.

AL Parameter Equip Function

Only for MA-5 Mode

The effect of filter is obtained by setting AL parameters in FM voices, PCM voices, and Noises.
(AL parameters cannot be used when AT-Mode is set to "***MA-3***" or FM Mode is set to "***ALL64 Mode***".)

HV Creation & Editing Function

Only for MA-5 Mode

HV is an abbreviation for "***Humanoid Voice***." In addition, the data which is a function to combine a script voice of MA-5 can be created and edited with this function. HV script can be created and a voice sound can be synthesized freely by this function. In addition, it is assignable so that it may synchronize with a channel sequence. Pastes, Move, Script edits, etc., are available on Piano Roll Window.

Moreover, changes of voice quality can be given by editing HV script, changing a word or intonations, and changing HV voices.

Karaoke Scoring Section Setting Function

The section and the channel for karaoke scoring can be specified.

Realize the Various Sounds Easily by Using Voice Library

Voice Libraries (***VLF-MA3/VLP-MA3/VLP-MA5/VLA-MA5/VLW-MA3/VLD-MA3***) which are recorded various sounds are attached in this application.

- ***"VLF-MA3"*** is an extended voice library of FM voice, and it is able to extend voices which differ from default voices, easily.
- ***"VLP-MA3"***and ***"VLP-MA-5"*** is the PCM voice library, and it can easily realize real sounds that differ from FM.
- "***VLA-MA5***" is the voice library with AL parameters; in addition, the sound which has the filter effect to FM voice and PCM voice can be used.
- ***"VLW-MA3"*** is the Ethnic Library; in addition, it can expand the sounds for the folk instruments.
- ***"VLD-MA3"*** is Decorator voice library. The sound of music can be variously changed by replacing a voice set.

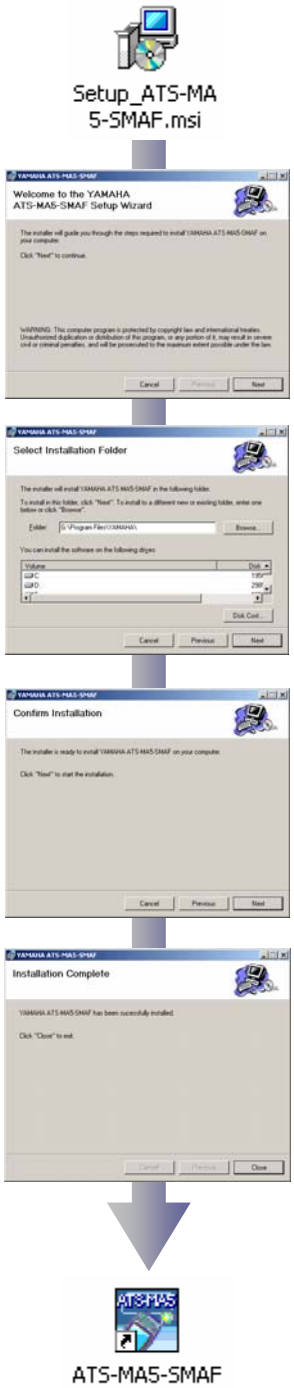
By using these three voice libraries, the various sounds are easily realizable.
For details about the registration method of each voice libraries etc., see the manual attached with library.
(***VLF-MA3_v***.pdf, VLP-MA3_v***.pdf, VLP-MA5_v***.pdf, VLA-MA5_v***.pdf, VLW-MA3_v***.pdf, VLD-MA3_v***.pdf***)

2. How to start up the MA-5 Authoring Tool?

This chapter describes the installation procedures for MA-5 Authoring Tool and steps to start up the MA-5 Authoring Tool.

2.1. Installation of MA-5 Authoring Tool

This section describes the installation procedures for MA-5 Authoring Tool.



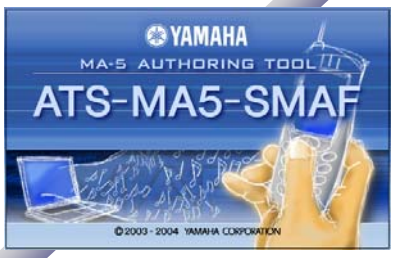
1. Double click "***setup.exe***" icon.
2. "***Setup Wizard***" dialog is displayed.
3. Click "***Next***" on "***Setup Wizard***" dialog.
4. Then, "***Select Installation Folder***" dialog appears.
5. Select the folder in which the application will be installed. Then, press "***Next.***"
6. "***Confirm Installation***" dialog appears.
7. Select "***Next***", then, installation is started. When the installation is completed, "***Installation Complete***" dialog is displayed.
8. Click "***Close***" on "***Installation Complete***" dialog.
9. Installation is now completed; in addition, a shortcut icon "***ATS-MA5-SMAF***" is also created on your desktop.

2.2. Start-up of Authoring Tool

After the installation of MA-5 Authoring Tool was completed, MA-5 Authoring Tool can be started up with the following procedures.

Double Click

1. Double-click "***MA-5_AT.exe***" that can be found in "***Exe***" folder or double-click the shortcut of "***AT-MA5-SMAF***" icon which was created on your desktop at the installation.



2. Startup displays are appeared in order.

3. Program is started up normally, and then Application Window is displayed on your screen.
(For details about Application Window, see "p.9")

3. Reference

This chapter describes the names and functions of each window, bar, and menu which are provided in MA-5 Authoring Tool.

3.1. Application Window

Each edit windows are opened on this "***Application Window***." This window provides "***Menu bar***", "***Control bar***", "***Volume bar***", "***Report bar***", "***Tool bar***", "***Preference Bar***", "***LED/MTR Bar***", "***HV Bar***", "***Content Information Bar***", "***Density Report Bar***", and "***Status bar***" that are applicable commonly to all edit windows. The Menu bar, Volume bar, Tool bar, Preference Bar, and Control Bar are used to select or execute various functions by clicking or dragging. In addition, Density Report Bar and Status Bar show the present status. And, these menu bar can be moved by the dragging operation.

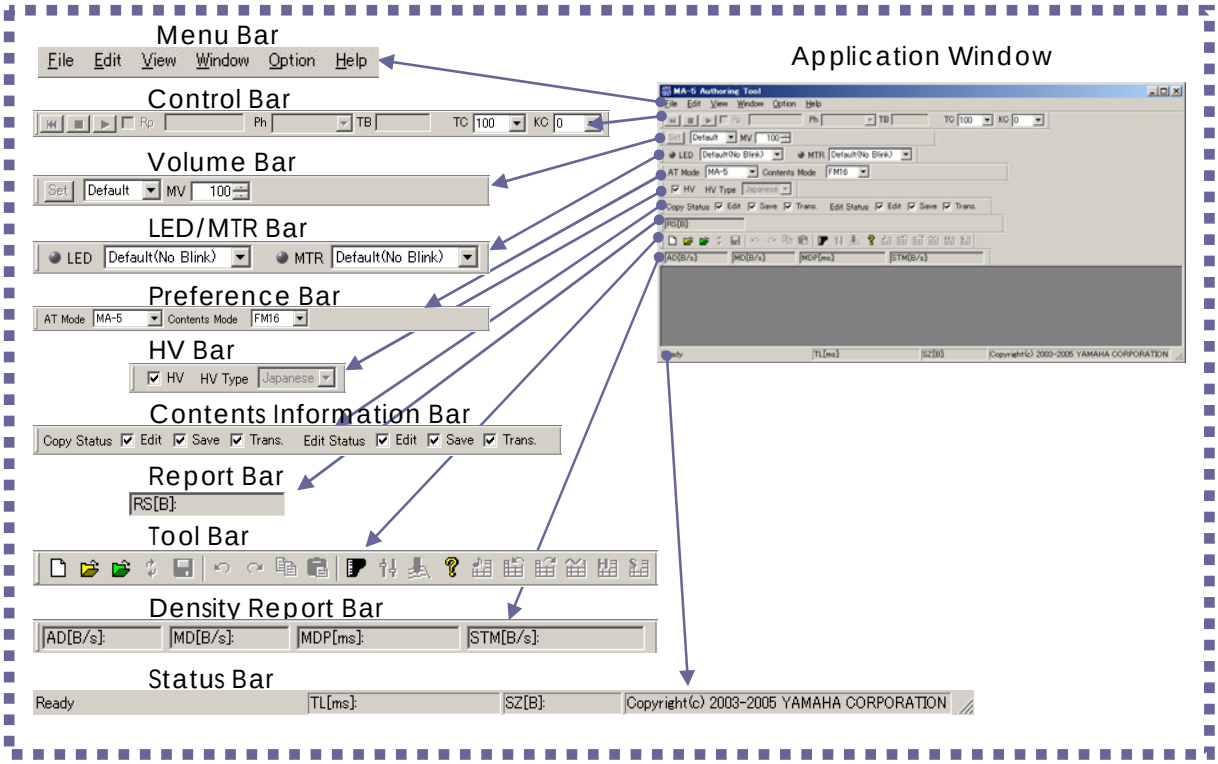


Figure. 3-1 Application Window

【Note】 The Control bar, Volume bar, Report bar, Tool bar, Preference Bar, LED/MTR Bar, HV Bar, Contents Information Bar, Density Report Bar, and Status Bar can be displayed or hidden as necessary.

【Note】 By clicking "***View***" menu on Menu bar, a pull-down menu is displayed. By clicking a name of Tool bar, Status Bar, Report Bar, Volume Bar, Preference Bar, LED/MTR Bar, HV Bar, Contents Information Bar, Density Report Bar, and/or Control Bar and placing a check, Tool bar, Status Bar, Report bar, Volume bar, Preference Bar, LED/MTR Bar, HV Bar, Contents Information Bar, Density Report and Control Bar are displayed on Application menu. Conversely, by clicking the name of Control bar, Volume bar, Report bar, Toolbar, Preference Bar, LED/MTR Bar, HV Bar, Contents Information Bar, Density Report Bar, and/or Status Bar once again, these windows are hidden from Application menu.

3.2. Title Bar

"***Title Bar***" on the "***Application Window***" displays the name and the location of a file which is presently opened in MA-5 Authoring Tool. The Title Bar of each "***Edit Window***" displays the name of each window. Functions provided by "***Title Bar***" are described as follows.

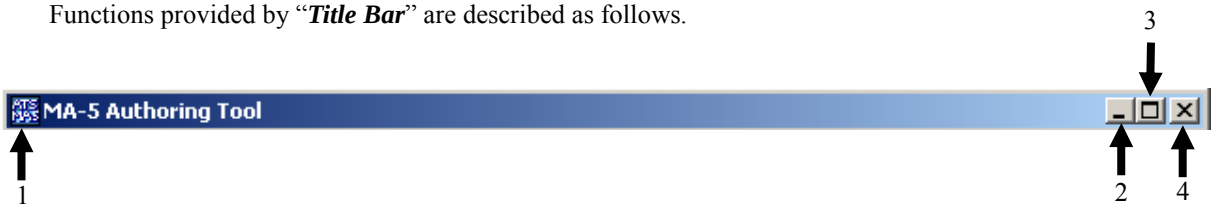


Figure. 3-2 Title Bar

No.	Name	Description
1	Application icon	By clicking this icon, System menu is opened. (For details, see "***3.2.1System Menu***.")
2	Minimize button	By clicking this button, windows are minimized (to make it an icon).
3	Maximize button/Undo (Minimize) button	By clicking this button, windows are maximized. Window is restored to the original size by clicking this button once again.
4	Close button	By clicking this button, windows are closed. In case of "***Application Window***", windows are closed and application is also ended. In case of "***Edit Windows***", each window is closed one by one.

3.2.1. System Menu

By clicking the "***Application Icon***" located on the left end on "***Title Bar***", this "***System Menu***" is opened. Function provided in this menu as follows.

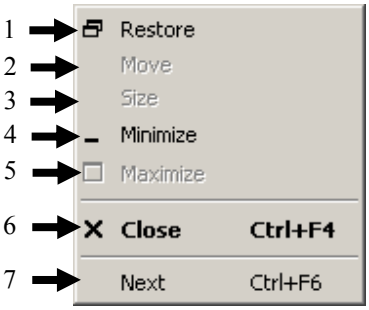


Figure. 3-3 System Menu

No.	Name	Description
1	Restore	When the size of window has been changed by size change etc., the window is restored to original size by clicking this function.
2	Move	Mouse pointer is changed to the moving tool by clicking this function. Use this pointer to move the windows by clicking & dragging the title bar of windows. The maximized windows cannot be moved.
3	Size	Mouse pointer is changed to the size-change tool. Put this pointer on the upper, lower, left and right side lines of the window, and clicks and drugs the line to change the size of the window. The maximized window cannot be changed.
4	Minimize	Windows are minimized (to make it an icon)
5	Maximize	Windows are maximized. If the window is already maximized, this function cannot be selected.
6	Close (Alt+F4) (Ctrl+F4)	Windows are closed by clicking this function. In case of "***Application Window***", all windows are closed and application is also ended. In case of "***Edit Window***", each window is closed one by one.
7	Next (Ctrl+F6)	If multi-Edit Windows are opened on Application Window, a Window in active can be changed by clicking this button. This function is only available on the System menu of Edit Window.

3.3. Menu Bar

In Manu Bar, the following menus are provided to execute and control various functions.

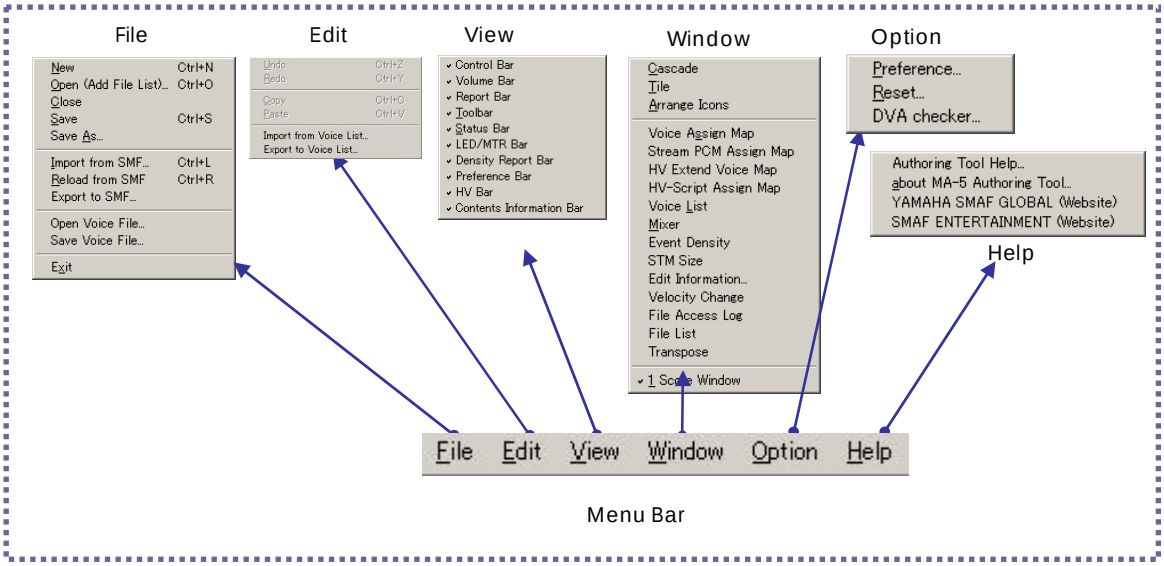


Figure. 3-4 Menu Bar

3.3.1. File Menu

A series of operation such as open, close, save, and end of files can be performed with this menu.

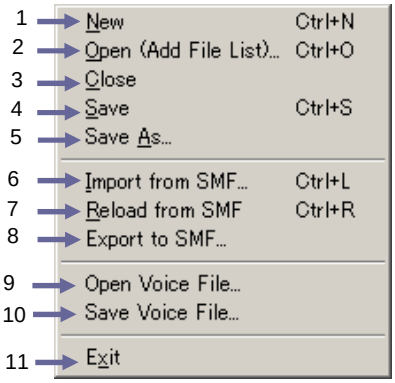


Figure. 3-5 File Menu

No.	Function Name	Contents
1	New	Creates a new file. **SMAF including StreamPCM or HV can be created without reading SMF.**
2	Open (Add File List)… (Crtl+O)	Opens a SMAF file into File List Window. (***.mmf**) ***MA-3 Mode*** Opens a SMAF/MA-3 file. ***MA-5 Mode*** Opens a SMAF/MA3 and SMAF/MA5 file.
3	Close	Closes a SMF file (***.mid**) / SMAF (***.mmf**)
4	Save (Ctrl+S)	Saves a file in SMAF file format. (***.mmf**) ***MA-3 Mode*** Saves as a SMAF/MA-3 file. ***MA-5 Mode*** Saves as a SMAF/MA-5 file.
5	Save As…	Saves a SMAF file with another name. (***.mmf**) ***MA-3 Mode*** Saves as a SMAF/MA-3 file. ***MA-5 Mode*** Saves as a SMAF/MA-5 file.
6	Import From SMF… (Ctrl+L)	Loads a SMF file. (***.mid**)
7	Reload from SMF… (Ctrl+R)	Reloads a SMF file (***.mid**).
8	Export to SMF…	Saves a file in SMF format (***.mid**) Only the events described in the "***SMF Authoring Guideline***" is output. Even the file which does not contain note-events allows to be saved.
9	Open Voice File	Loads a MA-3 voice file (***.vm3**) and MA-5 voice file (***.vm5**). ***MA-3 Mode*** Loads a MA-3 voice file (***.vm3**). ***MA-5 Mode*** Loads a MA-3 voice file (***.vm3**) and MA-5 voice file (***.vm5**).
10	Save Voice File	Saves a file in MA-3/MA-5 voice file format (***.vm3/.vm5**). ***MA-3 Mode*** Saves a file in MA-3 voice file format (***.vm3**). ***MA-5 Mode*** Saves a file in MA-3/MA-5 voice file format (***.vm3/.vm5**).
11	Exit	Exists from MA-5 Authoring Tool.

【Note】 File which does not include any note-event considers as an error; in addition, they can not be saved.
【Note】 Even a file does not include any note-event; it can be saved with "***Export to SMF...***" function.

3.3.2. Edit Menu

A series of operation such as undo, redo, copy and paste can be performed with this menu.

Figure. 3-6 Edit Menu

No.	Function Name	Contents
1	Undo (Ctrl+Z)	In Voice Assign Map, the voice parameter updated by paste operations is returned to the parameter before the operation.
2	Redo (Ctrl+Y)	The voice parameter updated by Undo operation is returned to the parameter before the operation.
3	Copy (Ctrl+C)	Copies voices which is selected in the Voice List or Voice Assign Map. When nothing is selected, it is displayed with gray color.
4	Paste (Ctrl+V)	Pastes the copied voices on the designation locations of Voice list or Voice Assign Map.
5	Import from Voice List…	When the voice is registered in Voice Assign Map, the voice specified by Bank (***M/L***) and Pch# is stuck into Voice Assign Map from Voice List.
6	Export to Voice List…	When the voice is registered in Voice Assign Map, the voice specified by Bank (***M/L***) and Pch# is stuck into Voice List from Voice Assign Map. [Note] Voice data cannot be exported to the preset voice bank area.

3.3.3. View Menu

Each bar is displayed and/or hidden from Application Window by left clicking on the name of each bar to place/replace a check mark. Check mark is displayed to the menu by which function has been activated. For details about each function in View Menu, see the following table.

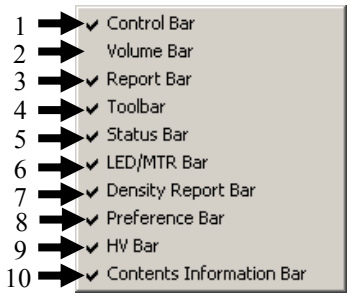


Figure. 3-7 View Menu

No.	Function Name	Contents
1	Control Bar	Switches a display/non-display of Control Bar. (For details, see "***3.4Control Bar***")
2	Volume Bar	Switches a display/non-display of Volume Bar. (For details, see "***3.5Volume Bar***")
3	Report Bar	Switches a display/non-display of Report Bar. (For details, see "***3.6Report Bar***")
4	Tool Bar	Switches a display/non-display of Toolbar. (For details, see "***3.7Tool Bar***")
5	Status Bar	Switches a display/non-display of Status Bar. (For details, see "***3.13Status Bar***")
6	LED/MTR Bar	Switches a display/non-display of LED/MTR Bar. (For details, see "***3.8LED/MTR Bar***."
7	Density Report Bar	Switches a display/non-display of Density Report Bar. (For details, see "***3.12Density Report Bar***")
8	Preference Bar	Switches a display/non-display of Preference Bar. (For details, see "***3.9Preference Bar***")
9	HV Bar	Switches a display/non-display of HV Bar. (For details, see "***3.10HV Bar***")
10	Contents Information Bar	Switches a display/non-display of Contents Information Bar. (For details, see "***3.11Contents Information Bar***")

3.3.4. Window Menu

In Window menu, display/non-display arrangement of each window can be controlled. By placing a check on the name of each window, windows are opened on Application Window. Check mark is displayed to the menu by which function has been activated. For details about each function in Window Menu, see the sections for each window. In addition, windows and dialogs displayed on "***Application Window***" can be arranged by selecting "***Cascade***", "***Tile***", and/or "***Arrange Icons***."

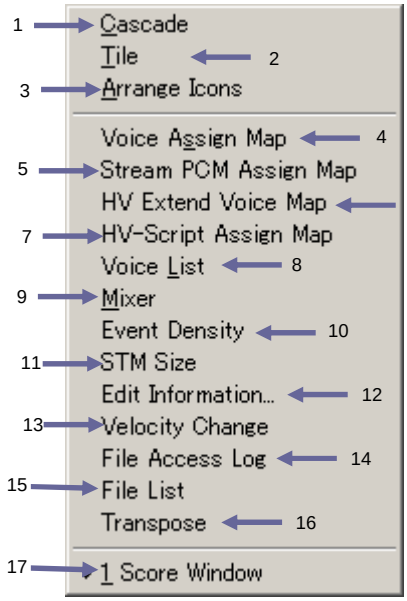


Figure. 3-8 Window Menu

No.	Function Name	Contents
1	Cascade	Displays windows in piles.
2	Title	Displays windows in a line.
3	Arrange Icons	Arranges the minimized windows on the bottom of "***Application Window***."
4	Voice Assign Map	Displays Voice Assign Map. (For details, see "***4.4Voice Assign Map***.")
5	Stream PCM Assign Map	Displays Stream PCM assign map. (For details, see"***4.5StreamPCM Assign Map***.")
6	HV Extend Voice Map	***This function becomes available only at MA-5 Mode.*** Displays HV Extend Voice Map. (For details, see "***4.6HV Extend Voice Map.***")
7	HV-Script Assign Map	***This function becomes available only at MA-5 Mode.*** Displays HV-Script Assign Map. (For details, see "***4.7HV-Script Assign Map.***")
8	Voice List	Displays Voice list. (For details, see "***4.3Voice List Window***.")
9	Mixer	Displays Mixer Window. (For details, see "***4.9Mixer***.")
10	Event Density	Displays Event Density window (For details, see "***4.10Event Density***.")
11	STM Size	Displays STM size dialog. (For details, see "***4.11STM Size***")
12	Edit Information	Displays management information dialog. (For details, see "***4.13Edit Information.")***
13	Velocity Change	Displays Velocity Change dialog. (For details, see "***4.12Velocity Change***.")
14	File Access Log	Displays File Access Log window. (For details, see "***4.14File Access Log***.")
15	File List	Displays SMAF File List window. (For details, see "***4.1File List Window***.")
16	Transpose	Displays the Transpose Window. (For details, see "*4.15 Transpose*."
17	List of Windows	Lists the windows currently opened in Application Window. In addition, a window currently active is shown with checked mark as shown like in figure. Moreover, the selected window will become an active condition if optional windows are chosen from a list.

3.3.5. Option Menu

In "***Option Menu***", basic operation-environment for working on Authoring Tool, etc. can be set up. For details, see the section for each function.

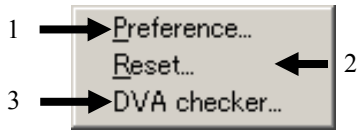


Figure. 3-9 Option Menu

No.	Function Name	Contents
1	Preference	Opens preference dialog. (For details, see "***4.16Preference***.")
2	Reset	This function is not available.
3	DVA Checker	DVA checker window is opened, and then the maximum number of pronunciation in data can be checked. (For details, see "***4.17DVA Checker")***

3.3.6. Help Menu

In "***Help Menu***", following functions which supports user's operations are provided. For details, see the following sections for each function.

Figure. 3-10 Help Menu

No.	Function Name	Contents
1	Authoring Tool Help…	Displays "***MA-5 Authoring Tool User's Manual.***"
2	about MA-5 Authoring Tool	Displays "***about MA-5 Authoring Tool.***" (For details, see "***4.18about Authoring Tool***.")
3	YAMAHA SMAF GLOBAL (Website)	Reviews the contents of URL http://smaf-yamaha.com/jp/。
4	SMAF ENTERTAINMENT (Website)	Reviews the contents of URL http://entame.smaf-yamaha.com/jp/

3.4. Control Bar

Control Bar is a functional group to display or control the contents of data which was converted from SMF file (***.mmf***). A series of operation from playback to stop of data can be performed by checking the musical piece data. Descriptions about each functions, see the following table. For details, see the following table.

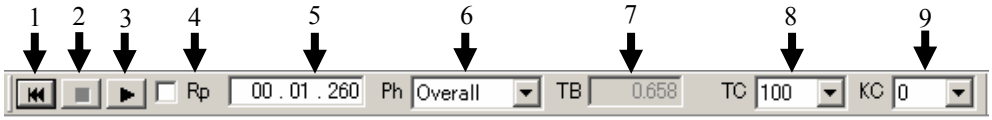


Figure. 3-11 Control Bar

No.	Function Name	Contents
1	Rewind	Playback bar is moved to the head of music.
2	Stop	Playback of music is stopped.
3	Play	Playback of music is started.
4	Repeat (Rp)	Repeat is designated.
5	Playback Position Indicator	Playback position is displayed. Arbitrary values can be input directly. Display unit is "***ms.***"
6	Phrase List (Ph)	Select a phrase list to be an object for playback. Change of playback mode is available. When "***Overall***" is selected, a music is played from head to end, and if "***Partial***" is selected, a music only a section specified by marker is played. For details about the specification of marker, see "***Contents Authoring Guideline For MA-5 Authoring System***."
7	TimeBase (TB)	Time base is displayed. It displays a time about 1Tick in "***ms***" unit.
8	Tempo Control (TC)	Tempo control is displayed. Tempo value set in the read data is possible to be changed and played back by "***70% - 130%***"of a rate. Default is "***100***."
9	Key Control (KC)	Displays the key control, which can be changed from "***+12 to -12***." Default is "***0***." Only the channel which uses the tone of a normal bank receives key control. The channel which uses the tone of a drum bank does not receive key control.

【Note】 The Repeat setup, Playback mode change of Phrase List, Tempo Control Setup, and Key Control setup becomes valid only when Authoring tool is used, and does not reflect to SMAF files. Time base is displayed per 1Tick in (***ms***) unit.

3.5. Volume Bar

Volume bar is a function to set the playback volume, speed, height of key, etc. of musical pieces in MA-5 Authoring Tool.

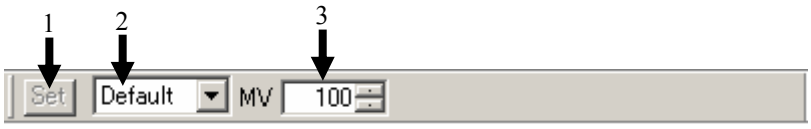


Figure. 3-12 Volume Bar

No.	Function Name	Contents
1	Set	Possible to memorize a five set of volume as maximum If this button is clicked in case of the name of memory domain whichever "***A***" to "***E***" is shown in the selection box, the present setting value is memorized into a range of domain. "Default" is set as "***MV=100***", and can not memorize the other values.
2	Setting	Selecting a memory area. Sets memorized master volume.
3	MV (Master Volume)	Displays the master volume value input right before the head of note message. When the SMF which is not set the master volume (***Universal Real Master Volume***) is ***Imported/Reloaded***, the master volume value input just before the head of note message is displayed. When the SMF is ***Imported/Reloaded***, the value of last saved MV by "***Set***" button operation is set up. Arbitrary values can be input directly.

3.6. Report Bar

In "***Report Bar***", RAM size used in music is displayed. Unit is "***Byte***."

Figure. 3-13 Report Bar

No.	Function Name	Contents
1	RS (RAM Size)	Total RAM Size in music is displayed by byte unit.

RAM Size Check Timing
When "***OK***" button of VoiceEdit dialog is clicked.
In case of SMF Import
In case of SMF Reload
In case of performing a "***Voice Paste***" to Voice Assign Map.
In case of import from Voice List
When "***OK***" of Preference is selected.
When changing "***HV***" setting on "***Score Window.***"
When changing the "***Reserve***" settings on Piano Roll/Stream PCM Edit View.

3.6.1. About RAM Size

In this section, RAM size in both case "***MA-3 mode***" and "***MA-5 mode***" are described.

MA-3 Mode

The total RAM size of MA-3 is 8176-Byte, and thus, if it exceeds the capacity, it cannot playback the music. Authoring Tool calculates the used RAM size in music, in addition, if it exceeds 8176-Byte, an error meesage will be output.

MA-5 Mode

The total RAM size of MA-5 is 8192-byte, and thus, if it exceeds the capacity, it cannot play back the music. Authoring Tool calculates the used RAM size in music, in addition, if it exceeds 8192-bytes, an error message will be output. Size calculation serves as the following sum totals.

Size List	
Registration of Voice Parameter	FM2op : 16 bytes / one voice FM4op : 30 bytes / one voice PCM : 14 bytes / one voice
Registration of AL Parameter	AL+FM2op : 16 bytes / one voice AL+FM4op : 30 bytes / one voice AL+PCM : 14 bytes / one voice AL+Noise : 14 bytes / one voice
Registration of PCM Voice Waveforms	Bytes number in data section (1 byte will be added if it is an odd number.) / one waveform
Registration of FM Fundamental Waveform	2048 byte / one waveform
Registration of Stream PCM Waveform	When not used (No Reserved) / 0 byte When max. number of voices sound generation number is "1." (1 Voice Reserved) /1024 bytes When max. number of voices sound generation number is "2." (2 Voice Reserved) /2048 bytes

【Note】 A warning message is displayed when the value of RAM size exceeds the followings; moreover, the background color is displayed by blinking original color and red.

- ***MA-3 Mode: 8176byte***
- ***MA-5 Mode: 8192byte***

3.7. Tool Bar

Tool Bar contains a series of functions which are also provided in "***File Menu***", "***Edit Menu***", etc.

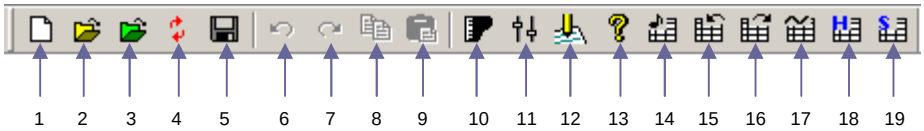


Figure. 3-14 Tool Bar

No.	Function Name	Contents
1	New	Creates a new file. **SMAF including StreamPCM or HV can be created without reading SMF.**
2	Open (Add File List)	Registers a SMAF file into file list. Opens the SMAF file ***(*.mmf)***
3	Import from SMF	Imports a SMF ***(*.mid)***. Refer to the following "***Note***."
4	Reload from SMF	Reloads a SMF ***(*.mid)***.
5	Save	Saves a SMAF file ***(*.mmf)***.
6	Undo	Voice data paste is undone.
7	Redo	Voice data paste is redone.
8	Copy	Copies a voice data.
9	Paste	Pastes a voice data.
10	Voice List	Displays the Voice List Window. (For details, see "***4.3Voice List Window***.")
11	Mixer	Displays the Mixer Window. (For details, see "***4.9Mixer***.")
12	Information	Displays the Information Window. (For details, see "***4.13Edit Information***.")
13	Help	Opens the "***MA-5 Authoring Tool User's Manual***."
14	Voice Assign Map	Displays the Voice Assign Map. For details, see "***4.4Voice Assign Map***.")
15	Import from Voice List	Imports voices with the same bank number and the same voice number to the voice list in the Voice Assign Map.
16	Export to Voice list	Exports voices with the same bank number and the same voice number from the voice list in the Voice Assign Map. **[Note]** Voice data can not be exported to the preset voice bank area.
17	Stream PCM Assign Map	Displays Stream PCM Assign Map. (For details, see "***4.5StreamPCM Assign Map***.")
18	HV Extend Voice Map	Displays the HV Extend Voice Map. (For details, see "***4.6HV Extend Voice Map***.")
19	HV-Script Assign Map	Displays the HV-Script Assign Map. (For details, see "***4.8HV-Script Edit Window***")

【Note】 It is only applicable for "***SMF Format 0***" and "***SMF Format 1***."

3.8. LED/MTR Bar

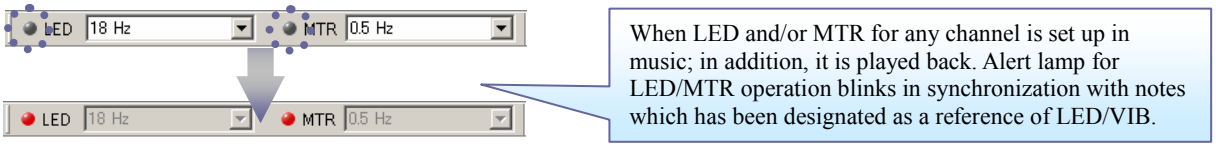
Operation Check lamp

The lamp lights up in synchronization with a note of the channel designated as LED/VIB.

Figure. 3-15 LED/MTR Bar

No.	Name	Description
1	LED	Sets the blinking frequency of LED. The frequency of polling is 0.1sec. One of "***Default (No Blink)***", "***18Hz***", "***16Hz***", "***12Hz***", "***8Hz***", or "***4Hz***" is selectable.
2	MTR	Sets the blinking frequency of MTR. The frequency of polling is 0.1sec. One of "***Default (No Blink)***", "***2.25Hz***", "***2.0Hz***", "***1.5Hz***", "***1.0Hz***", or "***0.5Hz***" is selectable.

Confirmation alert lamp of LED/MTR operation capabilities



【Note】 This is an operation which is valid only on Authoring Tool environment. This setting is not reflected to SMAF data.

3.9. Preference Bar

This is a dialog bar to set the MA-5 Authoring Tool operation environments.

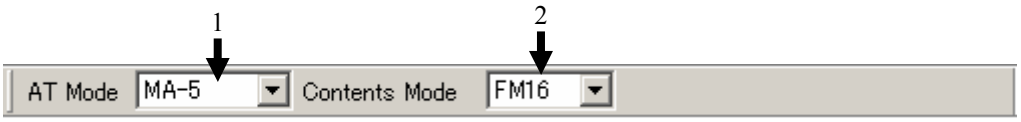


Figure. 3-16 Preference Bar

No.	Function Name	Contents
1	AT Mode	Switches the mode of Authoring Tool. For details, see "***4.16Preference***."
2	Contents Mode	Switches FM mode. When a music-data is loaded in Authoring Tool, FM mode can not be changed. In that case, be sure to close the file once, and then reset the contents mode. ***FM16 Mode*** This is a mode to generate 16-tone by using 2-operator/4-operator voices and PCM voice. ***FM32 Mode*** This is a mode to generate 32-tone by using 2-operator voices and PCM voice. ***ALL64 Mode*** This is a mode to generate 32-tone by using 2-operator voice as FM section and generate 32-tone as PCM section.

3.10. HV Bar

This is a bar to turn on/off the HV function.

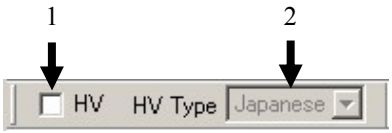


Figure. 3-17 HV Bar

No.	Name	Description
1	HV Check Box	By placing a check in the box, HV data becomes creatable and editable.
2	HV Type	Displays the languages stand on Operation System.

3.11. Contents Information Bar

Setting of SMAF file (editable/un-editable) can be set and controlled with this Bar.

Figure. 3-18 Contents Information Bar

No.	Name	Description
1	Copy Status	Copy status can be set up. For details about Copy Status, see "***4.16Preference***."
2	Edit Status	Edit status can be set up. For details about Edit Status, see "***4.16Preference***."

3.12. Density Report Bar

This bar shows the event density information in music data.

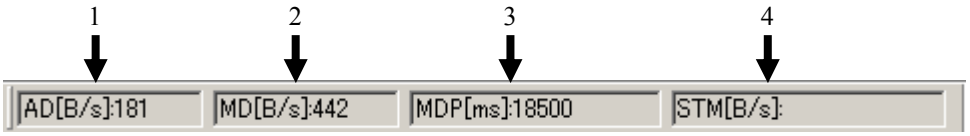


Figure. 3-19 Density Report Bar

No.	Function Name	Contents
1	AD (Average Density)	Converts the event density in the read music, which put through one music, to MIDI byte numbers; and then, it is displayed. The unit is "***Byte/sec***." (One musical note is counted as 6-Byte.)
2	MD (Max Density)	Displays the event density per unit, which is the highest in one music. The unit is "***Byte/sec***."
3	MDP (Max Density Position)	Displays the position which has the highest event density in music. The unit is "***ms***."
4	STM (Stream PCM)	Displays the maximum unit byte number in Stream PCM.

【Note】 When the value of Average Density exceeds "***500 byte/s***," warning is displayed and the "***AD***" column of "***Status Bar***" blinks in red.

【Note】 When the value of Max Density exceeds "***1000 byte/s***," warning is displayed and the "***MD***" column of "***Status Bar***" and the "***MDP***" column blink in red.

【Note】 While one of the "***AD***", "***MD***" or "***MDP***" is blinked in red, it cannot save as a SMAF file.

3.12.1. Calculation Method of Event Density

The size consumed by MIDI event is differed. When an error comes out by event density, it is necessary to cut the event in reference to "***4.10Event Density***."

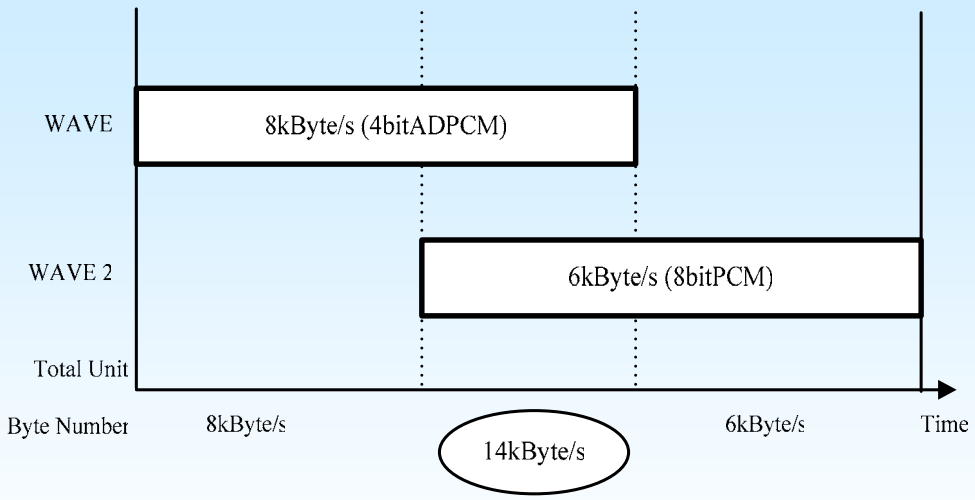
The number of consumption bytes of a MIDI event	
Note Event	6Byte
Control Chan	3Byte
Program Change	2Byte
Pitch bend	3Byte
Exclusive Message	Byte in Data Section + 2 (F0, F7) Byte

3.12.2. STM Display (the Maximum StreamPCM Unit Bytes Number)

As for the number of maximum Stream PCM unit bytes (the amount of data per second), it is displayed on SMAF form by the status bar only at the time of save. It cannot save, if the number of maximum Stream PCM unit bytes is exceeded. The restriction of the number of maximum Stream PCM unit bytes serves as 12kByte/s by MA-5 and 8kByte/s by MA-3. In case a sound file is used as a Stream PCM data, it is necessary to restrict the number of maximum Stream PCM unit bytes.

Therefore, it is necessary to convert the sampling frequency of a sound file to the number of Stream PCM unit bytes "***1kHz=1-KByte/s***", and use the sound file to fit in the restriction range.
Refer to the following example for the calculation method of the number of unit bytes.

"Example" When 4bitADPCM of Fs=16kHz and 8bitPCM of Fs=6kHz are



Conversion is made as described below.
Unit byte number/4bit ADPCM waveform "***kBytes/s***" ← Sampling frequency Fs "***kHz***" / 2
Unit byte number/8bit ADPCM waveform "***kBytes/s***" ← Sampling frequency Fs "***kHz***"
In the above-mentioned example, in the time zone when playbacks of two waveforms has overlapped, since it is set to 14-kByte/s, it cannot be saved.

3.13. Status Bar

In "***Status Bar***", current status information of tool, contents information, etc. are displayed.

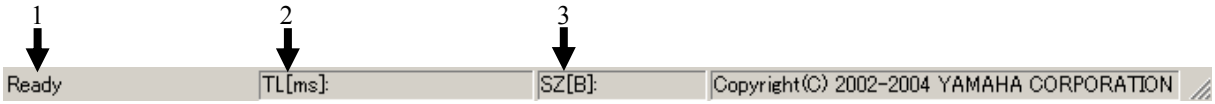


Figure. 3-20 Status Bar

No.	Function Name	Contents
1	Status Display	Displays the simple explanation about each buttons and functions in the position where the mouse is pointing. When nothing is pointed out, it shows "***Ready***."
2	TL (Total Length)	Displays the "***Actual Playing Total Time (end position)***" in the read music. The unit is "***ms.***" The actual playing total time is the time from Start Point to Stop Point. The end position is displayed with Tick count from the head.
3	SZ (Size)	Displays the size of SMAF when file is saved in SMAF format (****.mmf***), or when SMAF is read.

4. Description of each Window

This chapter describes the names and functions of each window provided in MA-5 Authoring Tool.

4.1. File List Window

SMAF files can be loaded into this window as a list.
A SMAF file can be dropped and added to the File List Window (multiple files can be dropped.)
Direct Play is performed if clicking "***Play***" button when the list is being selected.

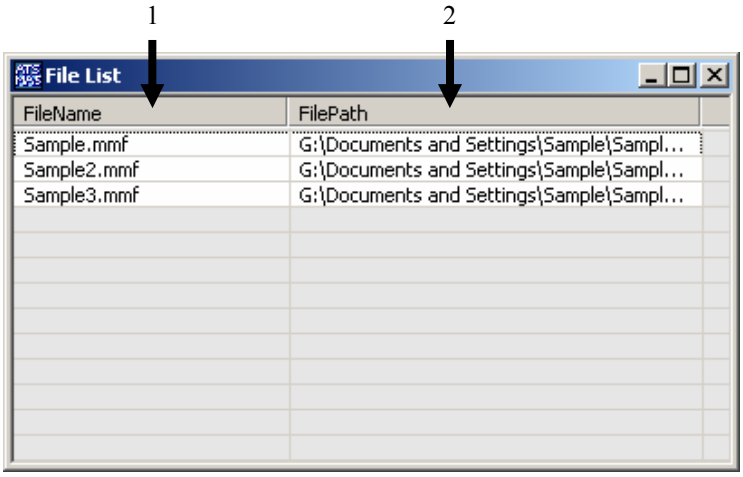


Figure. 4-1 File List Window

No.	Function Name	Contents
1	File Name	Displays a file name of loaded SMAF file. (***.mmf**)
2	File Path	Displays a file pass of loaded SMAF file. (***.mmf**)

4.1.1. Direct Play

This section describes the procedure of how to play back a SMAF (***.mmf***) using Direct Play function in MA-5 Authoring Tool.

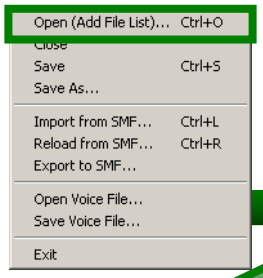
Direct Play (Procedure of Playback a SMAF Data)

There are three ways to operate a Direct Play.
No matter which procedure was selected and performed, Direct Play is operated correctly and its result will be same.

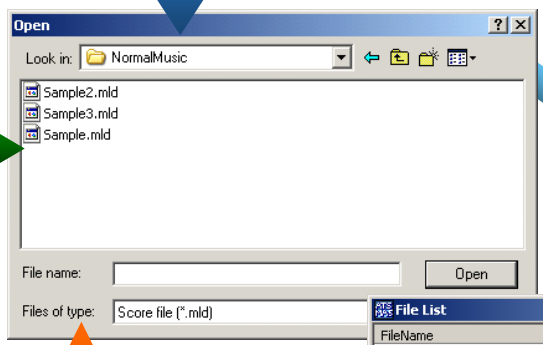
A) Select "***Open (Add File List)***" from "***Tool Bar***" to open a SMAF (***.mmf***) data.

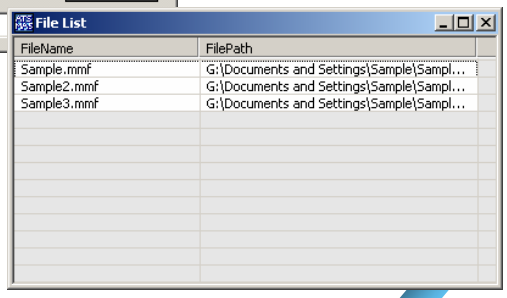
A. Open from Tool Bar

B. Open from File Menu

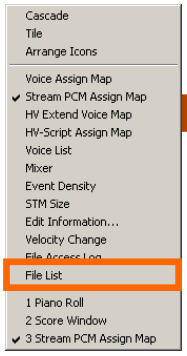


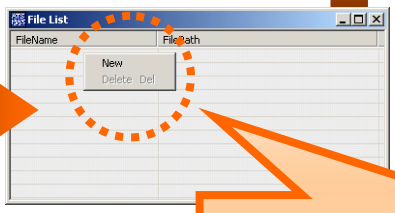
B) Select "***Open (Add File List)***" from "***File Menu***" to open a SMAF (***.mmf***) data.



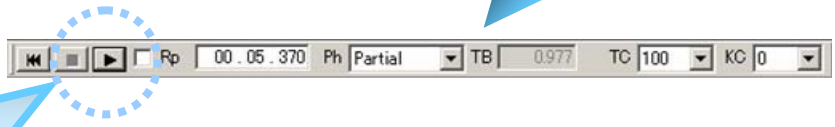


C. Open from Voice List





Select the "***Voice List Window***" from "***Window Menu***" in Application Window. When "***Voice List Window***" is opened onto Application Window, right-click the mouse on a blank space on the window. Popup menu is displayed; then select "***New***" from the menu.



Open a music file (***.mmf***) using the mentioned three ways A, B, and C. When a music file is opened, it is assigned into File List. Select one of music file (***.mmf***) which has been assigned on File List Window; then "Direct Play" is started by pressing "***Play***" button on "***Control Bar.***"

4.2. Score Window

Score Window is a window to display the data content of read SMF (***.mid***) or SMAF File (***.mmf***).

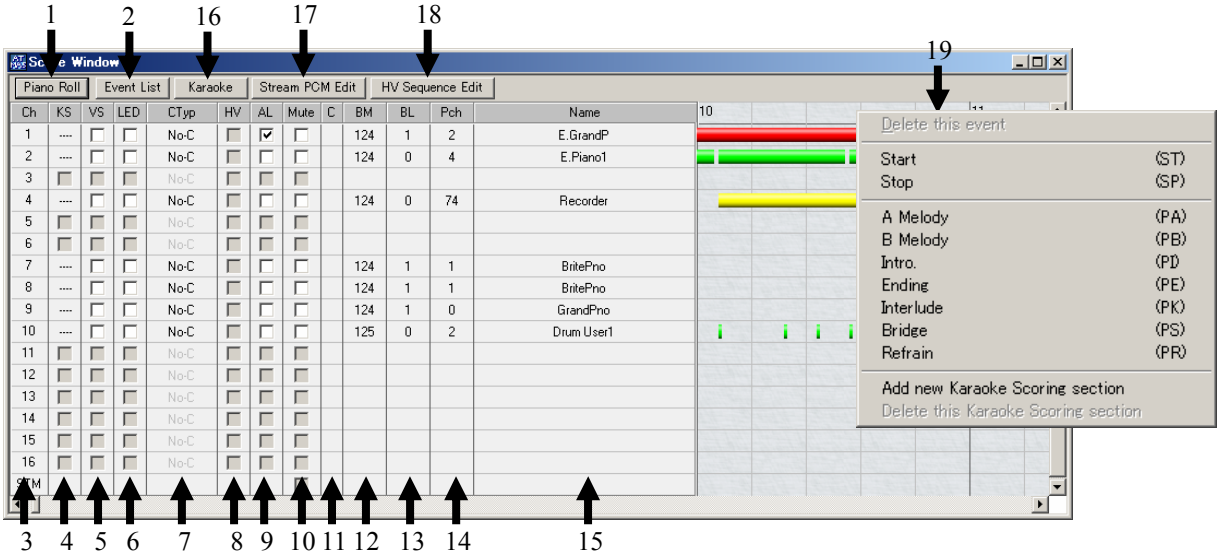


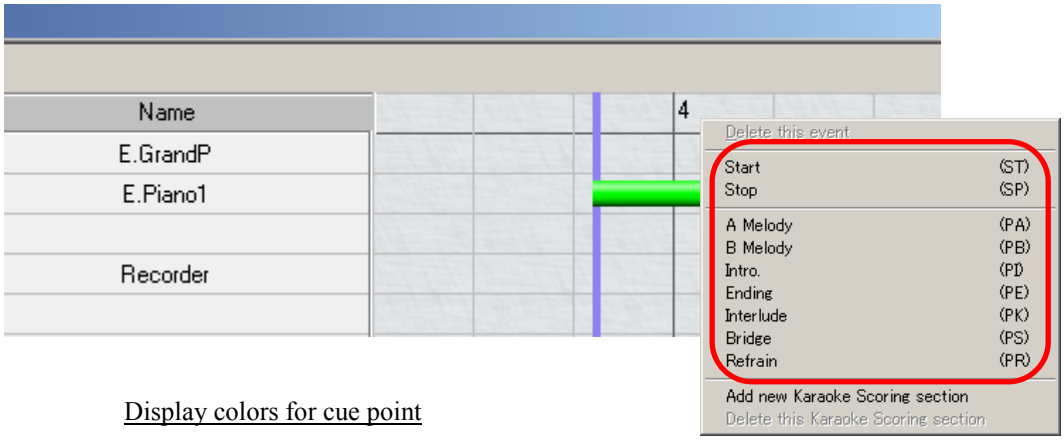
Figure. 4-2 Score Window

No.	Function Name	Contents
1	Piano Roll	Displays the contents read into "***Score Window***" on "***Piano Roll Window***."
2	Event List	Displays the data read into "***Score Window***" on "***Event List Window***."
3	CH	Shows channel numbers.
4	KS (Key Control Status)	***MA-5 Mode*** Displays the Key control status. Only the channel set as HV channel can be set up. When Key Control is set up, it specifies whether Key Control is performed or not to HV channel. Key Control becomes effective by setting a check into a box.
5	VS (Vibration Status)	Designates whether Vibration Control is performed synchronizing with the data of applicable channel or not. Placing a check in the box to enable a Vibration. For VS setting of Stream PCM, refer to the following term "***4.2.5VS and LED for StreamPCM***".
6	LED	Designates whether LED Control is performed synchronizing with the data of applicable channel or not. Placing a check in the box to enable LED. For LED setting of Stream PCM, refer to the following term "***4.2.5VS and LED for StreamPCM***".
7	Ctyp (Channel Type)	Designates Channel Type for applicable channel. Clicking on the column of Ctyp of each channel changes the content as No-C, Melo, No-M and Ryh in this order.
8	HV	***MA-5 Mode*** By placing a check in this box, the channel can be set for HV channel. It is not displayed when HV check box of "Preference" is not checked. (For details, see "3.10 HV Bar.") A channel (***CH***) withput a NOTE can be designated. Sets this HV, before the following AL voice channel setting.
9	AL (Analog Like)	***MA-5 Mode*** By placing a check in this box, the channel can be set for AL voice channel. All voices of channel that has been set for AL voice channel become monophonic voices. After placing a check in the box of AL, and double-clicks any voice in voice assign map; in addition, places a check in the "***Enable AL***" of AL Voice Edit, and then, the effect of AL parameters can be obtained.
10	Mute	Mutes the channel by placing a check in the relevant channel. This setting is not reflected to SMAF file.
11	C (Change Flag)	If the result shows difference when compared with voices that has the same bank number and voice number in the Voice List, a blue circle is displayed. When any of voices, which are different from the voice list in the relevant channel, exists, a blue circle is displayed.
12	BM (Bank Select MSB)	Displays BankSelect MSB at the head of voice.
13	BL (Bank Select LSB)	Displays BankSelect LSB at the head of voice.
14	Pch (Program Change)	Displays program change number at the top of voice.

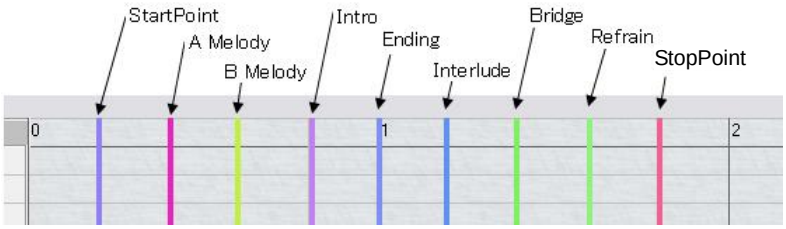
15	Name	Displays name of voice at the head of voice. When a voice name is double-clicked, Voice Edit window will open. (Voice Edit window of built-in ROM voices cannot be opened.)
16	Karaoke	Opens Karaoke setting dialog.
17	Stream PCM Edit	Displays Piano Roll Window (Stream PCM Edit View).
18	HV Sequence Edit	Displays Piano Roll Window (HV Sequence Edit View).
19	Cue Point Setting Column	Cue Point (Start point, End point, rehearsal mark) can be set by right-clicking on the column.
	Karaoke Scoring section setting column	A setup of the Karaoke Scoring section can be performed by right-click. Setting can be up to 16 sections.

4.2.1. Setting of Cue Point (Start Point, Stop Point, Rehearsal Mark)

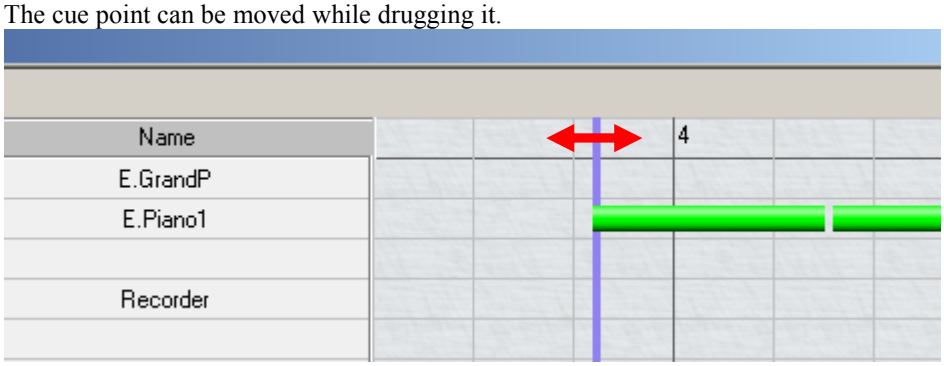
The cue point can be designated on a dialog displayed by right-clicking on the Tick display area in the Score Window.



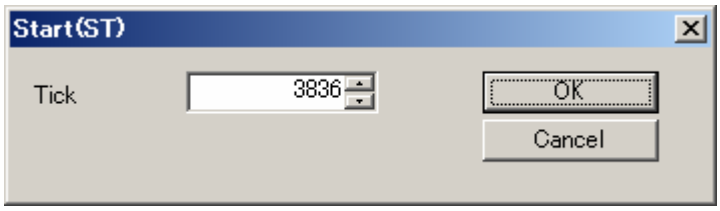
Display colors for cue point



The cue point can be moved while drugging it.



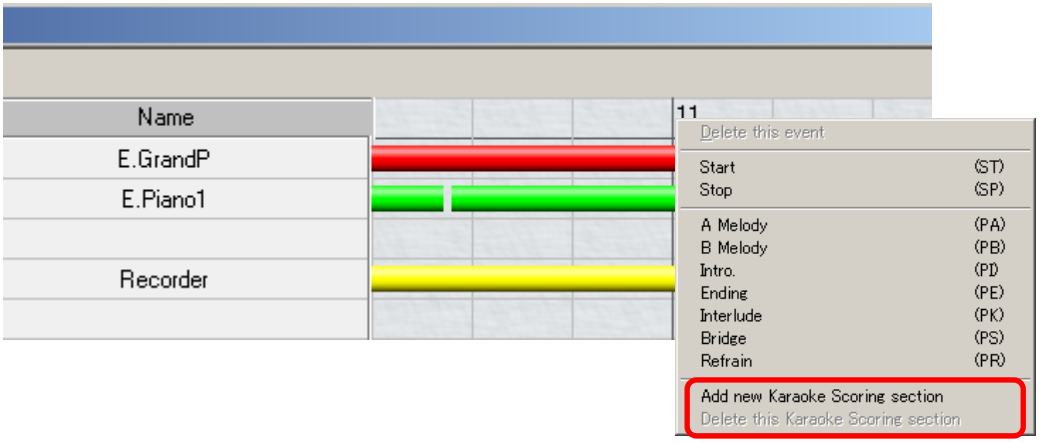
Double-clicking on a cue point opens the cue point setting dialog shown below and allows inputting a position by Tick.

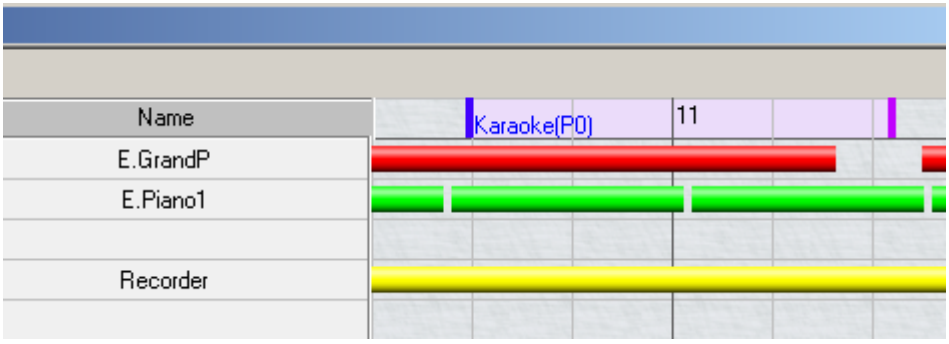


【Note】・A cue point cannot be created when any Note event is not present.
・A position of the StartPoint cannot be created and moved after the StopPoint.
・A position of the StopPoint cannot be created and moved before the StartPoint.

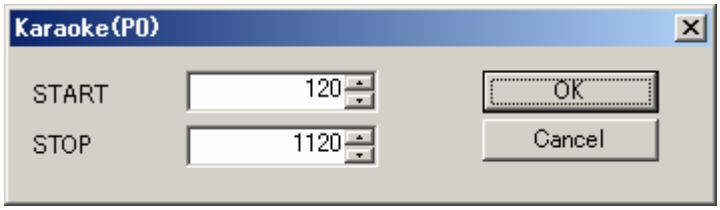
4.2.2. Setting of Karaoke Scoring section

By right-clicking on Tick display area in the score window, a dialog is displayed and the Karaoke Scoring section can be set here.
Setting can be up to 16 sections.



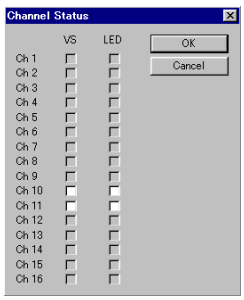


The section range can be adjusted by dragging the corner point of the Scoring section.
Moreover, double-clicking the section range opens the following section setting dialog.
START/STOP position can also be inputted in ticks.



4.2.3. VS and LED Setup of Stream PCM

The "***Channel Status Window***" is displayed by clicking the check box of "***VS***" or "***LED***" on the STM field of "Score Window."



"***VS***" and "***LED***" can be set to the channel into the note which plays Stream PCM is inputted.

4.2.4. Piano Roll Window

The window displays the contents of music data which was read into the "***Score Window***" on "***Piano Roll Window***."
StreamPCM paste editing, HV paste editing, Karaoke Scoring Section settings, and Cue point settings can be controlled here.

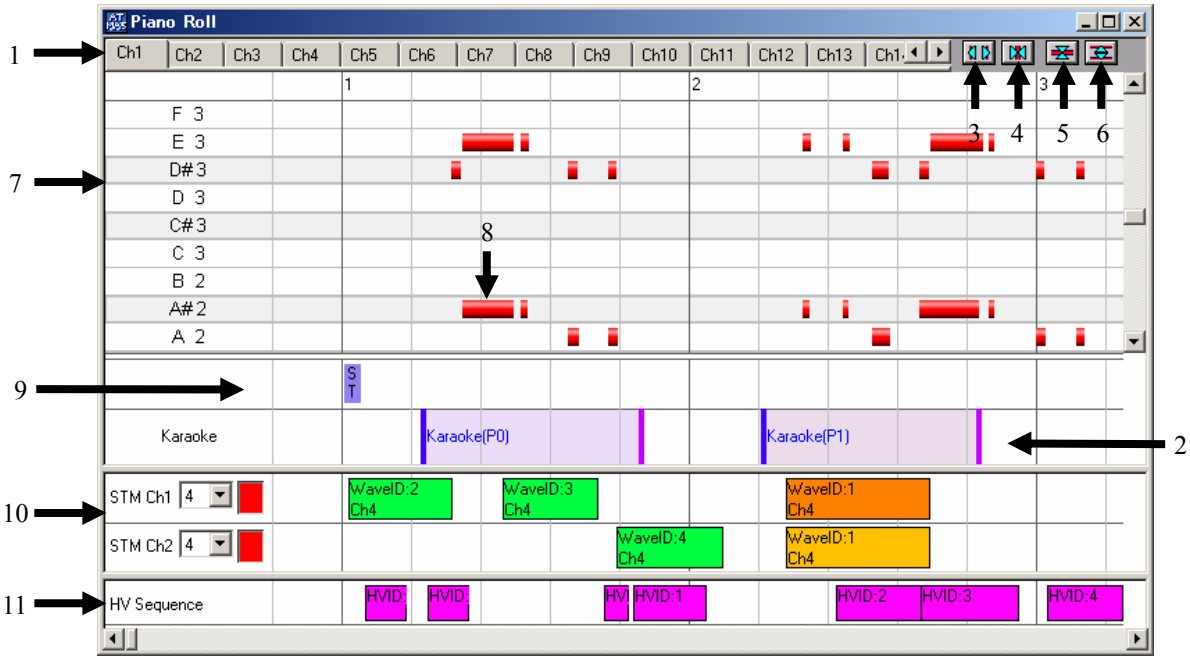


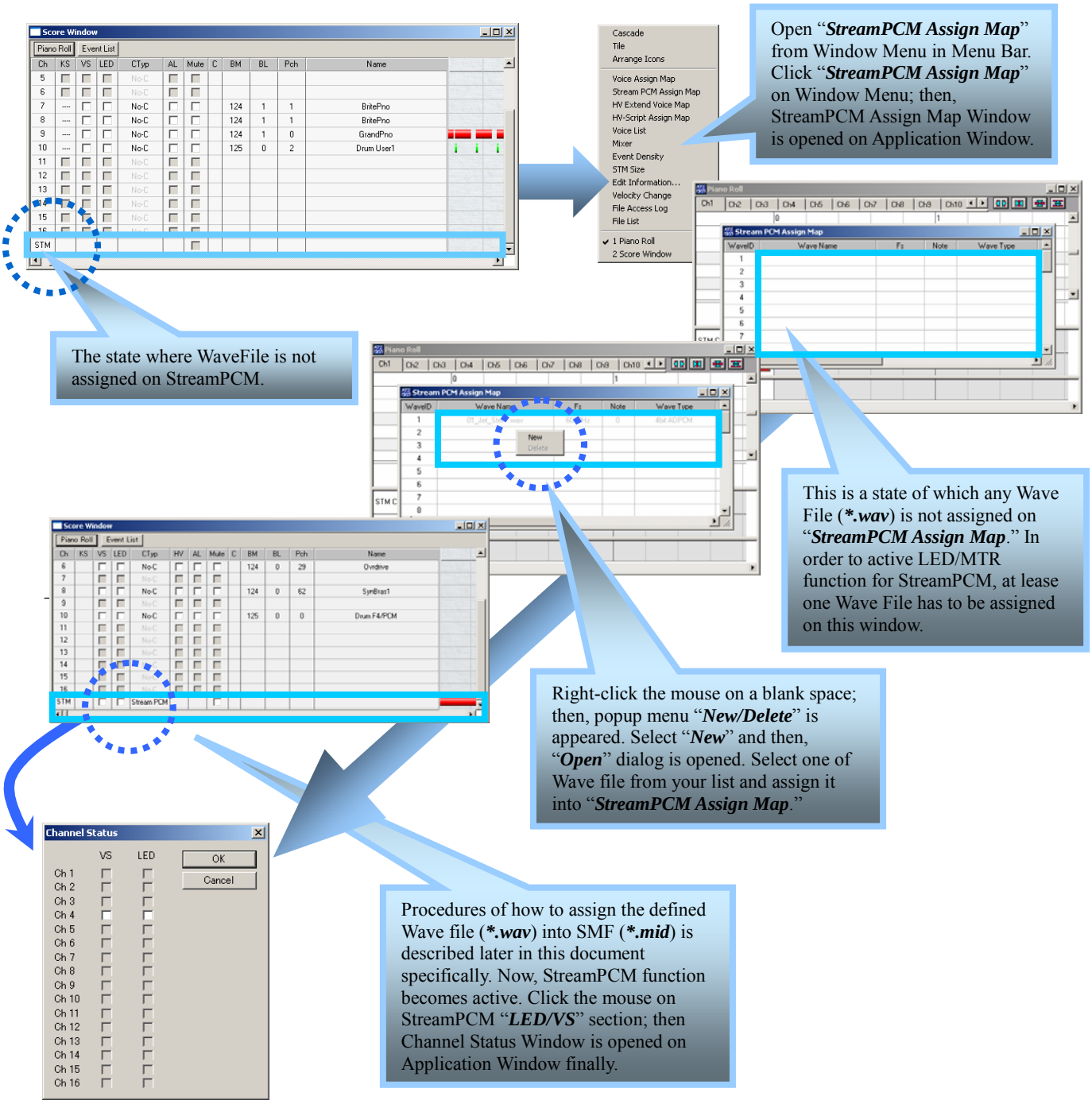
Figure. 4-3 Piano Roll Window

No.	Function Name	Contents
1	[Ch1~16] and [All] part tabs	By clicking each tab, a part to display on "***Piano Roll Window***" can be changed.
2	Karaoke Scoring section setting track	By right-clicking, add/delete window of Karaoke Scoring section appears. Setting can be up to 16 sections. The function is the same as "4.2.2 Setting of Karaoke Scoring section."
3	Scroll buttons	A part tab scrolls from side to side. Un-displayed part tab can be displayed.
4	Horizontal zoom-in button	By clicking, the display size of window can be enlarged horizontally.
5	Horizontal zoom-out button	By clicking, the display size of window can be decreased horizontally.
6	Vertical zoom-in button	By clicking, the display size of window can be enlarged vertically.
7	Vertical zoom-out button	By clicking, the display size of window can be decreased vertically.
8	Note bar	Displays intervals and gate time of each MIDI note.
9	Controller /cue point display	Displays a control change, pitch bend, or cue point (StartPoint, StopPoint, Rehearsal Mark) input into each part. See "4.2.1 Setting of Cue Point."
10	Stream PCM Edit View	Assign of "***StreamPCM***" can be performed.
11	HV Sequence Edit View	Displaying, Assignment, and editing of HV-Scrip can be performed. By dragging and dropping the HV-Script Data (HV-Script ID) from HV-Script Assign Map Window onto this truck, HV note can be registered as made a drop position into the head (left-end). * However, in order to use this function, any of CHs must be designated as a HV channel.

4.2.5. VS and LED for StreamPCM

The "***Channel Status Window***" is displayed by clicking the check box of "***VS***" or "***LED***" on the STM field of "***Score Window***." "***VS***" and "***LED***" can be set to the channel into the note which plays Stream PCM is input.

Procedures of LED/VS Setting for StreamPCM



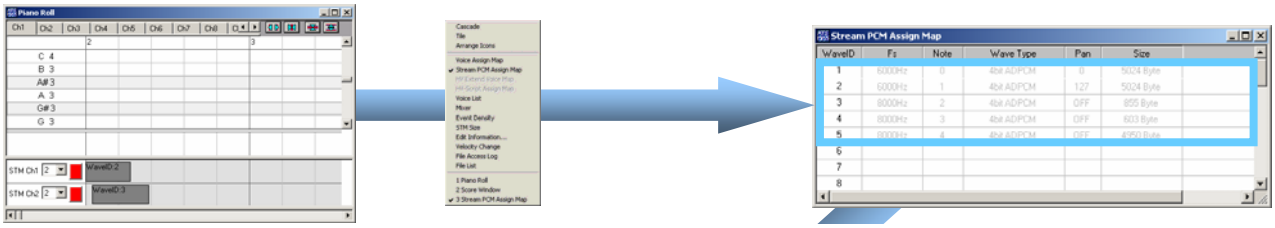
4.2.6. Assignment of StreamPCM

This section describes the procedure of how to assign StramPCMs to music data with MA-5 Authoring Tool.

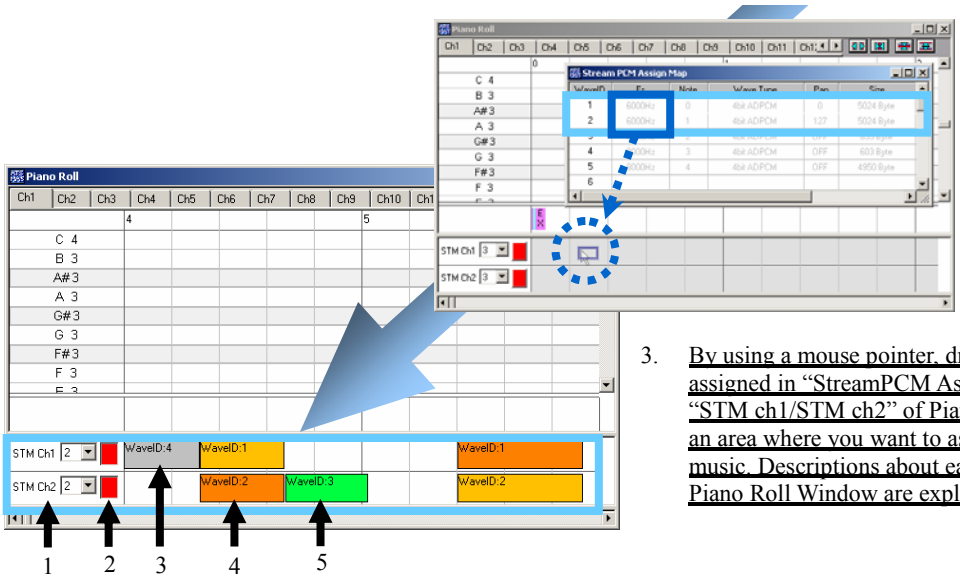
StreamPCM (WAVE → SMAF) Conversion Procedure

Stream PCM Edit View is a window to assign a Stream PCM to SMAF.
Since the maximum sound generation of Stream PCM is two tones, it is divided into two levels (***Upper/Lower***).
By dragging and dropping from Stream PCM Map to here, it becomes assignable.
For details about how to assign the Stream PCM, see "***4.5StreamPCM Assign Map***."
By double-clicking the Stream truck, velocity conversion of Stream truck is possible; in addition, by right-clicking, Stream truck can be deleted. Moreover, displacement of position (***Drag***) and change of length (***Drag adjustment***) can be executable.

1. Load a SMF which has no Midi-event or includes a note for Stream.
   *Note data for Stream (BANK/MSB125-Note Number 0 to 12, 92 to 110)
   Then, open the Piano Roll Window. The following windows are opened.
   *When note for Stream is contained in SMF, WAVEID which corresponds to the note number is automatically displayed.



2. Register the WAVE Data of which a sampling frequency was optimized beforehand into StreamPCM Assign Map. Or load the existing StreamPCM File (****.sm3/5***).*When a note for Stream is attached to SMF, be sure to register a WAVE corresponding to note number/WAVE ID.



3. By using a mouse pointer, drag a Wave Data which was assigned in "StreamPCM Assign Map" onto the section "STM ch1/STM ch2" of Piano Roll Window; then drop it on an area where you want to assign the Wave Data as Stream in music. Descriptions about each section for StreamPCM in Piano Roll Window are explained in the following table.

No.	Function Name	Contents
1	Ch	The channel which inserts a Stream PCM event is selected. From newer to older, the number in channel without events is initial-displayed.
2	Stream PCM Reserve	Sets the reserved number of Stream PCM. According to the reserved numbers, the amount of RAM consumption will be changed. Please refer to "***3.6.1About RAM Size***" for details.
3	Stream PCM Audio Track (Not Assigned)	It is the Stream PCM track with which only the stream event exists and a voice is not assigned. It is indicated in gray.
4	Stream PCM Audio Track (Stereo)	It is the StreamPCM track for stereo sound generation. It is displayed in two colors (upper level/lower level) orange & yellow.
5	Stream PCM Audio Track (Mono)	It is the Stream PCM track of monophonic sound generation. It is displayed in yellow-green.

4.2.7. Assignment of HV-Script

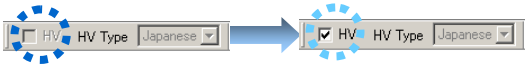
This section describes the procedure of how to assign HV-Scripts to music data with MA-5 Authoring Tool.

HV-Script Assign Procedures

HV Sequence Edit View

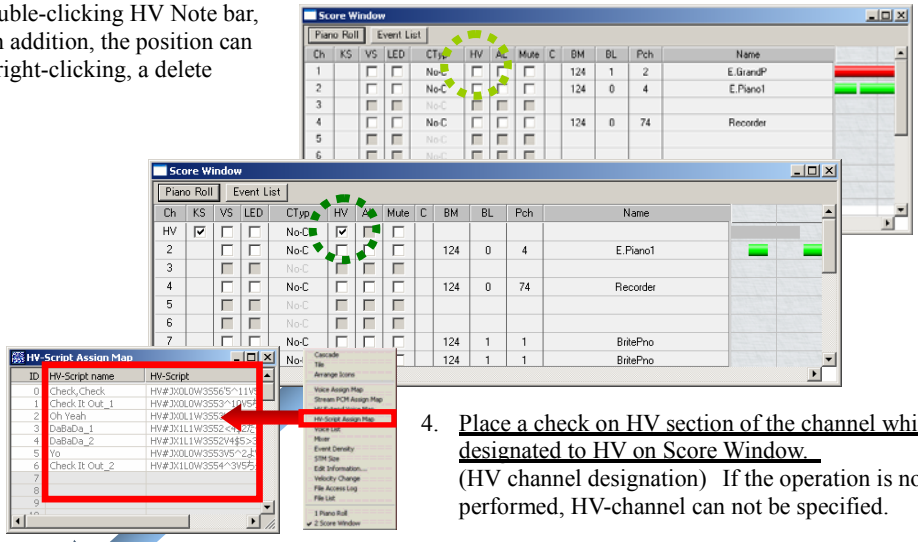
By dragging and dropping from HV-Script Assign Map to here, it becomes assignable. For details about HV-Script register to HV-Script Assign Map, see the description later in this document. By double-clicking HV Note bar, HV-Scrip becomes editable. In addition, the position can be displaced by dragging. By right-clicking, a delete menu will be displayed.

1. In order to assign a HV-script in music, MA-5 mode must be selected.

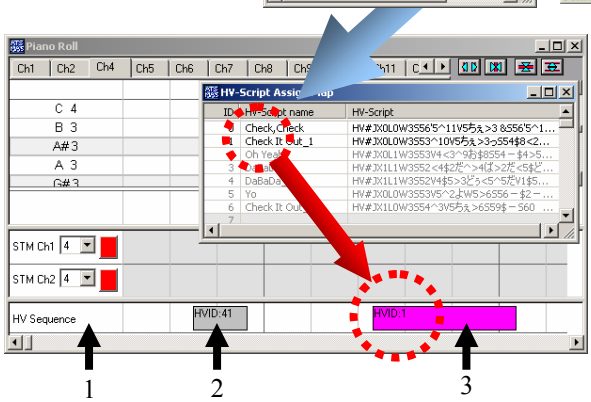


2. Place a check into HV-check box on "HV bar."

3. Place a check into HV-check box on "HV bar."



4. Place a check on HV section of the channel which is designated to HV on Score Window.
(HV channel designation) If the operation is not performed, HV-channel can not be specified.



5. Piano Roll Window is opened. The following windows are opened.
(If the SMF which includes note for HV, HV-Scrip ID corresponding to the note numbers are automatically displayed.)

6. Open HV-Scrip Assign Map, and create a new HV-Script on HV-Script Edit (double-click or right-click on assign section). Import of existing Multi-HV-Script file (.hs5) or import of existing HV-Script file (*.hvs) is possible. Be sure to register the HV-Script ID to correspond to note number on SMF.

7. When HV is newly added into music, it can be assigned with the following Drag&Drop method.

No.	Function Name	Contents
1	Ch	The channel which inserts a Stream PCM event is selected. From newer to older, the number in channel without events is initial-displayed.
2	Stream PCM Reserve	Sets the reserved number of Stream PCM. According to the reserved numbers, the amount of RAM consumption will be changed. Please refer to "" for details.
3	Stream PCM Audio Track (Not Assigned)	It is the Stream PCM track with which only the stream event exists and a voice is not assigned. It is indicated in gray.

4.2.8. Event List Window

In "***Event List Window***", contents read into "***Score Window***" are displayed.

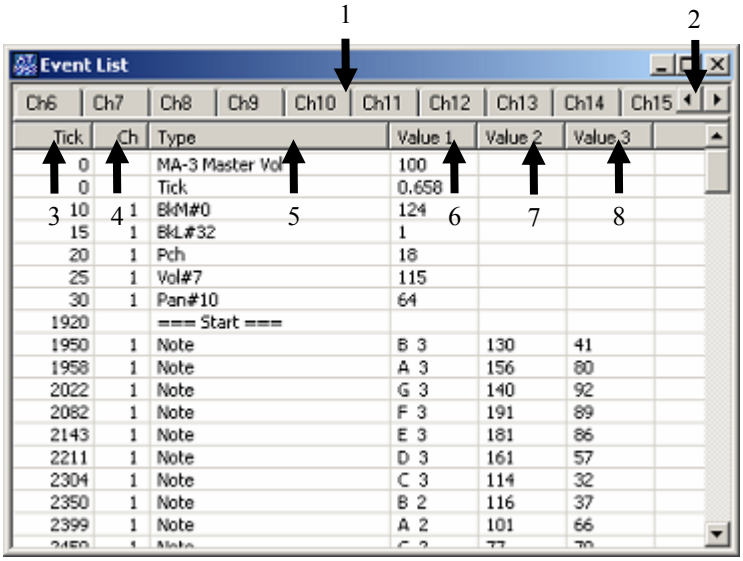


Figure. 4-4 Event List Window

No.	Name	Description
1	[Ch1~15], [Stream PCM] and [All] part tabs	By clicking each tab, a prat displayed on the "***Event List Window***" can be changed.
2	Scroll buttons	Part tab is scrolled left or right by pressing this button. Part tab that is not displayed can be displayed.
3	Tick (Location)	Displays a location of each event by using the unit of Tick.
4	Ch (Channel)	Displays a channel of each event.
5	Type	Displays the type of each event.
6	Value1	"***Control Change***"…Displays a data value. "***Pitch Bend***"…Displays a pitch bend value. "***Note***"…Displays a note number. "***Stream PCM***"…Displays a WaveID.
7	Value2	"***Note***"…Displays game time of note. "***StreamPCM***"…Displays gate time of Stream PCM.
8	Value3	"***Note***"…Displays velocity of note. "***StreamPCM***"…Displays velocity of Stream PCM.

・Karaoke Scoring section designation event display

Event List

Ch9 | Ch10 | Ch11 | Ch12 | Ch13 | Ch14 | Ch15 | Ch16 | StreamPCM | All

Tick	Ch	Type	Value 1	Value 2	Value 3
0	1	Pch	0		
960		=== Karaoke(P0) START ...			
960	1	Note	C 3	960	100
1260		=== Karaoke(P0) STOP =...			
1920	2	BkM#0	124		
1920	2	BkL#32	1		
1920	2	Pch	0		
2880		=== Karaoke(P1) START ...			
2880	2	Note	D 3	960	100
3180		=== Karaoke(P1) STOP =...			
3840	3	BkM#0	124		
3840	3	BkL#32	1		
3840	3	Pch	0		
4800		=== Karaoke(P2) START ...			
4800	3	Note	E 3	960	100
5100		=== Karaoke(P2) STOP =...			
5760	4	BkM#0	124		
5760	4	BkL#32	1		
5760	4	Pch	0		
6720		=== Karaoke(P3) START ...			
6720	4	Note	F 3	960	100
7020		=== Karaoke(P3) STOP =...			
7680	5	BkM#0	124		

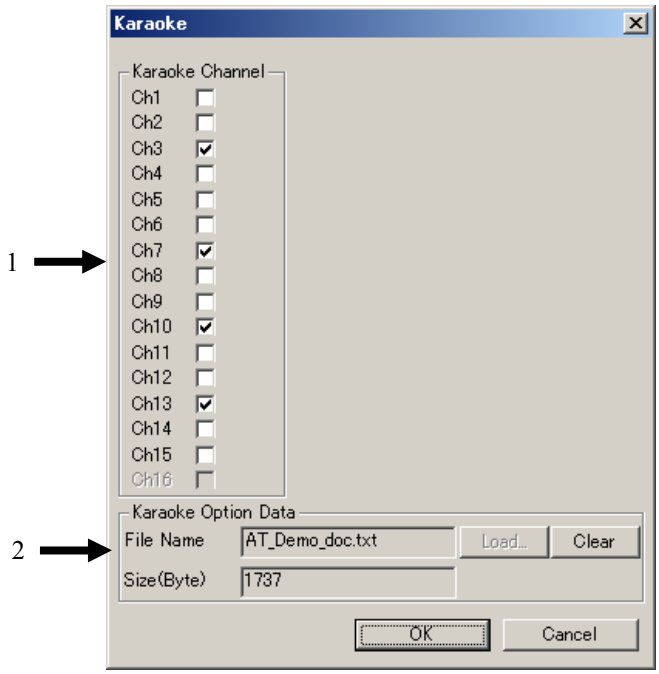
Display Karaoke Scoring section designation events.
(The Karaoke Scoring section can be designed up to all 16 sections in Score Window and Piano Roll Window. For details, please refer to "4.2.2 **Setting of Karaoke Scoring section**", "4.2.4 **Piano Roll Window**", and Contents Authoring Guide Line)

===Karaoke(P0)START===	The first Scoring section	START
===Karaoke(P0)STOP===	The first Scoring section	STOP
===Karaoke(P1)START===	The second Scoring section	START
===Karaoke(P1)STOP===	The second Scoring section	TOP
・	・	
・	・	

Designation can be up to 16 sections.

4.2.9. Karaoke Setting Dialog

Karaoke Channel and Karaoke Option Data can be set.



No.	Name	Description
1	Karaoke Channel	Sets Karaoke Channel. The melody channel for scoring is designed. Two or more channels are selectable.
2	Karaoke Option Data	Displays a file name and a file size of Karaoke Option Data.
	File Name	Displays the reference file name of the option data opened with the Load button. In SMAF OPEN, it is not displayed.
	Size	Displays the size of option data contained in SMAF file or opened from Load button.
	Load	Open the option data file. Option data can be set up to 64 K bytes.
	Clear	Clear the option data.
	OK	Edited Setting content becomes valid.
	Cancel	Edited Setting content is canceled.

4.3. Voice List Window

Display "***Voice Map***."
Click "***Voice List***" in "***Application Window***", or select "***Voice List***" from "***Window Menu***" in "***Menu Bar***."
When SMF is loaded, applicable voices of Voice List are assigned as a SMAF voice.

4.3.1. Normal Voice List

"***Normal Voice List***" is displayed by clicking "***Normal Tab***."
In "***Normal Voice List***", voice names and voice types which correspond to program changes per bank are displayed.

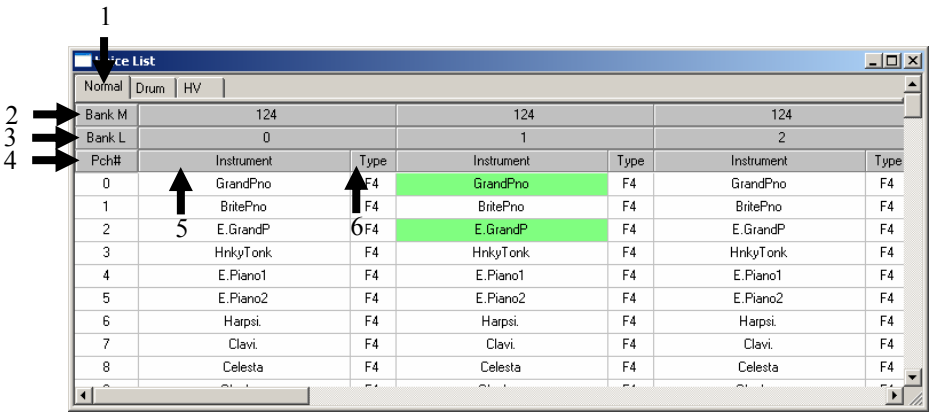


Figure. 4-5 Voice List Window (Normal Voice)

No.	Function Name	Contents
1	Normal tab	Displays Normal Voices.
2	Bank M	Displays BankSelect MSB.
3	Bank L	Displays BankSelect LSB. In case of drum voice, it becomes "***Pch#***" display.
4	Pch#	Displays voice numbers. In case of drum voice, it becomes "***Note#***" display.
5	Instrument	Displays voice names. When voice name is double-clicked, Voice Edit window is opened. The background of voices that includes "***AL parameters***" is displayed with green.
6	Type	Displays operator that is used. F4: 4 Operators setting / F2: 2 Operators setting / P: PCM setting

【Note】 By "***Import from Voice***" button in tool bar, import of voice from Voice list to Voice Assign Map is possible, in addition, by "***Export from Voice***" button; export of voice from Voice Assign Map to Voice list is possible.

【Note】 In normal voice list, voice names and voice types corresponding to program numbers of each Bank are displayed, and in drum voice list, voice names and voice types corresponding to note numbers of each program are displayed.

【Note】 Each voice can be changed and be saved by Bank unit. For details about the save of voice list, see "***4.3.3.4Saving Voice List.***"

4.3.2. Drum Voice List

"***Drum Voice List***" is displayed by clicking "***Drum Tab***."
In "***Drum Voice List***", voice names and voice types which correspond to program changes per bank are displayed.

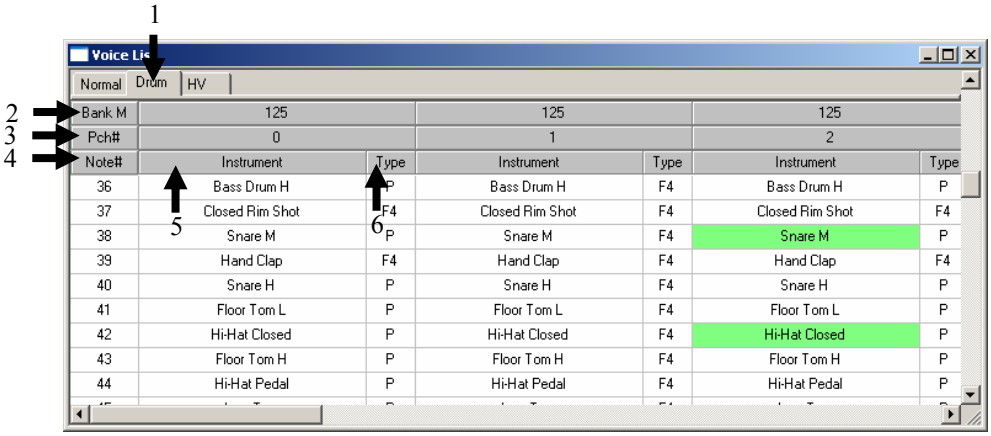


Figure. 4-6 Voice List Window (Drum Voice)

No.	Function Name	Contents
1	Drum tab	Displays Drum Voices.
2	Bank M	Displays BankSelect MSB.
3	Pch#	Displays voice numbers. In case of drum voice, it becomes "***Note#***" display.
4	Note#	Displays Note Numbers.
5	Instrument	Displays voice names. When voice name is double-clicked, Voice Edit window is opened. The background of voices that includes "***AL parameters***" is displayed with green.
6	Type	Displays operator that is used. F4: 4 operators setting / F2: 2 operators setting / P: PCM setting

4.3.3. HV Voice List

Only for MA-5 Mode

By clicking "***HV Tab***", HV voice list is opened. 10-Bank x 128-Voice =1280 of HV voices can be registered into HV voice list. Use this list to copy or paste contents to HV Extend Voice Map.

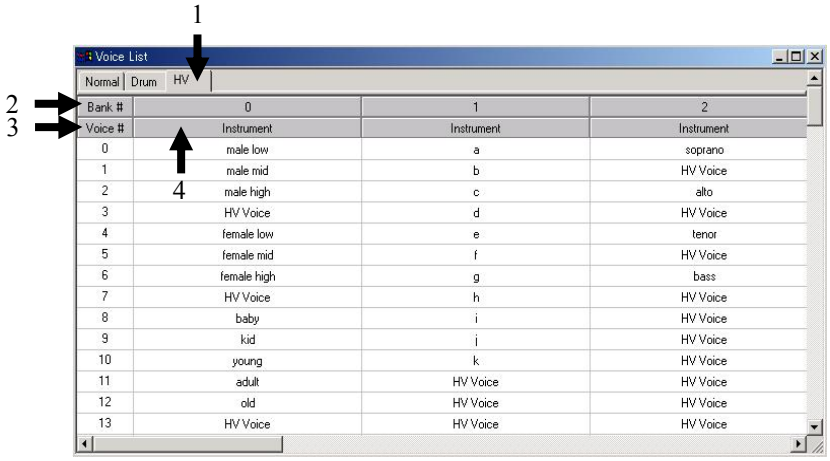


Figure. 4-7 HV Voice List

No.	Function Name	Contents
1	HV tab	Displays HV Voices.
2	Bank #	Displays the Bank number.
3	Voice#	Displays the voice number.
4	Instrument	Displays the voice name. Double-click to open "***HV Voice Edit Window***." For details about HV Voice Edit Window, refer to "***4.16Preference***."

4.3.3.1. Voice List Window (Copy & Paste Function for Normal/Drum Voices)

By right-clicking the voice name of Voice List Window, "***Voice data Copy/Paste***" function menu is displayed.

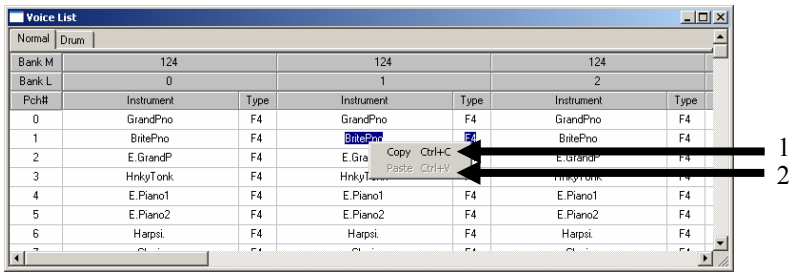
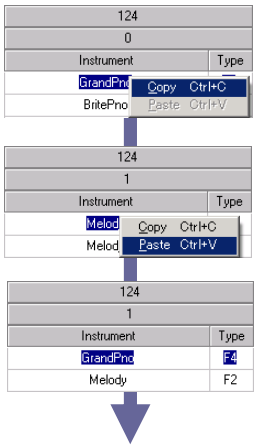


Figure. 4-8 Voice List Window (Copy & Paste Function)

No.	Function Name	Contents
1	Copy	Voices can be copied.
2	Paste	Voice can be pasted.

4.3.2.3.1. Copy & Paste



1. At first, right-clicks the mouse on the voice, which you want to copy, on the voice list window. Popup menu is displayed, and then selects "***Copy***" here.

2. Secondly, right-clicks the mouse on the voice name of voice, where you want to paste the copied voice. Popup menu is displayed, and then selects "Paste" here. For the details about voice paste to "***Voice Assigned Map***", refer to "***4.4.1Voice Assign Map (Copy & Paste Function)***."

3. Finally, the voice is pasted.

【Note】 The copy/paste operation of voices can also be made by using "***Copy***" or "***Paste***" on the "***Edit***" menu of the application, or by using Toolbar of the application.

4.3.3.2. Voice List Window (Right-Click Menu for Normal/Drum Voices)

By right-clicking the "***Bank M***" section, a pop-up menu is displayed.

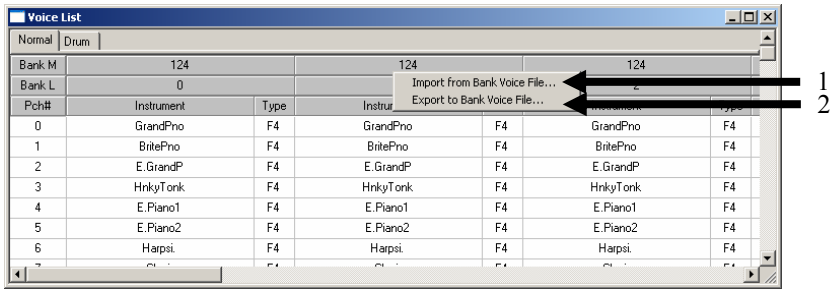


Figure. 4-9 Voice List Window (Right-Click Menu)

No.	Function Name	Contents
1	Import from Bank Voice…	Saves voice by Bank unit. For details, see "***4.3.3.4Saving Voice List***."
2	Export to Bank Voice	Loads voice by Bank unit. For detail, see "***4.3.3.3Loading of Voice*** List."

4.3.3.3. Loading of Voice List

4.3.2.3.2. Loading of All Voice

Saved voice file can be read.
Select "***Open Voice File***" from "***File***" menu of the menu-bar on the "***Application Window.***" "***Open***" dialog box is displayed, and then, selects a file name and click "***Open***" button to read the voice file.

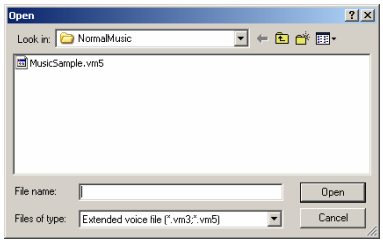


Figure. 4-10 Loading of All Voices

MA-3 Mode

A voice file (*.vm3) saved by MA-3 form can be loaded.

MA-5 Mode

A voice file (*.vm3/*.vm5) saved by MA-3/MA-5 form can be loaded.

4.3.2.3.3. Loading by Bank Unit (Normal/Drum Voice Bank)

Saved voice file can be read in Normal Voice List and Drum Voice List.

Bank voice files saved with MA-3 Authoring Tool or MA-5 Authoring Tool can be read for the Normal voice list or the Drum voice list.
Right-click on the Bank MSB, Band LSB, or Pch# field of Voice List. Select "***Import from Bank Voice***" from the "***Popup Window***." "***Open***" dialog box is displayed. Selects a file name, and then click "***Open***" button to read the voice file.

MA-3 Mode

A voice file (*.vm3) saved by MA-3 form can be loaded.

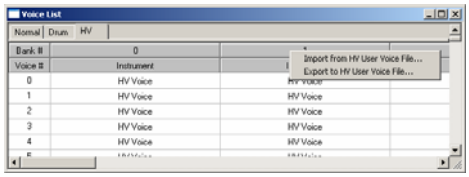
MA-5 Mode

A voice file (*.vm3/*.vm5) saved by MA-3/MA-5 form can be loaded.

4.3.2.3.4. Loading by Bank Unit (HV Voice Bank)

Only for MA-5 Mode

Right-click the Bank field of Voice List.
Select "***Import from HV User Voice File***" form the Pop-up window. Click "***Open***" to open the dialog box. At this point, by selecting a file name and by clicking "Open" button, voice file is read.



HV user voice files saved by MA-5 Authoring Tool can be read in HV voice list.

4.3.3.4. Saving Voice List

4.3.2.3.5. Saving All Voices

Select "***Save Voice File***" from "***File***" menu of the menu-bar on the "***Application window***." "***Save As***" dialog box is displayed. Enter the file name in "***File name***" (the extension are "***.vm3 (MA-3)***", "***.vm5 (MA-5)***"), and then click "***Save***" button to save the data.

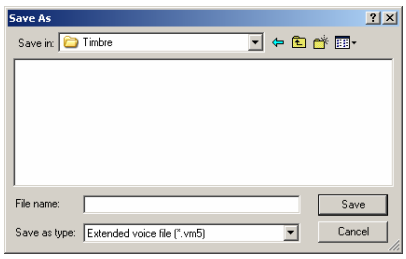


Figure. 4-11 Saving All Voice

MA-3 Mode

A voice file can be saved by MA-3 form (*.vm3).

MA-5 Mode

A voice file can be saved by MA-3/MA-5 form (*.vm3/*.vm5).

4.3.2.3.6. Saving by Bank Unit (Normal/Drum Voice Bank)

Voices that is registered in the Normal or Drum voice list can be saved by bank unit.
Right-click on the Bank MSB, Band LSB, or Pch# field of Voice List. Select "***Export to Bank Voice***" from the "***Popup window***." "***Save As***" dialog box is displayed. Enters the file name into the "***File name***" (extension are "***.vm3 (MA-3)***", "***.vm5 (MA-5)***") and click "***Save***" button to save the data.

MA-3 Mode

A voice file can be saved by MA-3 form (*.vm3).

MA-5 Mode

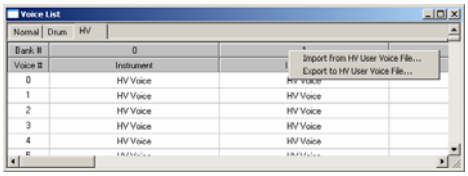
A voice file can be saved by MA-3/MA-5 form (*.vm3/*.vm5).

4.3.2.3.7. Saving by Bank Unit (HV Voice Bank)

Only for MA-5 Mode

Voices that are registered in the HV voice list can be saved by bank unit.

Right-clicks on the Bank field of Voice List. Selects "***Export to HV User Voice***" from the "***Popup window***." "***Save As***" dialog box is displayed. Enters the file name in "***File name***" (extension is "***.hv5***") and click "***Save***" button to save the data.



4.4. Voice Assign Map

Display voices which are used by each channel per channels.
Voices up to 128 including all channels can be displayed. (Data which uses more than 128 voices cannot be read.)

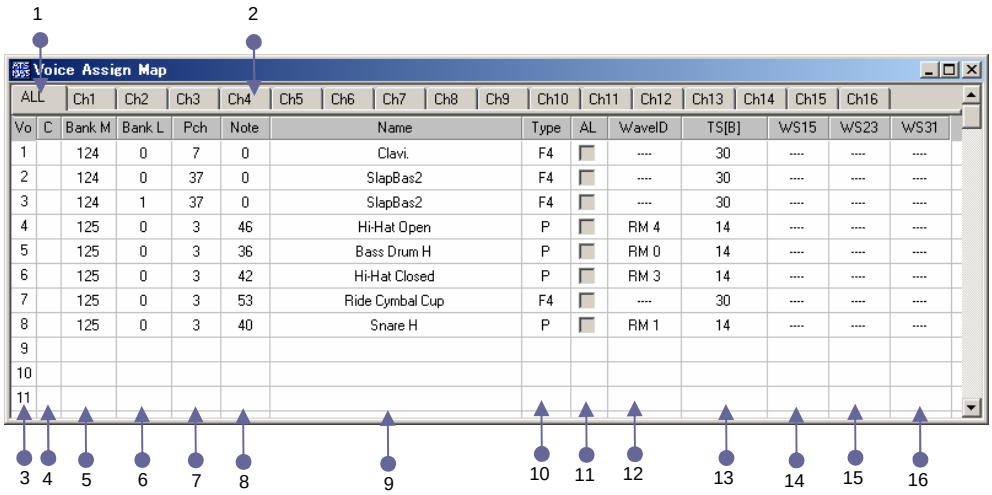


Figure. 4-12 Voice Assign Map Window

No.	Function name	Contents
1	ALL	Displays all used voices.
2	Ch1~Ch16	Displays the used voices per channels.
3	Vo.	Displays the number of used voices.
4	C (Change Flag)	When comparing the bank number of same voice list and voice of same voice number, and if the result is different, a blue circle is displayed.
5	Bank M (Bank Select MSB)	Displays BankSelect MSB.
6	Bank L (Bank Select LSB)	Displays BankSelect LSB.
7	Pch	Displays program change number.
8	Note	Displays note number.
9	Name	Displays voice name. When a voice name is double-clicked, Voice Edit window will be opened. (Voice Edit window of built-in ROM voices cannot be opened.) ***MA-5 Mode*** Note filed of voices with a check in "AL" field of Score Window and a check in "Enable AL" of AL Voice Edit are displayed with green. Name filed of voices with a check in "AL" field of Score Window but no check in "Enable AL" of AL Voice Edit are displayed with light green.
10	Type	Displays voice type to use. F4: 4 operators setting, F2: 2 operators setting, P: PCM setting.
11	AL	AL voice use in an applicable voice is specified.
12	WaveID	When used voice PCM and RAM voice is used, its WaveID is displayed. When using Drum voice "***RM***" of ROM, "***RM0~6***" is displayed.
12	TS[B] (Total Size)	RAM size for used voice is displayed. The unit is "***Byte***." For details about RAM size, see "***3.6.1About RAM Size.***"
13	WS15 (Wave 15)	When used voice is FM voice and WS15 is used, "***Used***" is displayed.
14	WS23 (Wave 23)	When used voice is FM voice and WS23 is used, "***Used***" is displayed.
15	WS31 (Wave 31)	When used voice is FM voice and WS31 is used, "***Used***" is displayed.

4.4.1. Voice Assign Map (Copy & Paste Function)

By right-clicking the voice name of Voice Assign Map, "***Voice data Copy/Paste***" function menu is displayed.

【Note】 For the details about Voice data Copy/Paste functions, refer to "4.4.1 Voice Assign Map (Copy & Paste Function)"

【Note】 Preset voice (*1) assigned on Voice Assign Map can be edited.
Edited voice data can be copied and pasted onto the Voice List as a user voice (*2).

(*1) Preset voice	Normal voice Drum voice	Bank MSB=124, LSB=0 Bank MSB=125, LSB=0, Pch#=0,1
(*2) User voice	Normal voice Drum voice	Bank MSB=124, LSB=1 to 9 Bank MSB=125, LSB=0, Pch#=2 to 9

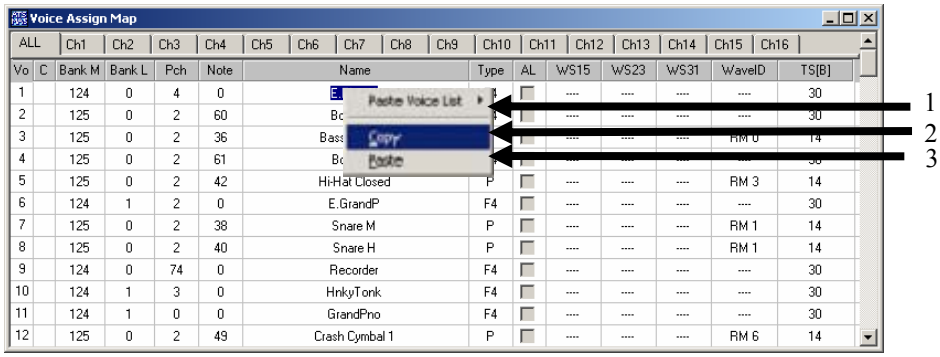
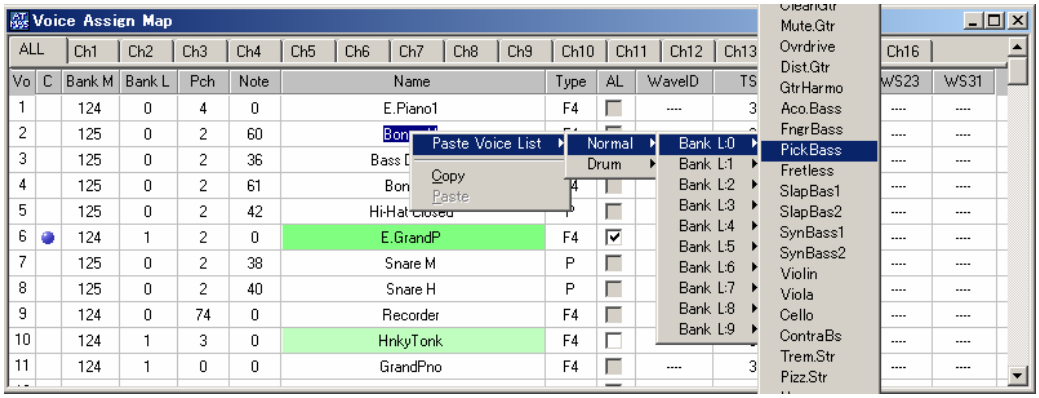


Figure. 4-13 Voice Assign Map (Copy & Paste Function)

No.	Function Name	Contents
1	Paste Voice List	Displays the contents of Voice List. For details, see the following figure.
2	Copy	Voices can be copied.
3	Paste	Voice can be pasted.

The voice assignment method to SMAF can also select and assign a voice from "***Paste Voice List***" of Voice Assign Map besides copy & paste of Voice List to Voice Assign Map.

It is possible to change a voice by choosing Paste Voice List, and following and choosing a voice from the menu displayed by carrying out the right click of the voice name changing.



4.4.2. Voice Assign Map (Right-Click Menu)

By right-clicking on a status such as "***Bank M***", the Voice Assign Map right-click menu will appear.

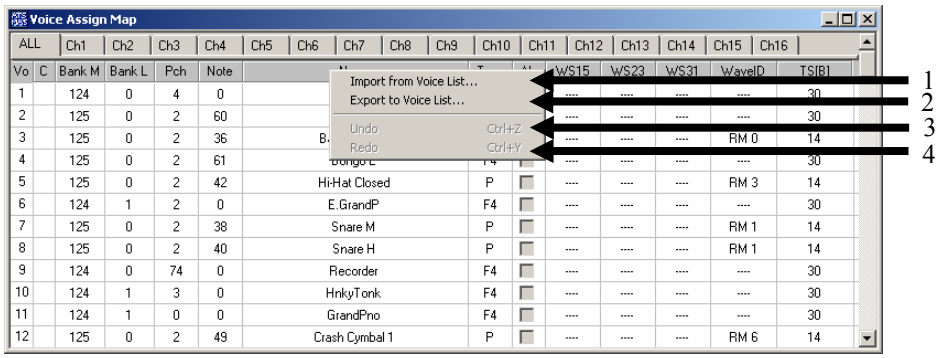


Figure. 4-14 Voice Assign Map (Right Click Menu)

No.	Function name	Contents
1	Import from Voice List	Voice, which has the same voice number and same bank number in the Voice List, is imported into Voice Assign Map. In addition, the same operation can be performed same operation with "***Import from Voice List***" in a tool bar.
2	Export to Voice List	Voice, which has the same voice number and the same bank number in the Voice List, is exported from Voice Assign Map. In addition, the same operation can be performed with "***Export to Voice List***" in a tool bar.
3	Undo	Makes the last copy operation for voice invalid and returns it into the previous state.
4	Redo	Repeats the same process as the last performed process.

【Note】 The voice data of the same bank and voice number as a preset voice is not exported to the Voice List by [Export to Voice List]. For registering such voice data into the Voice List, paste it into the user voice bank area with Copy/Paste function. For the detail, please refer to "4.4.1 Voice Assign Map (Copy & Paste Function)."

4.5. StreamPCM Assign Map

Stream PCM is assignable.
Stream PCM can be registered the maximum of 32 waves, and can be simultaneously generated to two sound.

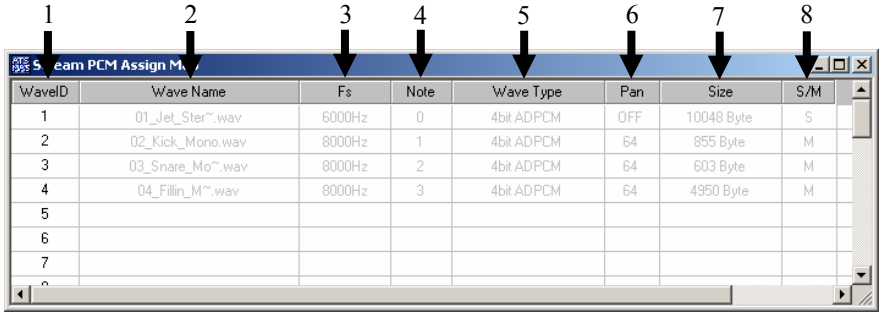


Figure. 4-15 StreamPCM Assign Map

No.	Function Name	Contents
1	WaveID	Displays wave ID. Corresponds to Note number. Up to 32 waves can be registered.
2	Wave Type	Displays wave type.
3	Fs	Displays the frequency of wave.
4	Note	Displays note numbers. (0 to 12 and 92 to 110)
5	Wave Type	Displays wave type.
6	Pan	Displays pan of Wave.
7	Size	Displays the size of the read wave data.
8	S/M (Stereo/Mono)	The read wave data indicates whether it is stereo wave data and whether it is monophonic wave data.

4.5.1. Details about Note to which a StreamPCM can be assigned

In order to register a Stream PCM event into SMF, it is necessary to set up by Bank Select, Program Change, or Note number beforehand, in other words, assigns by Stream PCM Edit Window of Piano Roll.

The bank selection of the note which can be used as a Stream PCM, a program change (an arbitrary value needs to be program changed for decision of a bank selection), and the note number are as follows.

Bank MSB	Note number	Definition	
125	0	Stream PCM	WaveID:1
	1		WaveID:2
	:		WaveID:X
	12		WaveID:13
	13	Drum Channel	
	14		
	:		
	91		
	92	Stream PCM	WaveID:14
	93		WaveID:15
	:		WaveID:X
	110		WaveID:17

【**Note**】 For details, see "***Contents Authoring Guideline.***"

4.5.2. Details about Sound File which can be registered as StreamPCM

In MA-5 Authoring Tool, it is possible to convert a sound file as an encoding-processed (***compressed***) StreamPCM and to register it to SMAF, so that a channel sequence and a sound file (***AIFF/WAVE***) can be played synchronously on SMAF. Stream PCM can be registered up to 32 kinds and can generate up to 2 sounds simultaneously.

Read Sound File			Stream PCM
Bit Rate	Sampling Frequency	Bit Rate	Sampling Frequency
8-bit	4KHz ~8KHz (12kHz)	AIFF/WAVE Monophonic	8-bit PCM
16-bit	4KHz ~16KHz (24kHz)		4-bit ADPCM
8-bit	4KHz ~(8KHz)	AIFF/WAVE Stereo	8-bit PCM
16-bit	4KHz ~8KHz (12kHz)		4-bit ADPCM

PCM (***Pulse Code Modulation***) is the digital recording system which changes analog signals, such as sound, into a digital signal. The signal of the sound which is the continuous waveform is started a fixed cycle (***sampling***), and it records as a digital signal by quantizing. ADPCM (***Adaptive Differential Pulse Code Modulation***) by the system, the whole amount of data is made small by quantizing only the difference of the data, which adjoins each other in the case of a sampling.

4.5.3. StreamPCM Assign Map (New/Delete Function)

By right-clicking the Stream PCM Assign Map window, "***New/Delete***" menu is displayed. In addition, it makes possible to perform the registration and delete of sound files.

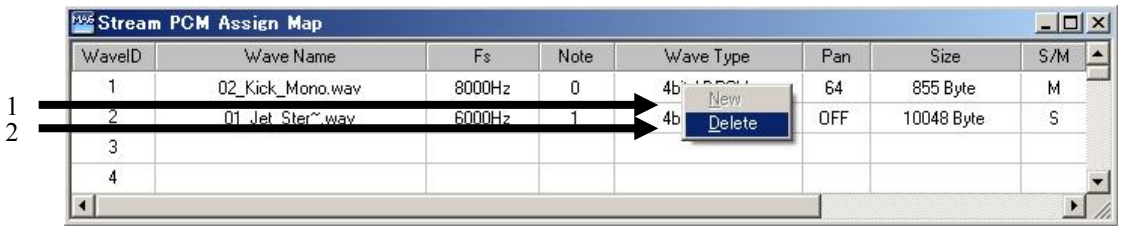


Figure. 4-16 StreamPCM Assign Map (New/Delete)

No.	Function Name	Contents
1	New	Opens a new WAVE data.
2	Delete	Deletes an opened Wave data.

If the right click of the inside of a "***Stream PCM Assign Map Window***" is carried out, a New/Delete menu is displayed and registration of a sound file and deletion can be performed.

【Note】 Refer to "***4.5.2Details about Sound File which can be registered as* StreamPCM**", for details about Fs of the file which can be read as a Stream PCM, and the encoding system which can be chosen.

【Note】 Stereo Sound can be registered to one wave ID. (Stereo Lch/Rch is considered as one wave and it is counted as one).

4.5.4. StreamPCM Wave Panpot

By double-clicking the pan-display column, "***Stream PCM Wave Panpot***" dialog opens and the panpot can be set.

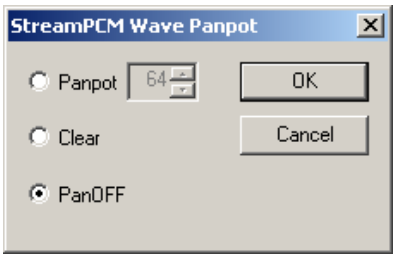


Figure. 4-17 Stream PCM Wave Panpot

When a section of Pan Display is double-clicked, "***Stereo PCM Wave Panpot***" is opened;
In addition, pan can be set up.
When a sound file is loaded, Panpot will be set up automatically according to the kind of sound file.

- Mono sound file : Panpot=64
- Stereo sound file : PanOff (Stereo Playback)

【Note】 For "***Stream PCM Wave Panpot Clear***" and "***Stream PCM Wave Panpot PanOFF***", refer to "***Contents Authoring Guideline For MA-5 Authoring Tool***."

4.5.5. StreamPCM Assign Map (Right-Click Menu)

By right-clicking on the status such as "***WaveID***" or "***Fs***", a pop-up menu is displayed.

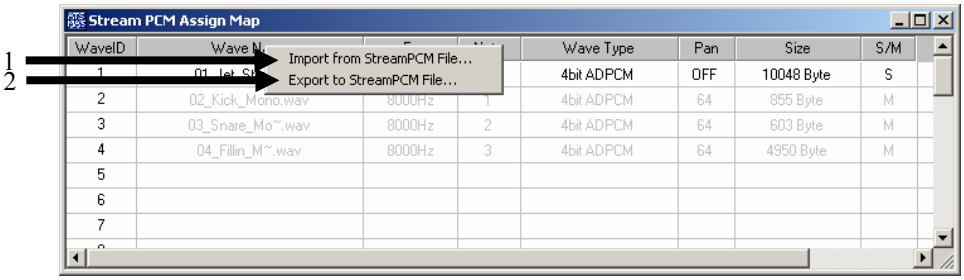


Figure. 4-18 StreamPCM Assign Map (Right-click Menu)

No.	Function name	Contents
1	Import from Stream PCM File	Waveform data can be read from Stream PCM File (***.sm3, .sm5***) saved by Export to Stream PCM File. **【Note】** In the MA-3 mode, waveform data can be read from Stream PCM File (***.sm3***).
2	Export to Stream PCM File	All waveform data registered in Stream PCM Assign Map can be saved in StreamPCM File. (extension is ***"*.sm5"***)

4.6. HV Extend Voice Map

Only for MA-5 Mode

Displays the HV Extend Voice Map. HV Extend Voice can be used up to the maximum 16.
Selects "***HV Extend Voice Map***" on Window menu of the menu bar.

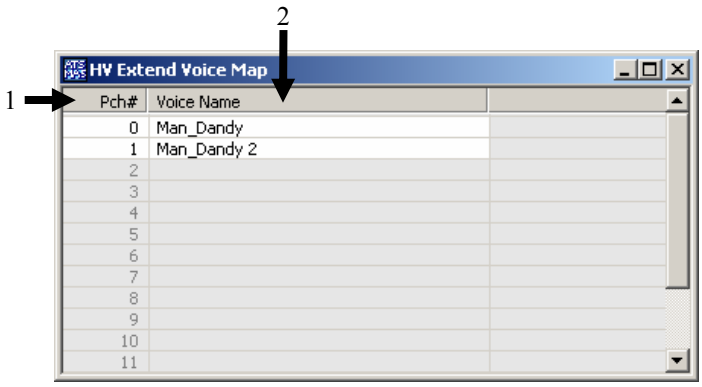


Figure. 4-19 HV Extend Voice Map

No.	Function name	Contents
1	Pch# (Program Change)	Displays the number of Extend Voice.
2	Voice Name	Displays the name of Extend Voice. Double-clicks to open Voice Edit Window. For details about "Voice Edit Window", refer to "***4.19Voice Edit Window***"

4.6.1. HV Extended Voice Map (Delete/Copy/Paste Function)

By right-clicking the number of Extend Voice or the name of Extend Voice, "***Delete/Copy/Paste***" menu will be displayed.

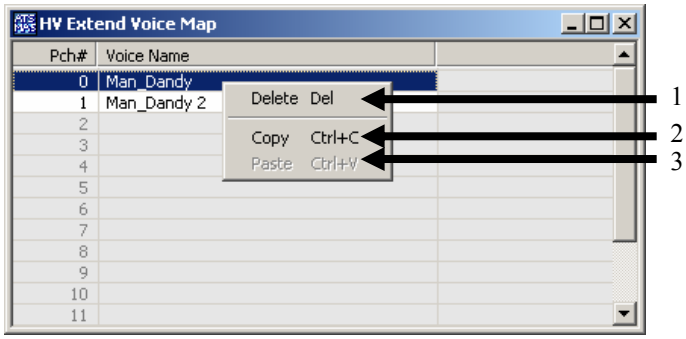


Figure. 4-20 HV Extend Voice Map (Delete/Copy/Paste)

No.	Function name	Contents
1	Delete (Del)	Deletes an Extend Voice from a Map.
2	Copy (Ctrl+C)	Copies an Extend Voice.
3	Paste (Ctrl+V)	Pastes an Extend Voice.

4.6.2. HV Extended Voice Map (Right-Click Menu)

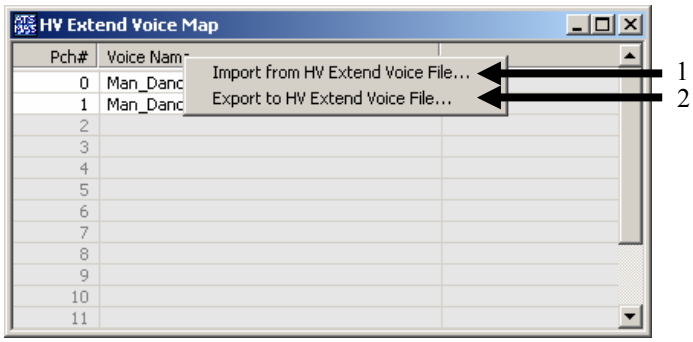


Figure. 4-21 HV Extend Voice Map (Delete/Copy/Paste)

No.	Function name	Contents
1	Import from HV Extend Voice File…	Import from HV Extend Voice File
2	Export to HV Extend Voice File…	Export to HV Extend Voice File

4.7. HV-Script Assign Map

Only for MA-5 Mode

HV script assignment map is displayed. HV script is assignable to 64 pieces.

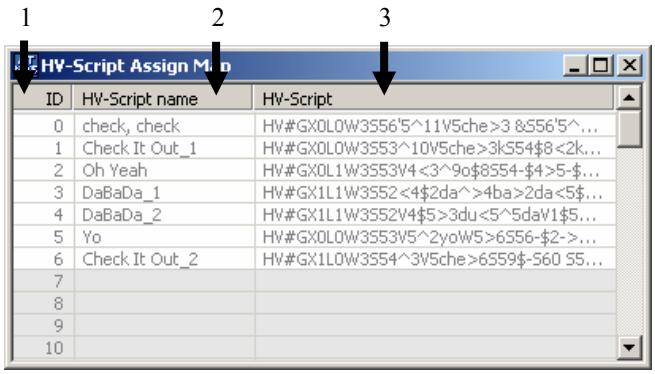


Figure. 4-22 HV-Script Assign Map

No.	Function name	Contents
1	ID	HV Script ID is displayed. It supports NoteNo..
2	HV-Script name	The names of HV Script is displayed.
3	HV-Script	The contents of HV-Script is displayed.

By duble-clicking these fields, HV-Script edit dialog is appeard and made it possible to paste and to edit HV Script. For details about HV-Script Edit Dialog, see "***4.8HV-Script Edit Window***."

4.7.1. HV-Script Assign Map (New/Delete/Copy/Paste Function)

Right-click these fields to display "***New/Delete/Copy/Paste***" menu.

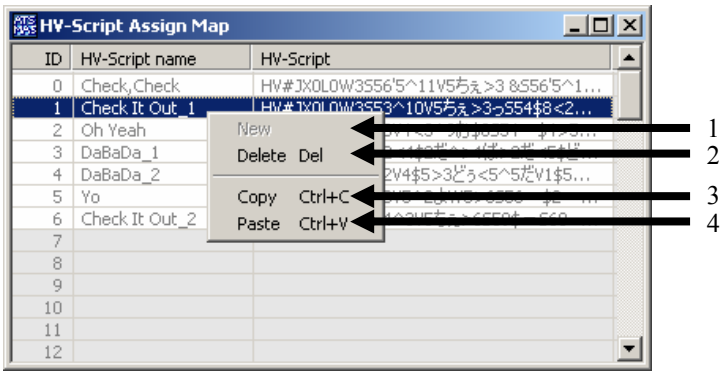


Figure. 4-23 HV-Script Assign Map (New/Delete/Copy/Paste)

No.	Function name	Contents
1	New	Displays HV-Script Edit dialog. You can paste and edit HV-Script. To select "***New***" form the menu, right-click the blank field (the field on which HV script is not pasted yet).
2	Delete (Del)	Deletes the HV-Script already pasted.
3	Copy (Ctrl+C)	Copies the HV-Script.
4	Paste (Ctrl+V)	Pastes the HV-Script.

4.7.2. HV-Script Assign Map (Right-Click Menu)

Right-click on the status of "***ID***", "***HV-Script name***", or "***HV-Script***" to display the pop-up menu.

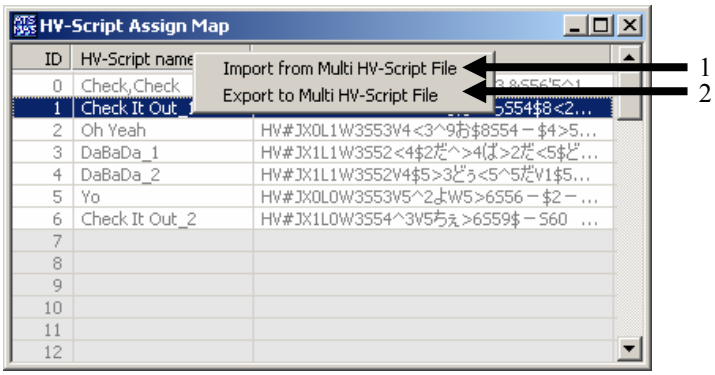


Figure. 4-24 HV-Script Assign Map (Right-Click Menu)

No.	Function name	Contents
1	Import from Multi HV-Script File	Reads HV-Script form Multi HV-Script File (***.hs5***) which is saved by Export to Multi HV-Script File.
2	Export to Multi HV-Script File	Saves all HV-Script on the map putting together into Multi HV-Script File. (File extensions will be "***.hs5***")

4.8. HV-Script Edit Window

HV-Script can be pasted, edited, read from a file, and saved into a file on this dialog. To display this dialog, double-click on HV-Script dialog, or select "***New***" from New/Delete/Copy/Paste menu.

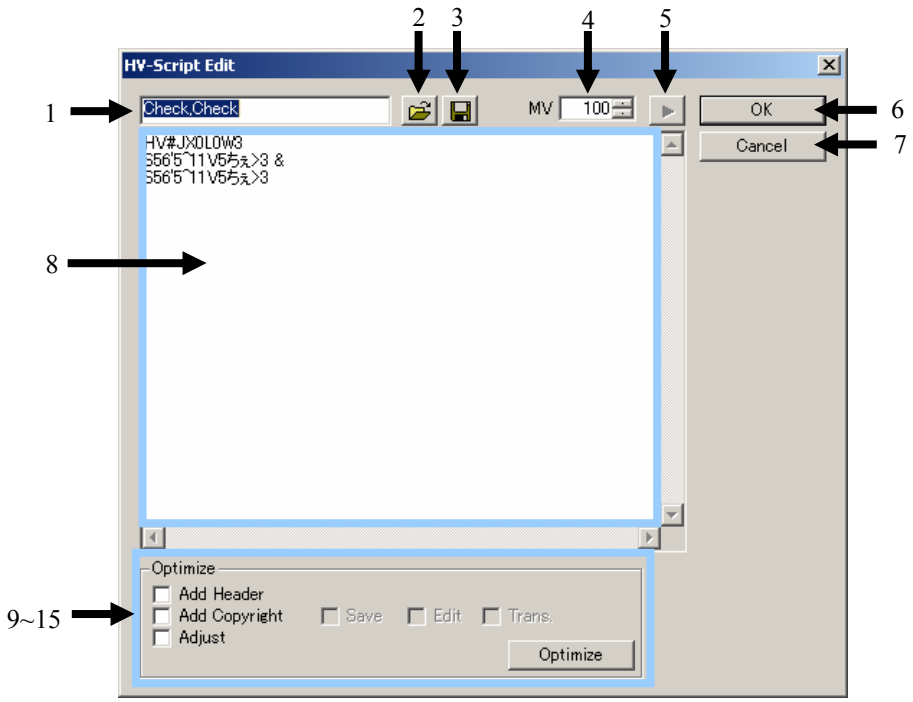
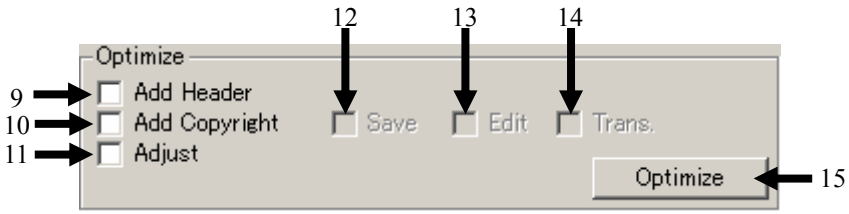


Figure. 4-25 HV-Script Edit Window

No. 1 to 8

No.	Function name	Contents
1	Input Box of HV-Script Name	Names the HV-Script. If you read HV-Script file by using "***Open***" button described in "***No.2***", the name of the file will be automatically inputted as the name of HV-Script.
2	Open	Reads HV-Script file (***.hvs***).
3	Save	Saves the present contents of "***No.8 HV-Script Input Box***" as HV-Script file. File extension will be "***.hvs.***"
4	MV (Master Volume)	Displays a value of Master volume. Default value is "***100***."
5	Play (Playback button)	Plays the contents of "***No.8 (HV-Script Input Box)***." When HV channel is not designated, it can not be played back.
6	OK	Registers the contents of "***No.1***" and "***No.8***" to HV-Script Assign Map, and closes the dialog.
7	Cancel	Closes the dialog without registering to HV-Script Assign Map.
8	HV Script Input Box	HV-Script can be written and edited directly here.

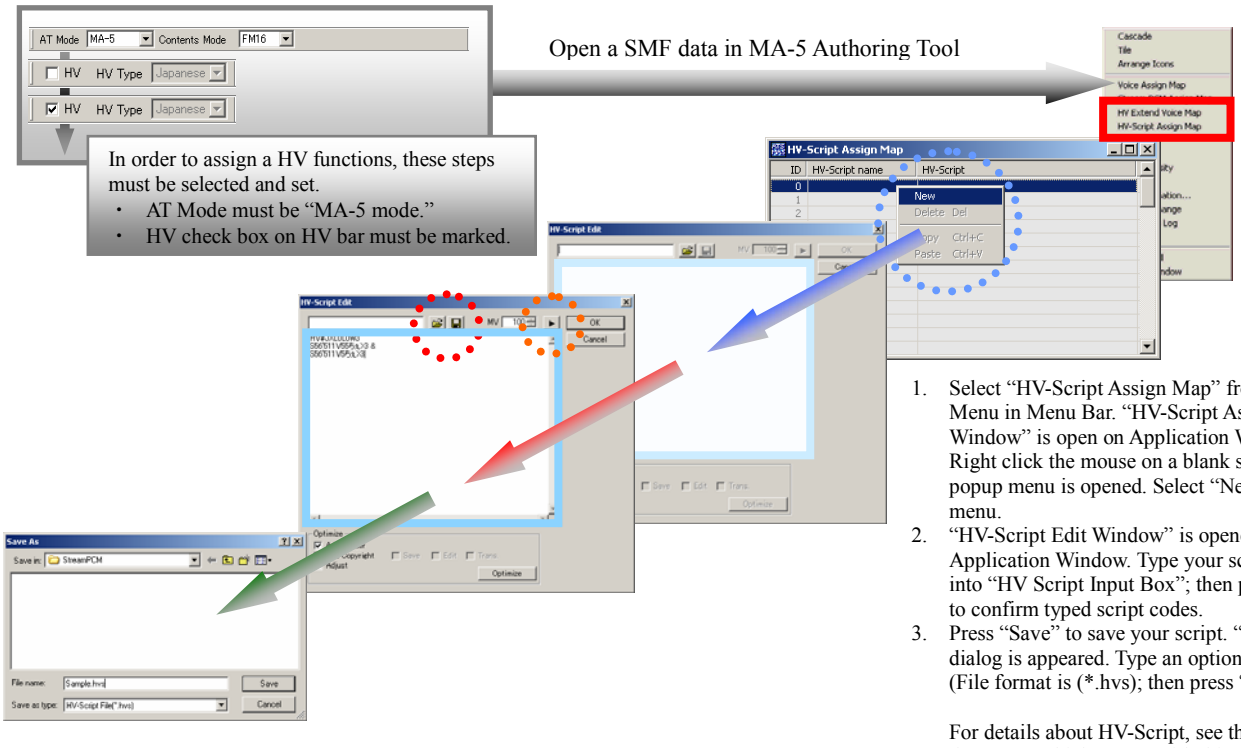


No. 9 to 15

No.	Function name	Contents
9	Add Header	When clicking "***Optimize***" button after setting ON this check box, a header which starts with HV# is added on the top of HV-Script.
10	Add Copyright	When clicking "***Optimize***" button after setting ON this check box, the copyright information which starts with " ***##*** " is added on the following position. When a header exists in HV-Script, the copyright information is added after the header information. When a header does not exsit in HV-Script, the copyright information is added at the top. The copyright information has 3 kinds, Save, Edit, and Trans. It is possible to output copyright information to each items individually, if they are specified. When there is not any specification about neither Save, Edit, and Trans, the copyright information on HV-Script is deleted.
11	Save Check Box	When executing "***Add Copyright***" with this check box ON, "***Not Savable***" is added into the copyright information.
12	Edit Check Box	When executing "***Add Copyright***" with this check box ON, "***Not Editable***" is added into the copyright information.
13	Trans. Check Box	When executing "***ADD Copyright***" with this check box ON, "***Not Transferable***" is added into the copyright information.
14	Adjust Check Box	When clicking "***Optimize***" button after setting ON this check box, it may convert a voice string of HV-Script, and may cnvert a long vowl or silent symbol to 2 bytes character. Also it may adjust continuous rhythm symbols, or delete "***New-line***" to make HV-Script compact.
15	Optimize Check Box	When clicking this button, the functions of "***No.9***" to "***No.14***" are executed.

4.8.1. HV-Script Creation Procedures

HV-Script Create Procedures



1. Select "HV-Script Assign Map" from Window Menu in Menu Bar. "HV-Script Assign Map Window" is open on Application Window. Right click the mouse on a blank space; then popup menu is opened. Select "New" from the menu.
2. "HV-Script Edit Window" is opened in Application Window. Type your scripts code into "HV Script Input Box"; then press "Play" to confirm typed script codes.
3. Press "Save" to save your script. "Save as…" dialog is appeared. Type an optional file name (File format is (*.hvs); then press "Save."

For details about HV-Script, see the attached document which comes with this document.

4.9. Mixer

The playback balance of each channel can be kept. (The balance cannot be changed during a playback of data.)

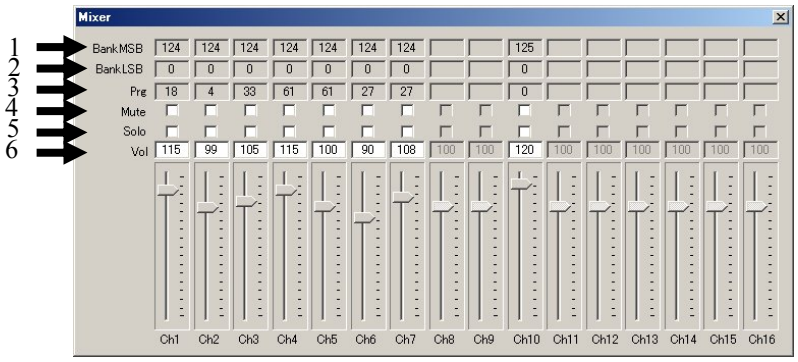


Figure. 4-26 Mixer Window

No.	Function name	Contents
1	Bank MSB (Bank Select MSB)	Displays BankSelect MSB.
2	Bank LSB (Bank Select LSB)	Displays BankSelect LSB.
3	Prg (Program)	Displays Program Change Number.
4	Mute	Mutes a relevant channel. This is not reflected on the music data (***SMAF***).
5	Solo	Plays a relevant channel with solo. This is not reflected on the music data (***SMAF***).
6	Vol	Displays a volume value.

4.10. Event Density

Converts the event density to the MIDI byte counts in the read music and displays it.

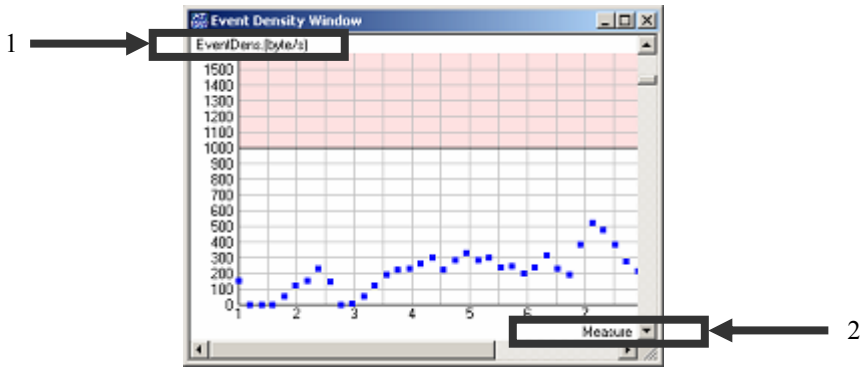


Figure. 4-27 Event Density

No.	Function name	Contents
1	Event Density [byte/s]	Displays event density. The unit time used as criteria when converting an event density can be set up by preference.
2	Measure/Time [Sec]	Displays time. •·In case of SMF import : Measure (***beat unit***) is displayed. • In case of SMAF Open : Time "***sec***" is displayed.

4.11. STM Size

STM Size Window displays the StreamPCM size in loaded music.

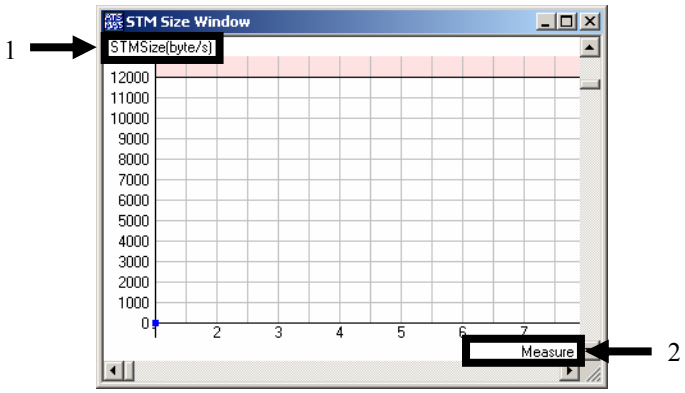


Figure. 4-28 STM Size

No.	Function name	Contents
1	STM Size "byte/s"	Displays stream PCM size.
2	Measure/Time "Sec"	Displays time. •When SMF import : Displayed by Measure (per beat) •When SMAF open : Displayed by Time "***sec***"

4.12. Velocity Change

Velocity of Note event in read music can be changed.

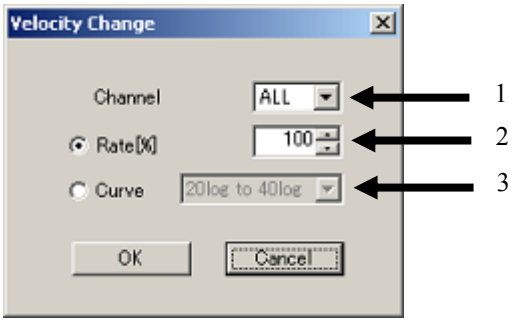


Figure. 4-29 Velocity Change Dialog

No.	Function name	Contents
1	Channel	Designates the channel to change its velocity. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16 channel, STM (StreamPCM), and ALL (All note event) can be designated.
2	Rate [%]	Designates the change rate of velocity value 50 ~ 200%.
3	Curve	Designates the curve which changes a velocity. There are two kinds of curves "***20logto40log***" and "***40logto20log.***"

4.13. Edit Information

Information can be input / edited.

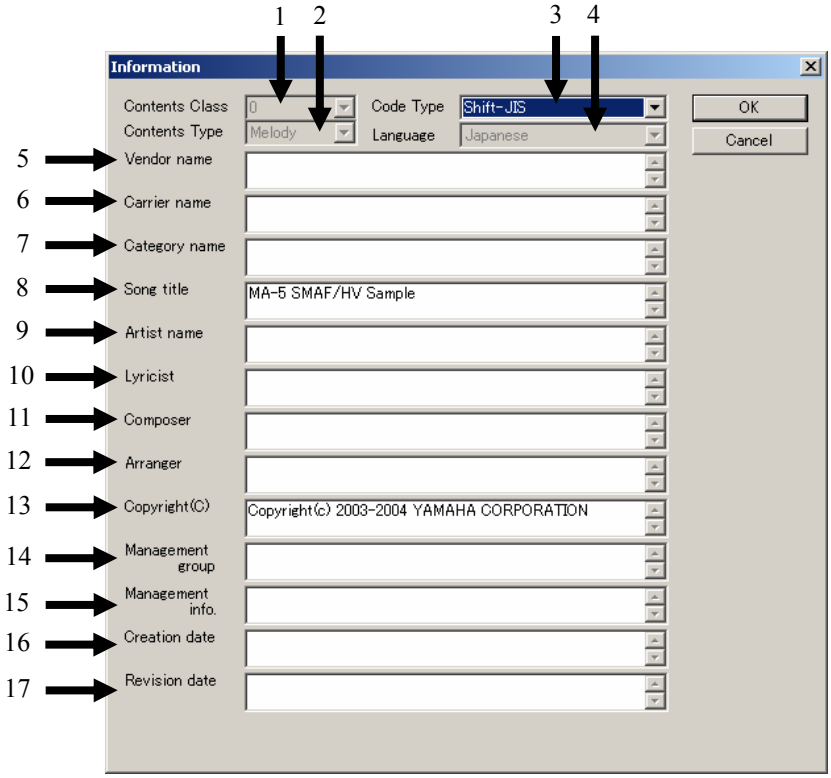


Figure. 4-30 Edit Information

No.	Function name	Contents
1	Contents Class	Contents Class can be displayed
2	Contents Type	Contents Type can be displayed.
3	Code Type	Code type can be set. Shift-JIS, Latin-1, EUC-KR, or UTF-8 whichiever are selectable.
4	Language	Language classification can be set up. When code type isUTF-8, it can be set.
5	Vendor name	Vendor's name can be input.
6	Carrier name	Carrier name can be input.
7	Category name	Category name can be input.
8	Song title	Music title can be input.
9	Artist name	Artist's name can be input.
10	Lyricist	Lyricist name can be input.
11	Composer	Composer's name can be input.
12	Arranger	Arranger's name can be input.
13	Copyright©	Copyright can be input.
14	Management group	Name of copyright management group can be input.
15	Management info.	Management Information can be input.
16	Creation date	Creation date and time can be input.
17	Revision date	Revision date can be input.

4.14. File Access Log

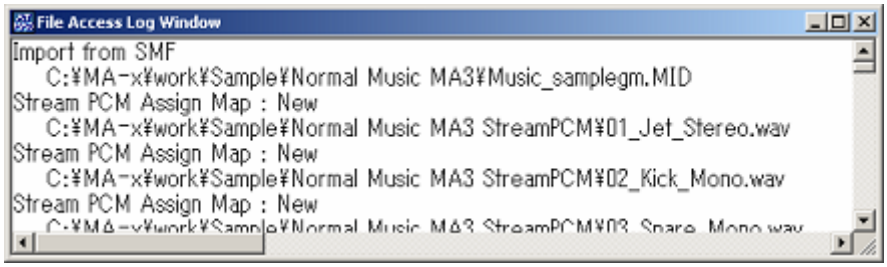


Figure. 4-31 File Access Log

Log is displayed when operation related to the file is performed.
The performed operation and path of file are displayed.
The contents of display do not disappear until application ends.

4.15. Transpose

The note number of the note event in the sound data can be shifted in the range of "+12" – "-12."

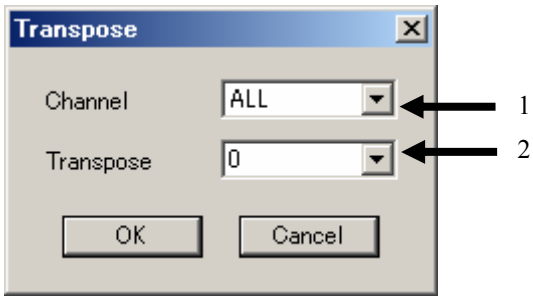


Figure 4-32 Transpose

No.	Name	Description
1	Channel	Selects the channel to shift the note number. When "ALL" is selected, the note number of all channels is shifted. [Note] - This setting is valid only for normal channel. - The channel having no note event and HV channel are not selectable. - The note number of drum channel doesn't shift.
2	Transpose	Sets Key control. The range from "+12" to "-12" is selectable.

【Note】 Setting of Transpose is reflected to SMAF file.

4.16. Preference

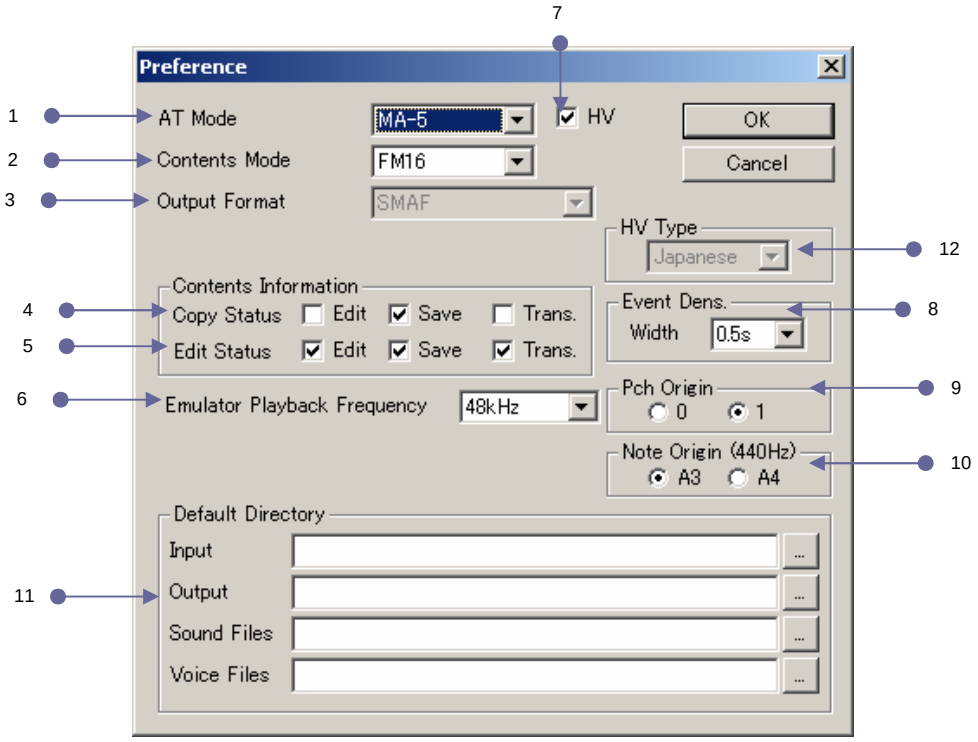


Figure. 4-33 Preference Window

No.	Function name	Contents	
1	AT Mode	Switchs the mode of the Authoring Tool.	
		MA-3 Mode	This is a mode for creating contents for MA-3. SMAF file that has been created in MA-5 mode cannot be read in MA-3 mode.
		MA-5 Mode	This is a mode for creating contents for MA-5. SMAF file that has been created with MA-3 Authoring Tool can be read and edited in this mode. (When saveing a SMAF for MA-3 in MA-5 mode, it is saved in file format for MA-5.)
2	Contents Mode	Changes FM mode. FM mode cannot be changed when music data are read on the Authoring Tool. Change FM mode after closing a music data.	
		MA-3 Mode	
		FM16 Mode	2-operator voice, 4-operator voice, and PCM voice can be used.
		FM32 Mode	2-operator voice and PCM voice can be used.
		MA-5 Mode	
		FM16 Mode	2-operator voice, 4-operator voice, and PCM voice can be used, and AL parameter can be set.
		FM32 Mode	2-operator voice and PCM voice can be used, and AL parameter can be set.
		ALL64 Mode	2-operator voice and PCM voice can be used. (AL parameter, Stream PCM, and HV voice are not available.)
3	Output Format	Displays the output format.	
4	Copy Status	Copy status can be set.	
		Edit	Places a check here to enable edition of relevant contents on the portable terminals. To make the following setting of Edit Status valid, it is necessary to place a check here.
		Save	Places a check here to enable saving of relevant contents on the portable terminals.
		Trans	Places a check here to enable transfer of relevant contents on the portable terminals.
5	Edit Status	Edit status can be set. Edit status becomes the copy status of secondary literary works that have been edited using an application for edition on the portable terminals.	
		Edit	Places a check here to enable edition of relevant contents on the portable terminals. To make the following setting of Edit Status valid, it is necessary to place a check here.
		Save	Places a check here to enable saving of relevant contents on the portable terminals.
		Trans	Places a check here to enable transfer of relevant contents on the portable terminals.

6	Emulator Playback Frequency	Emulator Playback frequency can be set up. Either of 48kHz (default), 44,1kHz, 32kHz, or 22.05kHz can be selected.	
7	HV Check Box	***MA-5 Mode*** Paste, edit, and play HV can be operated by placing a check in this box. It cannot be checked under ALL 64 mode. Select FM16 or FM32 mode to use HV function. Be sure to put a check into the HV check box and make HV "ON" before reading SMF, when making the contents which used HV from SMF. HV is turned ON/OFF according to the SMAF information when SMAF is re-edited. In the state of HV OFF, it will be set to HV ON if SMAF with HV is opened. In the state of HV ON, it will be set to HV OFF if SMAF without HV is opened.	
8	Event Dens.	Width	The unit time used as the standard for converting event density can be set. 0. 1 sec, 0.2 sec, 0.5 sec, 1.0 sec, 1.5 sec, or 2.0 sec can be selected. (Density unit is Bytes/Sec=Density/Width.)
9	Pch Origin	Whether program change number starts from "0" or from "1" can be selected by selecting Pch Origin.	
10	Note Origin	It can set to display Note of 440 Hz as A3 or A4. The Note display of EventList and PianoRoll change, but the interval of the voice that is generated does not change.	
11	Default Directory	Input	The default directory at the time of loading can be set up.
		Output	The default directory at the time of saving can be set up.
		Sound Files	A sound file is loaded and the default directory at the time can be set up.
		Voice Files	A voice data file is loaded and the default directory at the time can be set up.
12	HV Type	Displays the languages depending on the Operation System which you use.	

4.17. DVA Checker

This is a window to check the maximum simultaneous pronunciation numbers.
When an error occurred in the maximum simultaneous pronunciation number, it is used to pinpoint the error parts.

Figure. 4-34 DVA Checker

No.	Function name	Contents
1	Mode	***Check over the Max voice*** By clicking the Check button, the position of which it exceeded the number of maximum simultaneous pronunciation in each mode (***FM32, FM16, and ALL64***) and its pronunciation number are checked. The value of "***Time***", "***FM***" and "***PCM***" are displayed when the result is "***Over***." ***Check the Max Voice Number of Sequence*** By clicking the Check button, the position of the maximum simultaneous pronunciation number in data and the number of pronunciation are checked. The value of "***Time***", "***FM***" and "***PCM***" are surely displayed, it is not concerned with Result.
2	Output file	By placing a check in a box, time of which it exceeded the number of maximum simultaneous pronunciation in each mode (***FM32, FM16, and ALL64***) and its pronunciation number can be saved by text-file format. (***DVAChecker_result.txt***) The text file is saved in the folder which is installed in MA-5 Authoring Tool.
3	Result	Displays the result which checked the simultaneous sound generation number. If it is not over the number of maximum simultaneous pronunciation in each mode, "***O.K.***" will be displayed. If it is over, "***Over***" will be displayed. And if the result is "***Over***", open the above text file and confirm the details, please.
4	Time	Displays the object time in "***ms***" unit.
5	FM	Displays the number of simultaneous sound generation of FM voice.
6	PCM	Displays the number of simultaneous sound generation of PCM voice.

4.18. about Authoring Tool

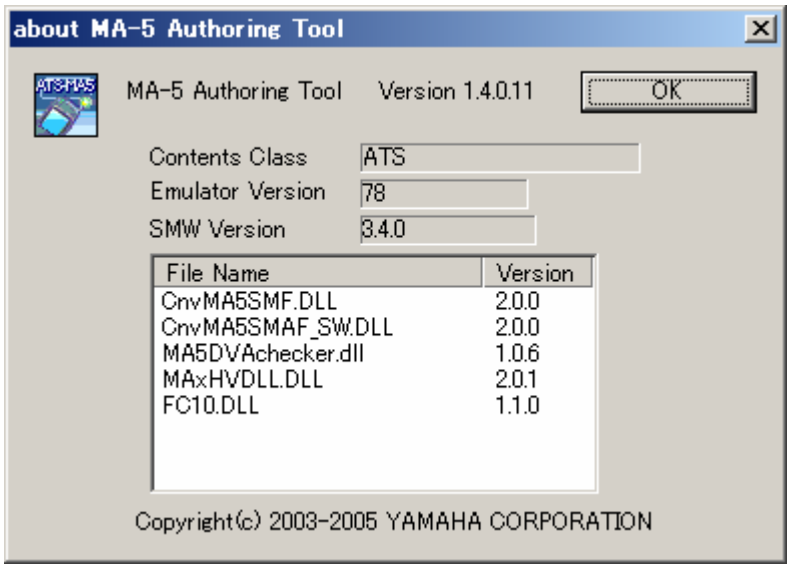


Figure. 4-35 about Authoring Tool

【**Note**】 Refer to "***3.3.6Help Menu***" to open this window.

4.19. Voice Edit Window

4.19.1. FM Voice Edit Parameter

Double-clicks the user voice name shown on the "***Voice List Window***" to display "***Voice Edit window***."

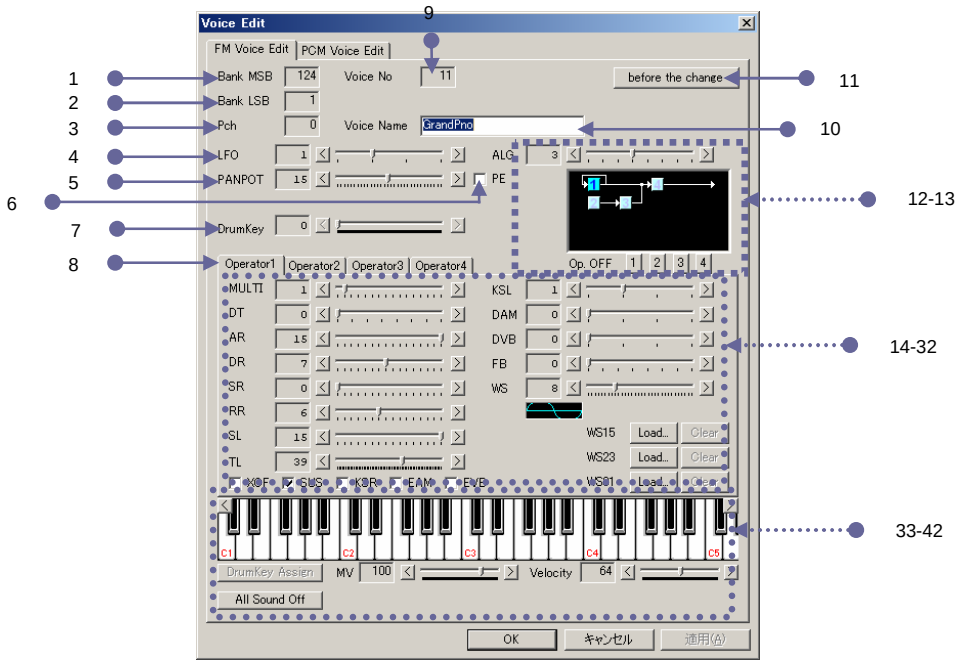
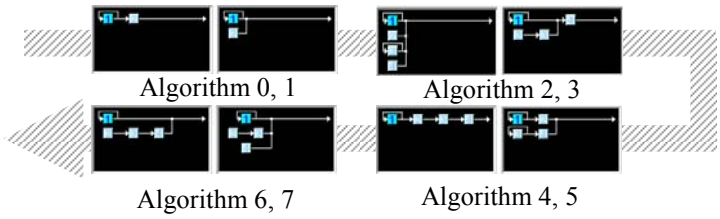


Figure. 4-36 FM Voice Parameter

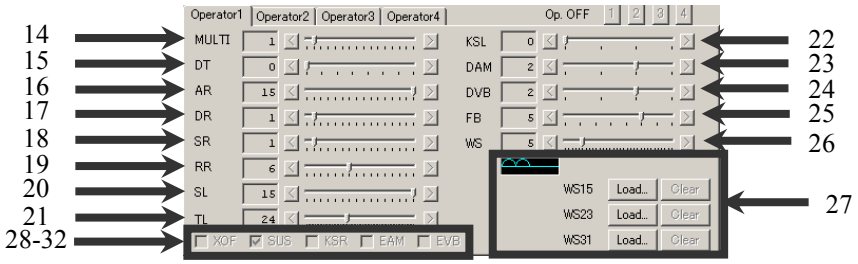
No. 1- 11

No.	Function name	Contents
1	Bank MSB	Displays Bank MSB in which the voices being edited exist. It cannot be changed here.
2	Bank LSB	Displays Bank LSB in which the voices being edited exist.
3	Pch	Displays/Changes the program change for the voices being edited.
4	LFO	Sets LFO frequency that is used for each voice. LFO= 0 : 1.8 Hz, LFO= 1 : 4.0 Hz, LFO= 2 : 5.9 Hz, LFO= 3 : 7.0 Hz
5	Panpot	Sets right-left balance for each channel. (0…15…31) The smaller value, the further it pans to the left, or the larger value, the further it pans to the right.
6	PE	Place a check in this box to disable the pan setting of the control change and to enable the value of panpot of the voices.
7	DrumKey	Parameter that functions only at edition of the drum voice. It changes the key which the voice being edited actually generates.
8	Operator 1, 2, 3, 4	Changes Operator. The display changes between 1 to 2 and 1 to 4 in accordance with the setting of the algorithm. Right-click on the tab of Operator1 to 4 to display Copy/Paste menu with which the Operator can be copied.
9	Voice No.	Displays the voice number being edited with Voice Assign Map.
10	Before the Change	Press this switch to listen to the voices before they are edited. Press this switch again to restore the voices being edited.
11	Voice Name	Sets the voice name being edited.

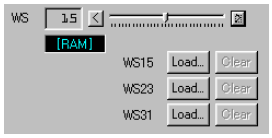
No.12-13

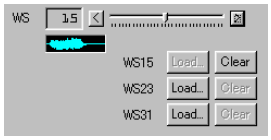
No.	Function name	Contents
12	ALG (Algorithm)	Sets algorithm. 2 Operator or 4 Operator is set in accordance with the type of algorithm. In FM32 mode, when algorithm of 2op is not selected, it does not generate normally. Please set 0 or 1 to ALG. 
13	Op OFF [Operator OFF]	The output of each operator can be turned OFF by selecting the button of 1 to 4.

No.14-32



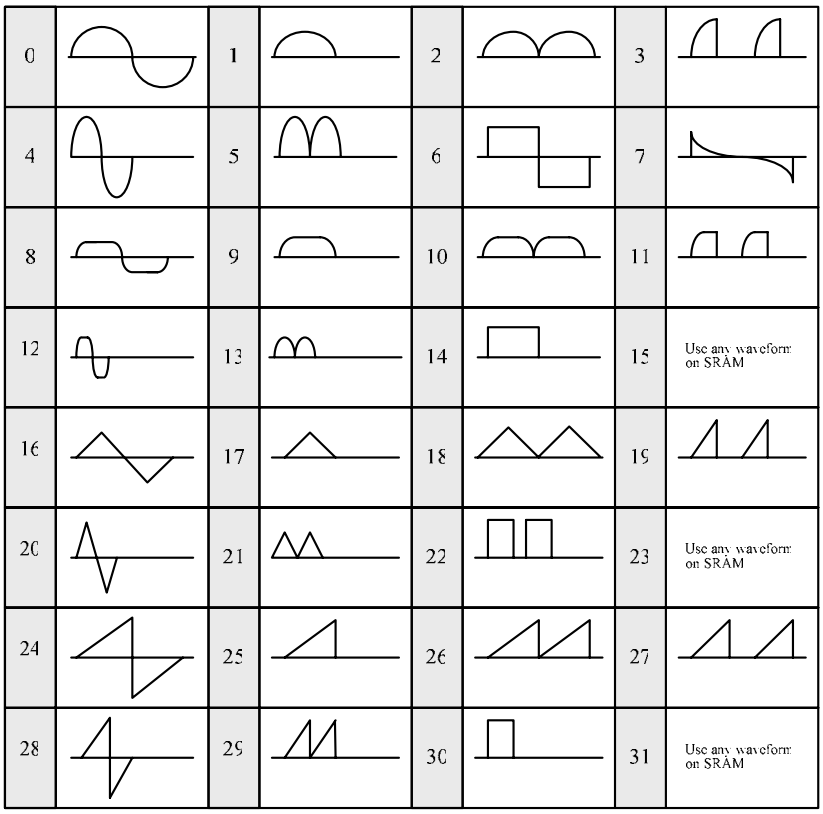
No.	Function name	Contents
14	MULTI	Designates a multiplier for the frequency. MULTI: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,11, 12,13, 14,15 Multiplier: 1/2, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15
15	DT (Detune)	Designates Detune. Detune shifts the pitch delicately to cause the feeling of chorus. DT=1 to 3 shifts the pitch upwards. Difference width becomes large in the order of 1, 2, and 3. DT=5 to 7 shifts the pitch upwards. Difference width becomes large in the order of 5, 6, and 7. DT= 0 and 4, it is standard pitch. The frequency of Detune is affected by the setting of MULTI. When MULTI= 2 times, the values of Detune are doubled.
16	AR (Attack Rate)	Attack Rate is the time from the starting of tone generation (-96 dB) to the time of maximum volume (0 dB).
17	DR (Decay Rate)	Decay Rate is the decay time from the moment the maximum volume (0 dB) to the moment Sustain Level (SL).
18	SR (Sustain Rate)	Sustain Rate designates the rate of decay from the moment a Sustain Level is attained. Unlike other rate setting, setting this to "***0***" causes continuation of the Sustain Level.

<table>
<tr><th>No.</th><th>Function name</th><th>Contents</th></tr>
<tr><td>19</td><td>RR (Release Rate)</td><td>Release Rate is the time from key off to the moment the silent state (-96 db) is attained. When a check is placed in the check box of SUS, the setting is ignored.</td></tr>
<tr><td>20</td><td>SL (Sustain Level)</td><td>The Sustain Level is the one at which Decay Rate changes to Release Rate for decaying tone, or the level at which volume of a continuous tone is sustained.</td></tr>
<tr><td>21</td><td>TL (Total Level)</td><td>Sets the level of envelope.</td></tr>
<tr><td>22</td><td>KSL
(Designation of Level Scaling)</td><td>For natural instruments, the volume generally decreases and the interval becomes higher. The scaling of level simulates this phenomenon. KSL sets the amount of decay per octave.
KSL= 0 : 0, KSL= 1 : 3.0dB / oct
KSL= 2 : 1.5dB / oct, KSL= 3 : 6.0dB / oct</td></tr>
<tr><td>23</td><td>DAM
(Depth of Amplitude Modulation)</td><td>Sets the depth of amplitude modulation (AM).
DAM= 0 : 1.3 dB, DAM= 1 : 2.8 dB
DAM= 2 : 5.8 dB, DAM= 3 : 11.8 dB</td></tr>
<tr><td>24</td><td>DVB
(Depth of Vibrato Modulation)</td><td>DVB= 0 : 3.4 cents, DVB= 1 : 6.7 cents
DVB= 2 : 13.5 cents, DVB= 3 : 26.8 cents</td></tr>
<tr><td>25</td><td>FB
(Amount of Feedback)</td><td>This function enables only Modulator side Operator. It designates the degree of feedback modulation.
<table>
<tr><td>Setting value</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr>
<tr><td>Degree of modulation</td><td>0</td><td>π /16</td><td>π /8</td><td>π /4</td><td>π /2</td><td>π</td><td>2π</td><td>4π</td></tr>
</table></td></tr>
<tr><td>26</td><td>WS
(Waveform election)</td><td>Designates waveform of each Operator that is used for FM operation. The waveform that is used can be selected from 29 types.</td></tr>
<tr><td>27</td><td>XOF
(Ignore KeyOff)</td><td>Sets whether to ignore KeyOff or not. Place a check in the check box to ignore KeyOff. KeyOff does not cause the change of state.</td></tr>
<tr><td>28</td><td>SUS (Sustain)</td><td>Sets whether to allow the rate change after KeyOff is allowed or not. When check is placed in the check box and Hold 1 (damper) information of MIDI message is received, SR continues after KeyOff.
For making effective the hold1 (damper) of MIDI message, be sure to set SUS to ON.</td></tr>
<tr><td>29</td><td>KSR
(Rate scaling)</td><td>Sets rate key scale ON/OFF. Place a check in the check box to enable setting of KSL.
Key scale ON/OFF of the rate can be set up by checking this box. By the natural musical instrument, the standup and falling of sound become early as a pitch becomes high in general. The key scale of the rate simulates this phenomenon.</td></tr>
<tr><td>30</td><td>EAM
(AM modulation)</td><td>Sets amplitude modulation ON/OFF. Place a check in the check box to enable setting of DAM.</td></tr>
<tr><td>31</td><td>EVB
(Vibrato modulation)</td><td>Sets vibrato modulation ON/OFF. Place a check in the check box to enable setting of DVB.
Be sure to set EVB to ON to enable modulation of MIDI message.</td></tr>
<tr><td>32</td><td>WS15/23/31
(Wave 15/23/31)</td><td>Allows decision of arbitrary basic waveform. Reads 1024 samples from a sound file of 16 bit monaural (WAVE, AIFF).
Set WS to 15 (23/31).
Click the Load button of WS15 (23/31) to read a sound file
Pressing "Clear" to clear each wave.
 



<The cautions at the time of Clear FM user basic waveform>
A user basic waveform is deleted from all the voices that the user basic waveform which Load in FM voice editing dialog is shared by the voice which set up the same basic waveform, and share a waveform between clear operations.
Please perform SMAF preservation after checking the use situation of a basic waveform by Voice Assign Map, when a user basic waveform is used.</td></tr>
</table>

4.19.1.1.List of FM Fundamental Waveform



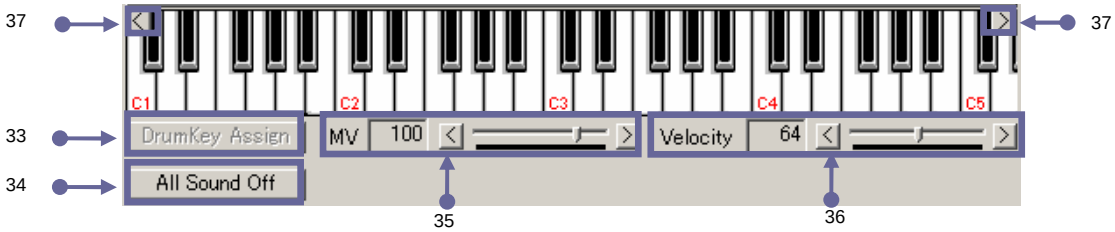
FM Fundamental Wave Form

No. 33-37 Keyboard

The voice under editing can be monitored by clicking the keyboard.

Display of normal voice being edited

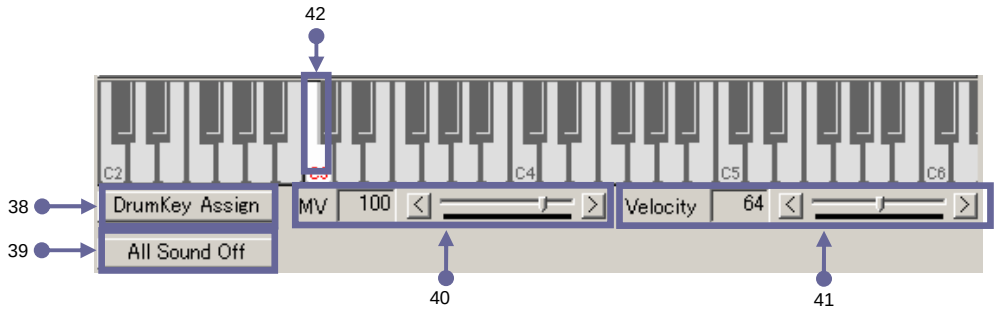
In the case of normal voice, it generates higher musical interval as going the right side of the keyboard, and lower musical interval as going toward the left side.



No.	Function name	Contents
33	DrumKey Assign	It is not used when editing normal voice. (It is valid only when editing drum voice)
34	All Sound Off	Sound generation of all the designated channels stops.
35	MV (Master Volume)	Master volume value when monitoring by the keyboard can be changed.
36	Velocity (Velocity)	Velocity value when monitoring by the keyboard can be changed.
37	Scrolling button	By pushing this button, the displayable range of keyboard can be changed. ▪ Click of right side button displays higher interval. ▪ Click of left side button displays lower interval.

No. 38-42 Keyboard

Display of drum voice edited
In the case of drum voice, it generates only when Note No. under editing is clicked.



No.	Function name	Contents
38	DrumKey Assign	By pushing this switch, it can generate the drum voice in higher musical interval as going toward the right side of keyboard, and in lower musical interval as going toward the left side. A generated key is automatically set to DrumKey. (DrumKey Assign shown in the following figure means the switch is being pushed.) DrumKey Assign All keys can be generated by pushing the DrumKey Assign switch.
39	All Sound Off	Sound generation of all the designated channels stops.
40	MV (Master Volume)	Master volume value when monitoring by the keyboard can be changed.
41	Velocity (Velocity)	Velocity value when monitoring by the keyboard can be changed.
42	Key	Displays only the note number under editing.

4.19.2. PCM Voice Edit Parameter

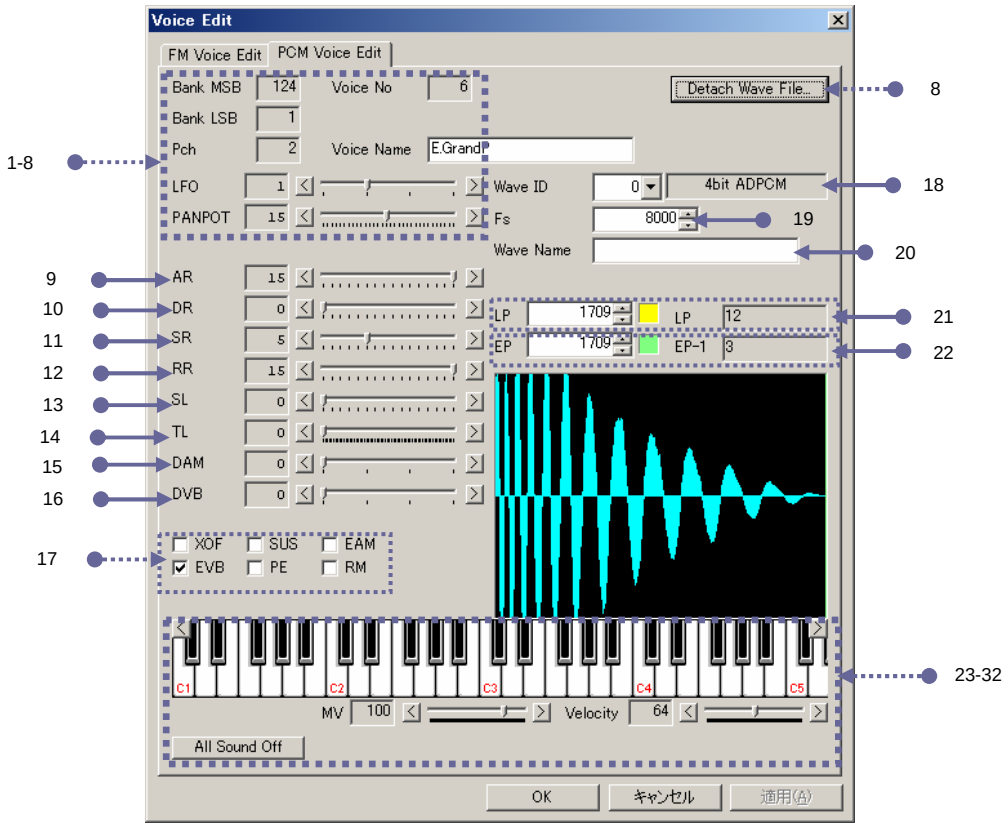
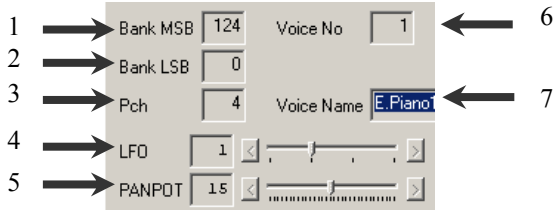


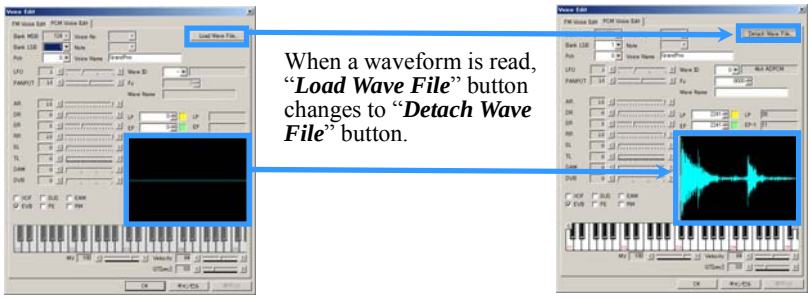
Figure. 4-37 PCM Voice Edit Parameter

No.1-7



No.	Function name	Contents
1	Bank MSB	Displays BankSelect MSB in which the voices being edited exist. It cannot be changed here.
2	Bank LSB	Displays BankSelect LSB in which the voices being edited exist.
3	Pch	Displays and changes program change for the voices being edited.
4	LFO	Sets LFO frequency that is used for each voice. LFO= 0 : 1.8 Hz, LFO= 1 : 4.0 Hz LFO= 2 : 5.9 Hz, LFO= 3 : 7.0 Hz
5	Panpot	Sets right-left balance for each channel. (0…15…31) The smaller value, the further it pans to the left, or the larger value, the further it pans to the right.
6	Voice No.	Displays the voice number being edited with Voice Assign Map.
7	Voice Name	Sets the voice name being edited.

No.8-22

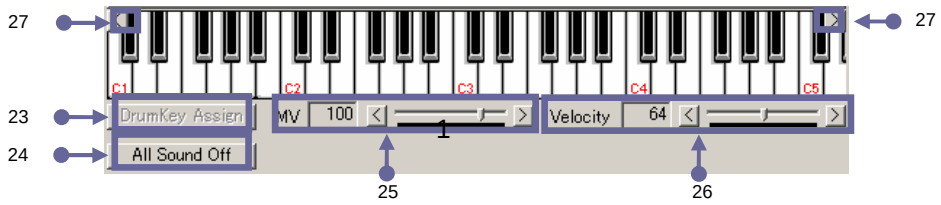
No.	Function name	Contents
8	Load Wave File	Monoral sound file (AIFF, WAVE) of up to 48kHz with 8bitPCM or 16bitPCM can be loaded. 16bitPCM data is cnverted into 4bitADPCM data. The loaded wavefile is assigned to NoteNo.60 (C key). "Example" When a 24000Hz sound file is read Playing lower key makes FS lower or playing higher key makes FS higher with respect to C key (***24000Hz***) of NoteNo.60.
	Detach Wave File	Press this switch to delete the waveform that has been read with "***Load Wave File***." 
9	AR (Attack Rate)	Attack Rate is the time from the starting of tone generation (-96dB) to the time of maximum volume (0 dB).
10	DR (Decay Rate)	Decay Rate is the decay time from the moment the maximum volume (0dB) to the moment Sustain Level (***SL***).
11	SR (Sustain Rate)	Sustain Rate designates the rate of decay from the moment a Sustain Level is attained. Unlike other rate setting, setting this to "0" causes continuation of the Sustain Level.
12	RR (Release Rate)	Release Rate is the time from key off to the moment the silent state (-96 db) is attained. When a check is placed in the check box of SUS, the setting is ignored.
13	SL (Sustain Level)	The Sustain Level is the one at which Decay Rate changes to Release Rate for decaying tone, or the level at which volume of a continuous tone is sustained.
14	TL (Total Level)	Sets the level of envelope.
15	DAM (Depth of AM modulation)	Sets the depth of amplitude modulation (***AM***). DAM= 0 : 1.3 dB, DAM= 1 : 2.8 dB DAM= 2 : 5.8 dB, DAM= 3 : 11.8 dB
16	DVB (Depth of vibrato modulation)	DVB= 0 : 3.4 cents, DVB= 1 : 6.7 cents DVB= 2 : 13.5 cents, DVB= 3 : 26.8 cents
17	XOF (Ignore KeyOff)	Sets whether to ignore KeyOff or not. Place a check in the check box to ignore KeyOff. KeyOff does not cause the change of state.
	SUS (Sustain)	Sets whether to allow the rate change after KeyOff or not. When check is placed in the check box and Hold 1 (***damper***) information of MIDI message is received, SR continues after KeyOff. Be sure to set EVB to on to enable modulation of MIDI message.
	EAM (Amplitude modulation On/Off)	Sets amplitude modulation ON/OFF. Place a check in the check box to enable setting of DAM.
	EVB (Vibrato modulation On/Off)	Sets vibrato modulation ON/OFF. Place a check in the check box to enable setting of DVB. Sets vibrato modulation ON/OFF. Place a check in the check box to enable setting of DVB.
	PE (Pan-enable)	Place a check in the check box to disable pan setting of the control change and to enable the value of panpot of voices.
	RM (Designation of ROM/RAM)	Selects ROM or RAM for waveforms that are used. When ROM is designated, a waveform can be selected from seven waveform list in the ROM at Wave ID. When RAM is designated, arbitrary waveform can be designated from the load wave file.
18	Wave ID	For MA-5, multiple PCM waveforms can be read and stored. The management number can be displayed and selected.
19	Fs	Displays the frequencies of waveforms that have been read. On MA-5 Authoring Tool, displays the frequency when flipping NoteNo.60 (***C key***).

No.	Function name	Contents
		Changing the value changes the pitch.
20	Wave Name	Displays the names of waveforms that have been read. Wave Name is not displayed on Wave ID field immediately after attaching Wave Name. Be sure to re-open Voice Edit to display it.
21	LP	Designates a loop point for loop reproduction. In addition, a peak factor at the following point was displayed. 4bits ADPCM :Loop Point 8 bits PCM:Loop Point + 1
22	EP	Designates reproduction end point and loop reproduction loop End Point. In addition, a peak factor at the following points was displayed. 4 bits ADPCM :End Point -1 8 bits PCM :End Loop Point It does not pronounce, if the value is "0".

No.23 to 32

The voice under editing can be monitored by clicking the keyboard.

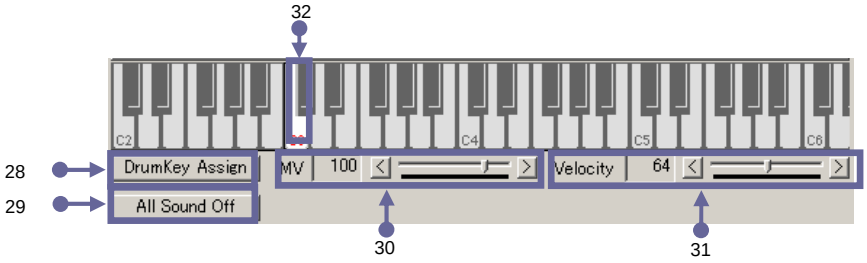
Display of normal voice being edited
In the case of normal voice, it generates higher musical interval as going toward the right side of keyboard, and lower musical interval as going toward the left side.



No.	Function name	Contents
23	DrumKey Assign	This is not used when editing a normal voice. (Enabled only when a drum voice is edited.)
24	All Sound Off	Sound generation of all the designated channels stops.
25	MV (Master Volume)	Master volume value when monitoring by the keyboard can be changed.
26	Velocity (Velocity)	Velocity value when monitoring by the keyboard can be changed.
27	Scrolling button	By pushing this button, the displayable range of keyboard can be changed. ▪ Click of right side button displays higher interval. ▪ Click of left side button displays lower interval.

Display of drum voice being edited

In the case of drum voice, it generates only when the Note number which is being edited is clicked.



No.	Function name	Contents
28	DrumKey Assign	By pushing this switch, drum voices are generated with higher musical interval to the right side of keyboard, or lower musical interval to the left side. A generated key is automatically set to DrumKey. (Fig.ure DrumKey Assign is in the state in which the DrumKey Assign switch is pushed.) DrumKey Assign All keys can be made to pronounce by pushing a DrumKey Assign switch.
29	All Sound Off	Sound generation of all the designated channels stops.
30	MV (Master Volume)	Master volume value when monitoring by the keyboard can be changed.
31	Velocity (Velocity)	Velocity value when monitoring by the keyboard can be changed.
32	Key	Only the Note number being edited can be displayed.

4.19.3. LP/EP Automatic Control Function

At the time of displaying a Voice Edit of existing PCM voice, if there are any uncorrected values which are set on it, the following confirmation messages will be displayed.
"***Automatically operated- Loop and/or End Point adjusted according to PCM mode***."
Then, the uncorrected values are rounded to a correct value automatically.

Example of rounding the sampling number "2000",

<with 4bit ADPCM>

In case of the OneShot(LoopPoint=EndPoint)

In case of (LoopPoint ≥ Sample number) or (EndPoint ≥ Sample number)

LoopPoint = EndPoint = Sample - 1

ex) LP=2000/EP=2000 → LP=1999/EP=1999

LP=2000/EP=2001 → LP=1999/EP=1999

In the case in which only LoopPoint is outside of the range.

LoopPoint = EndPoint

ex) LP=2001/EP=1500 → LP=1500/EP=1500

In the case in which only EndPoint is outside of the range.

EndPoint = Sample - 1

ex) LP=1500/EP=2001 → LP=1500/EP=2000

<with 8bits PCM>

In case of the OneShot(LoopPoint=EndPoint)

In case of (LoopPoint≥Sample -1) or (EndPoint≥Sample -1)

LoopPoint = EndPoint = Sample -2

ex) LP=2000/EP=2000 → LP=1998/EP=1998

In the case in which only LoopPoint is outside of the range.

LoopPoint = EndPoint

ex) LP=2001/EP=1500 → LP=1500/EP=1500

In the case in which only EndPoint is outside of the range.

EndPoint = Sample - 1

ex) LP=1500/EP=2001 → LP=1500/EP=1999

4.19.4. AL Voice Edit Parameter

Only for MA-5 Mode

Double-click user voice name on the voice list window to display voice edit window, where double-clicking on AL Voice Edit tab can set AL voice parameter.
To open voice AL voice edit on the voice assign map, the channel in which voices for which AL voice is to be used are inputted must be designated as AL channel. By placing a check in "***AL***" field of score window can be set as AL voice. Voices of AL channel are generated as monaural.

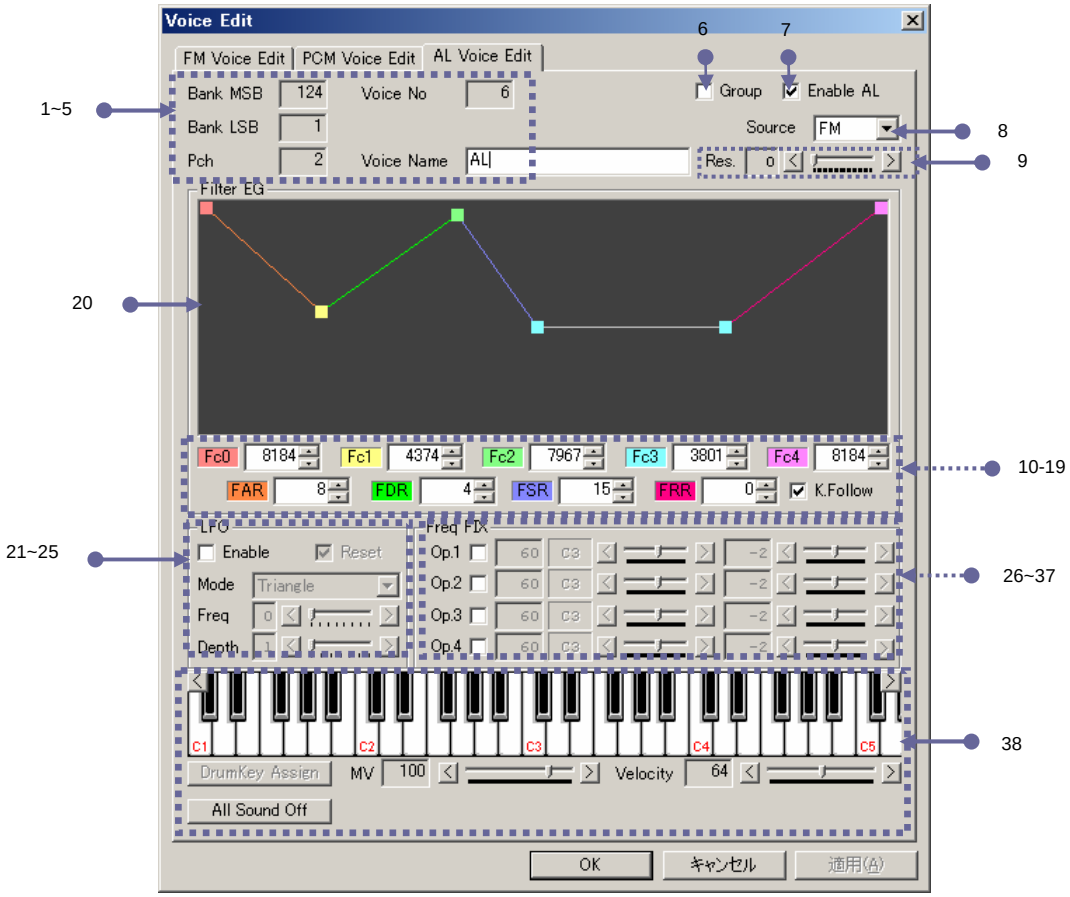


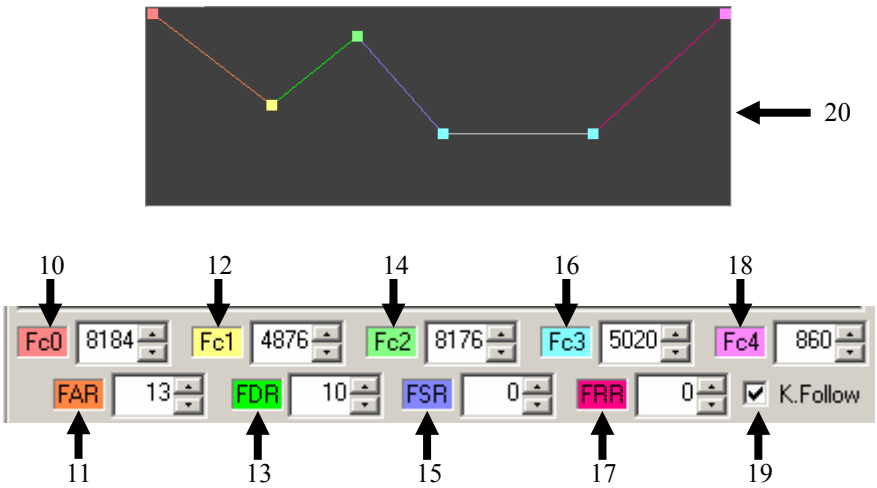
Figure. 4-38 AL Voice Edit Parameter

No.1 to 9

No.	Name	Description
1	Bank MSB	Displays bank MSB in which the voices being edited exist.
2	Bank LSB	Displays bank LSB in which the voices being edited exist.
3	Pch (Program Change)	Displays program change for the voices being edited.
4	Voice No (Voice Number)	Displays the voice number being edited with Voice Assign Map.
5	Voice Name	Sets the voice name being edited.

No.	Name	Description
6	Group display (Group Setting)	For voices of program change that exist in the channels designated by AL setting, this parameter designates whether the same AL voice parameter is used for all voice, "ON, or AL voice parameters are used for each voice individually "***OFF***". When Paste operation is performed for voice parameters for which Group is set on Voice Assign Map, only AL voice parameter is changed for all voices of program change that exist in the channel designated by AL setting. For FM/PCM voice parameters, only the relevant voices are changed.
7	Enable AL display (AL enable setting)	Designates whether AL is enabled, "***ON***", or disabled "***OFF.***"
8	Source display (Source selection)	Designates whether Al voice parameter is attached to FM voice parameter, "***FM***", Al voice parameter is attached to PCM voice parameter, "***PCM***", or Al voice parameter is attached to Noise, "***Noise.***"
9	Resonance (Resonance setting)	Designates resonance.

No.10 to 20 (Filter EG)

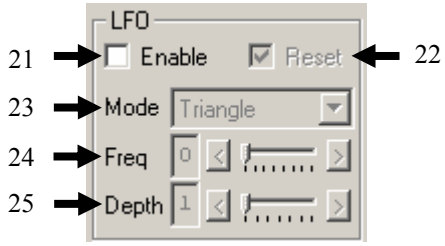


No.	Name	Description
10	Fc0 display (KeyOn cut off frequency)	Designates cutoff frequency change rate in attack state.
11	FAR (Attack state cutoff frquency change rate)	Designates cutoff frequency change rate in attack state.
12	Fc1 display (Attack end cutoff frequency)	Designates cutoff frequency at attack end.
13	FDR display (Decay state cutoff frequency change rate)	Designates cutoff frequency change rate in decay state.
14	Fc2 display (Decay end cutoff frequency)	Designates cutoff frequency at decay end.
15	FSR display (Sustain state cutoff frequency change rate)	Designates cutoff frequency change rate in sustain state.
16	Fc3 display (KeyOff cutoff frequency)	Designates cutoff frequency at KeyOff start.
17	FRR display (Release state cutoff frequency change rate)	Designates cutoff frequency change rate in release state.
18	Fc4 display (Release cutoff frequency)	Designates cutoff frequency at release.
19	Key Follow (Key follow setting) display	Designates whether the setting of key follow for cutoff frequency (increases cutoff frequency according to the advance to upper interval.

No.20

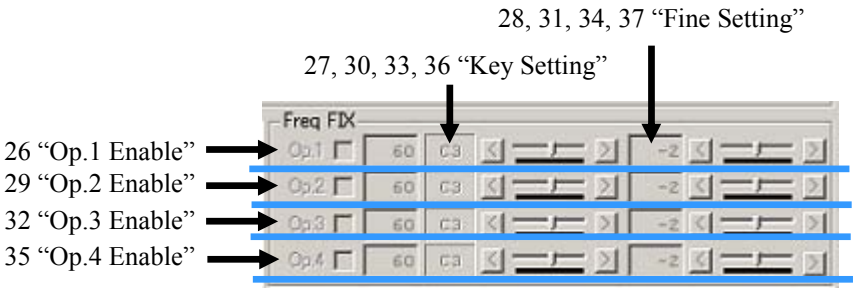
No.	Name	Description
20	Filter setting graph display	Shows Fc0 to Fc4, FAR, FDR, FSR and FRR on the sequential line graph. Click and drag the point of Fc0 to Fc4 with mouse to directly edit the graph. FAR, FDR, FSR and FRR change in accordance with the edition.

No.21 to 25 (LFO)



No.	Name	Description
21	LFO Enable display (LFO setting)	Designates whether LFO is enabled, "***ON***", or disabled, "***OFF***" for cut off freuqency. When a check is placed, LFO is enabled, where Freq, Depth or Mode can be changed. When a check is not placed, there parameters cannot be changed.
22	LFO Reset display (LFO reset setting)	Designates whether initial phase of LFO is reset, "***ON***" or not reset, "***OFF***". When LFO Mode is "S&H", CutOff frequency randomly changes, therefore this Reset function does not effect.
23	LFO Mode display (LFO mode setting)	Designates mode of LFO.
24	LFO Freq. display (LFO frequency setting)	Selects frequency of LFO.
25	LFO Depth display (LFO depth setting)	Selects depth of cutoff frequency of LFO.

No.26 to 37 (Freq Fix)



No.	Name	Description
LFO		
26	Freq.FIX 1 Enable (Fixed frequency enabled setting operator 1)	Designates whether fixed frequency of operator 1 is enabled, "***ON***" or disabled, "***OFF***." When OFF, Key and Fine cannot be designated.
27	Freq. FIX 1 Key (Fixed frequency key setting operator 1)	Designates key number of fixed frequency of operator 1.
28	Freq. FIX 1 Fine (Fixed frequency fine setting operator 1)	Designates fine pitch of fixed frequency of operator 1.
29	Freq.FIX 2 Enable (Fixed frequency enabled setting operator 2)	Designates whether fixed frequency of operator 2 is enabled, "***ON***" or disabled, "***OFF***." When OFF, Key and Fine cannot be designated.
30	Freq. FIX 2 Key (Fixed frequency key setting operator 2)	Designates key number of fixed frequency of operator 2.
31	Freq. FIX 2 Fine (Fixed frequency fine setting operator 2)	Designates fine pitch of fixed frequency of operator 2.
32	Freq.FIX 3 Enable (Fixed frequency enabled setting operator 3) display	Designates whether fixed frequency of operator 3 is enabled, "***ON***" or disabled, "***OFF***." When OFF, Key and Fine cannot be designated.
33	Freq. FIX 3 Key (Fixed frequency key setting operator 3)	Designates key number of fixed frequency of operator 3.
34	Freq. FIX 3 Fine (Fixed frequency fine setting operator 3)	Designates fine pitch of fixed frequency of operator 3.
35	Freq.FIX 4 Enable (Fixed frequency enabled setting operator 4)	Designates whether fixed frequency of operator 4 is enabled, "***ON***" or disabled, "O***FF***." When OFF, Key and Fine cannot be designated.
36	Freq. FIX 4 Key (Fixed frequency key setting operator 4)	Designates key number of fixed frequency of operator 4.
37	Freq. FIX 4 Fine (Fixed frequency fine setting operator 4)	Designates fine pitch of fixed frequency of operator 4. The setting value of Freq.FIX is recalculated, when the "OK" button of Voice Edit is pushed, or when it moves to FM Voice Edit tab. Therefore, although some difference will come out of the setting value of Freq. FIX compared with the value set up first when Voice Edit is opened once again, playback sound becomes the same.

No.38 (Keyboard)

No.	Name	Description
Keyboard		
38	Keyboard	By clicking a keyboard, voices during a editing can be displayed. For details about Keyboard, refer to the "***Keyboard***" in "***FM Voice Edit Parameter.***"

4.19.5. HV Voice Edit Parameter

Only for MA-5 Mode

In the state which HV voice list is displayed on the Voice List Window, double-click the voice name to be edited. Then, HV Voice Edit window appears.

This window also can be opened by double-clicking the voice name to be edited on HV Extend Voice Map.

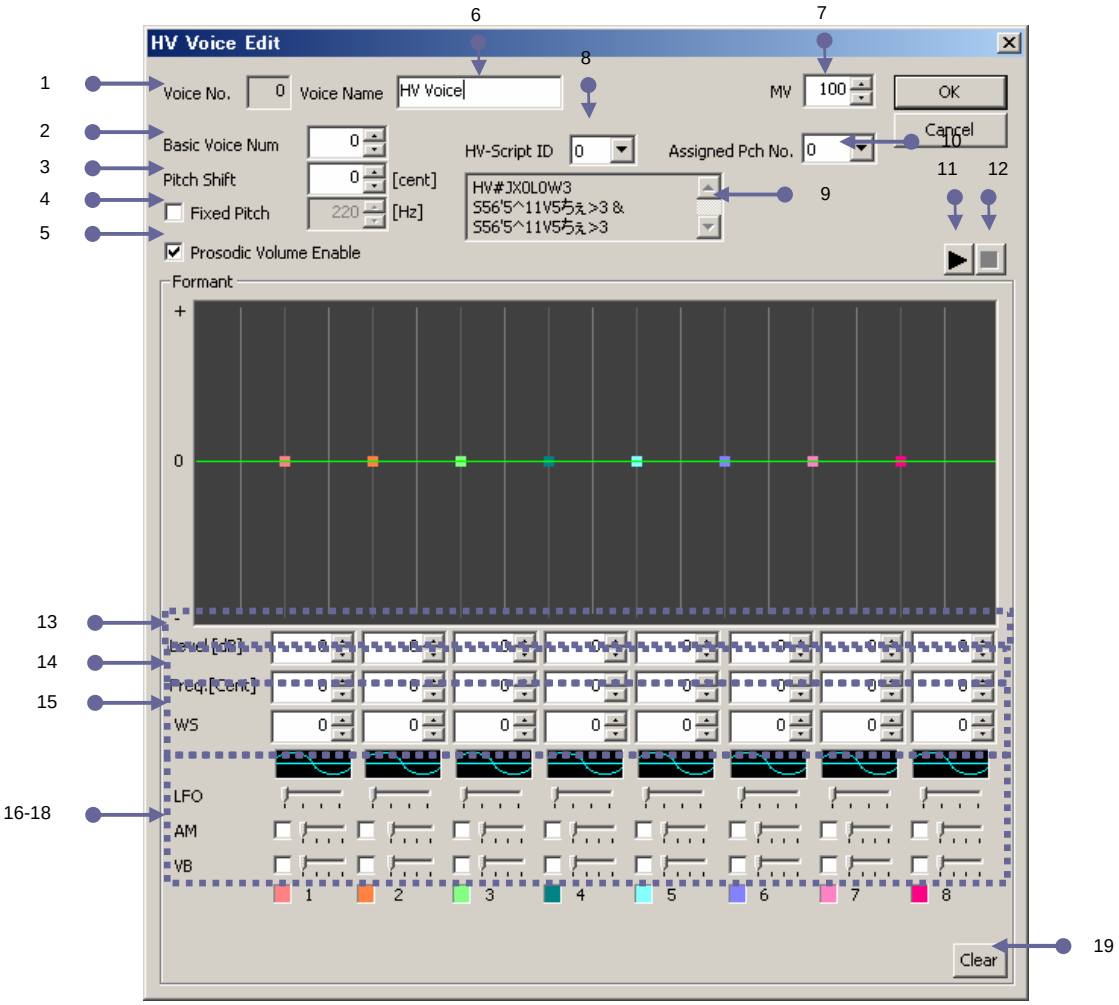


Figure. 4-39 HV Voice Edit Parameter

No.	Name	Description
1	Voice No./Pch#	Display may differ by which window, HV Extend Voice Map or HV Voice List, was opened. "***Pch#***" appears when this window was opened from HV Extend Voice Map, and it shows the number of the extended voice that is under editing. It is also possible to edit other extended voice by changing the number. About the way to use, refer "***Assigned Pch No***." in this section. When this window was opened from HV Voice List, the item name "***Pch#***" is changed to "Voice No.", and it shows the number of the voice. In this case, number cannot be changed. To edit other voice of HV Voice List, double-click the voice to edit on the HV Voice List
2	Basic Voice Num (HV Basic Voice Number)	All HV voice is created in the order of following, first select the base from two presets HV Basic Voice, and then edit it. Select and designate HV Basic Voice #0 (***Male default voice***) or HV Basic Voice #1 (F***emale default voice***).

No.	Name	Description
3	Pitch Shift	Sets Pitch shift (***cent***) form Basic Voice. Setting value : -8192 to 8191 cent
4	Fixed Pitch	Always pronounces in a certain pitch, when its check box is checked. The height is set by "***Hz.***" Setting value : 0 to 48,000Hz
5	Prosodic Volume Enable	Pronounces according to the volume-shift-order in HV-Script by being checked.
6	Voice Name	Sets the voice name.
7	MV (Master Volume)	Displays the value of master volume. Setting Range: 0 to 127, Default: 100
8	HV-Script ID	Voice can be edited while playing HV-Script. Designate the ID number, which is registered at HV-Script Assign Map to select the script to play.
9	HV-Script Display	HV Script data designated by HV-Script ID is displayed.
10	Assigned Pch No. (Program Change number allocation)	Designates the Program Change number which HV-Script to play is using. Displayed when this window is opened form HV Voice List. Setting value : 0 to 15 Program Change number, which needed to designate the voice to use to play, is attached to HV-Script. Designate Pch# or Assigned Pch No. to match to the Program Change number of script, which is designated in HV-Script ID. Then, you can edit voice with checking by actually hearing the playing script. Conversely, if you designate a script, which is not matched to the Program Change number, by the ID, editing voice would not be played. When the voice does not change even though parameter is changed in various ways, check Pch# and Assigned Pch No. Moreover, depending on HV script, it may have more than two Program Change. In this case, edit voice one by one with changing Pch# or Assigned Pch No.
11	Play Button	Plays the script which designated by HV-Script ID.
12	Stop Button	Stops the script playback.
13	Level "dB"	Sets Formant level variation from Basic Voice. Setting value : -64 to 63dB Default value : 0dB
14	Freq. "Cent" (Frequency "Cent")	Sets Formant frequency variation from Basic Voice. Setting value : -8192 to 8191 cent Default value : 0 cent "***Level***" and "***Freq.***" also can be set by dragging the small square, which is connected with the green straight lines in the graph. There are 8 small squares related to Formant, and they are classified by color. In the graph, the vertical axis shows "***Level***", and the horizontal axis shows "***Freq.***"
15	WS	Selects a waveform that would be a material to create Formant. An image of selected waveform is also displayed. Setting value : 0 to 14, 16 to 22, 24 to 30 Default value : 0 Waveform 15, 23, and 31 cannot be selected. (OK button will be un-usable)
16	LFO	Sets LFO frequency. Following 4 frequencies are available. Frequency becomes higher as it goes to the right from the left of the slider. Setting value : 2.08Hz (***leftmost***), 4.17Hz, 6.25Hz, 12.50Hz (***rightmost***), Default value : 2.08Hz
17	AM (Depth of AM modulation)	Slider setting becomes available by placing a check into the check box, then makes AM modulation for Formant level by LFO. Following 4 depths of modulation is available. The depth becomes deeper as it goes to the right from the left of the slider. Setting value : ±4.5dB (***leftmost***), ±9.0dB, ±13.5dB, ±18.0dB (***rightmost***) Default value : ±4.5dB However, default does not check the check box, so it does not modulate.
18	VB (Depth of vibrato)	Slider setting becomes available by placing a check into the check box, then makes FM modulation for Formant frequency by LFO. Following 4 depths of vibrato is available. The depth becomes deeper as it goes to the right from the left of the slider. Setting value : ±240 cents (***leftmost***), ±480 cents, ±960 cents, ±1440 cents (***rightmost***). Default value : ±240 cents However, default does not check the check box, so it does not vibrato.
19	Clear	All Formant setup of eight HV is returned to a default value.

5. Supplemental Information

5.1. Voice List

5.1.1. MA-5 Native Normal Voice Map (FM16 mode 0 to 63)

Bank MSB	124		124		124		124	124		124	
Bank LSB	0		1		2		3～7	8		9	
	Default		User Assignable								
Pch#	Inst	Typ	Inst	Typ	Inst	Typ		Inst	Typ	Inst	Typ
0	GrandPno	F4	User	A	User	A	・・・	User	A	User	A
1	BritePno	F4	User	A	User	A	・・・	User	A	User	A
2	E.GrandP	F4	User	A	User	A	・・・	User	A	User	A
3	HnkyTonk	F4	User	A	User	A	・・・	User	A	User	A
4	E.Piano1	F4	User	A	User	A	・・・	User	A	User	A
5	E.Piano2	F4	User	A	User	A	・・・	User	A	User	A
6	Harpsi.	F4	User	A	User	A	・・・	User	A	User	A
7	Clavi.	F4	User	A	User	A	・・・	User	A	User	A
8	Celesta	F4	User	A	User	A	・・・	User	A	User	A
9	Glocken	F4	User	A	User	A	・・・	User	A	User	A
10	MusicBox	F4	User	A	User	A	・・・	User	A	User	A
11	Vibes	F4	User	A	User	A	・・・	User	A	User	A
12	Marimba	F4	User	A	User	A	・・・	User	A	User	A
13	Xylophon	F4	User	A	User	A	・・・	User	A	User	A
14	TubulBel	F4	User	A	User	A	・・・	User	A	User	A
15	Dulcimer	F4	User	A	User	A	・・・	User	A	User	A
16	DrawOrgn	F4	User	A	User	A	・・・	User	A	User	A
17	PercOrgn	F4	User	A	User	A	・・・	User	A	User	A
18	RockOrgn	F4	User	A	User	A	・・・	User	A	User	A
19	ChrchOrg	F4	User	A	User	A	・・・	User	A	User	A
20	ReedOrgn	F4	User	A	User	A	・・・	User	A	User	A
21	Acordion	F4	User	A	User	A	・・・	User	A	User	A
22	Harmnica	F4	User	A	User	A	・・・	User	A	User	A
23	TangoAcd	F4	User	A	User	A	・・・	User	A	User	A
24	NylonGtr	F4	User	A	User	A	・・・	User	A	User	A
25	SteelGtr	F4	User	A	User	A	・・・	User	A	User	A
26	Jazz Gtr	F4	User	A	User	A	・・・	User	A	User	A
27	CleanGtr	F4	User	A	User	A	・・・	User	A	User	A
28	Mute.Gtr	F4	User	A	User	A	・・・	User	A	User	A
29	Ovrdrive	F4	User	A	User	A	・・・	User	A	User	A
30	Dist.Gtr	F4	User	A	User	A	・・・	User	A	User	A
31	GtrHarmo	F4	User	A	User	A	・・・	User	A	User	A
32	Aco.Bass	F4	User	A	User	A	・・・	User	A	User	A
33	FngrBass	F4	User	A	User	A	・・・	User	A	User	A
34	PickBass	F4	User	A	User	A	・・・	User	A	User	A
35	Fretless	F4	User	A	User	A	・・・	User	A	User	A
36	SlapBas1	F4	User	A	User	A	・・・	User	A	User	A
37	SlapBas2	F4	User	A	User	A	・・・	User	A	User	A
38	SynBass1	F4	User	A	User	A	・・・	User	A	User	A
39	SynBass2	F4	User	A	User	A	・・・	User	A	User	A
40	Violin	F4	User	A	User	A	・・・	User	A	User	A
41	Viola	F4	User	A	User	A	・・・	User	A	User	A
42	Cello	F4	User	A	User	A	・・・	User	A	User	A
43	ContraBs	F4	User	A	User	A	・・・	User	A	User	A
44	Trem.Str	F4	User	A	User	A	・・・	User	A	User	A
45	Pizz.Str	F4	User	A	User	A	・・・	User	A	User	A
46	Harp	F4	User	A	User	A	・・・	User	A	User	A
47	Timpani	F4	User	A	User	A	・・・	User	A	User	A
48	Strings1	F4	User	A	User	A	・・・	User	A	User	A
49	Strings2	F4	User	A	User	A	・・・	User	A	User	A
50	Syn.Str1	F4	User	A	User	A	・・・	User	A	User	A
51	Syn.Str2	F4	User	A	User	A	・・・	User	A	User	A
52	ChoirAah	F4	User	A	User	A	・・・	User	A	User	A
53	VoiceOoh	F4	User	A	User	A	・・・	User	A	User	A
54	SynVoice	F4	User	A	User	A	・・・	User	A	User	A
55	Orch.Hit	F4	User	A	User	A	・・・	User	A	User	A
56	Trumpet	F4	User	A	User	A	・・・	User	A	User	A
57	Trombone	F4	User	A	User	A	・・・	User	A	User	A
58	Tuba	F4	User	A	User	A	・・・	User	A	User	A
59	Mute.Trp	F4	User	A	User	A	・・・	User	A	User	A
60	Fr.Horn	F4	User	A	User	A	・・・	User	A	User	A
61	BrasSect	F4	User	A	User	A	・・・	User	A	User	A
62	SynBras1	F4	User	A	User	A	・・・	User	A	User	A
63	SynBras2	F4	User	A	User	A	・・・	User	A	User	A

5.1.2. MA-5 Native Normal Voice Map (FM16Mode 64 to 127)

Bank MSB	124		124		124		124		124		124	
Bank LSB	0		1		2		3～7		8		9	
	Default		User Assignable									
Pch#	Inst	Typ	Inst	Typ	Inst	Typ			Inst	Typ	Inst	Typ
64	SprnoSax	F4	User	A	User	A	・・・		User	A	User	A
65	Alto Sax	F4	User	A	User	A	・・・		User	A	User	A
66	TenorSax	F4	User	A	User	A	・・・		User	A	User	A
67	Bari.Sax	F4	User	A	User	A	・・・		User	A	User	A
68	Oboe	F4	User	A	User	A	・・・		User	A	User	A
69	Eng.Horn	F4	User	A	User	A	・・・		User	A	User	A
70	Bassoon	F4	User	A	User	A	・・・		User	A	User	A
71	Clarinet	F4	User	A	User	A	・・・		User	A	User	A
72	Piccolo	F4	User	A	User	A	・・・		User	A	User	A
73	Flute	F4	User	A	User	A	・・・		User	A	User	A
74	Recorder	F4	User	A	User	A	・・・		User	A	User	A
75	PanFlute	F4	User	A	User	A	・・・		User	A	User	A
76	Bottle	F4	User	A	User	A	・・・		User	A	User	A
77	Shakhchi	F4	User	A	User	A	・・・		User	A	User	A
78	Whistle	F4	User	A	User	A	・・・		User	A	User	A
79	Ocarina	F4	User	A	User	A	・・・		User	A	User	A
80	SquareLd	F4	User	A	User	A	・・・		User	A	User	A
81	Saw.Lead	F4	User	A	User	A	・・・		User	A	User	A
82	CaliopLd	F4	User	A	User	A	・・・		User	A	User	A
83	ChiffLd	F4	User	A	User	A	・・・		User	A	User	A
84	CharanLd	F4	User	A	User	A	・・・		User	A	User	A
85	Voice Ld	F4	User	A	User	A	・・・		User	A	User	A
86	Fifth Ld	F4	User	A	User	A	・・・		User	A	User	A
87	Bass &Ld	F4	User	A	User	A	・・・		User	A	User	A
88	NewAgePd	F4	User	A	User	A	・・・		User	A	User	A
89	Warm Pad	F4	User	A	User	A	・・・		User	A	User	A
90	PolySyPd	F4	User	A	User	A	・・・		User	A	User	A
91	ChoirPad	F4	User	A	User	A	・・・		User	A	User	A
92	BowedPad	F4	User	A	User	A	・・・		User	A	User	A
93	MetalPad	F4	User	A	User	A	・・・		User	A	User	A
94	Halo Pad	F4	User	A	User	A	・・・		User	A	User	A
95	SweepPad	F4	User	A	User	A	・・・		User	A	User	A
96	Rain	F4	User	A	User	A	・・・		User	A	User	A
97	SoundTrk	F4	User	A	User	A	・・・		User	A	User	A
98	Crystal	F4	User	A	User	A	・・・		User	A	User	A
99	Atmosphr	F4	User	A	User	A	・・・		User	A	User	A
100	Bright	F4	User	A	User	A	・・・		User	A	User	A
101	Goblins	F4	User	A	User	A	・・・		User	A	User	A
102	Echoes	F4	User	A	User	A	・・・		User	A	User	A
103	Sci-Fi	F4	User	A	User	A	・・・		User	A	User	A
104	Sitar	F4	User	A	User	A	・・・		User	A	User	A
105	Banjo	F4	User	A	User	A	・・・		User	A	User	A
106	Shamisen	F4	User	A	User	A	・・・		User	A	User	A
107	Koto	F4	User	A	User	A	・・・		User	A	User	A
108	Kalimba	F4	User	A	User	A	・・・		User	A	User	A
109	Bagpipe	F4	User	A	User	A	・・・		User	A	User	A
110	Fiddle	F4	User	A	User	A	・・・		User	A	User	A
111	Shanai	F4	User	A	User	A	・・・		User	A	User	A
112	TnklBell	F4	User	A	User	A	・・・		User	A	User	A
113	Agogo	F4	User	A	User	A	・・・		User	A	User	A
114	SteelDrm	F4	User	A	User	A	・・・		User	A	User	A
*1 115	WoodBlok	F4	User	A	User	A	・・・		User	A	User	A
*2 116	TaikoDrm	F4	User	A	User	A	・・・		User	A	User	A
*3 117	MelodTom	F4	User	A	User	A	・・・		User	A	User	A
*4 118	Syn.Drum	F4	User	A	User	A	・・・		User	A	User	A
*4 119	RevCymbl	F4	User	A	User	A	・・・		User	A	User	A
120	FretNoiz	F4	User	A	User	A	・・・		User	A	User	A
121	BrthNoiz	F4	User	A	User	A	・・・		User	A	User	A
*5 122	Seashore	F4	User	A	User	A	・・・		User	A	User	A
*6 123	Tweet	F4	User	A	User	A	・・・		User	A	User	A
*7 124	Telphone	F4	User	A	User	A	・・・		User	A	User	A
*7 125	Helicptr	F4	User	A	User	A	・・・		User	A	User	A
*6 126	Applause	F4	User	A	User	A	・・・		User	A	User	A
*5 127	Gunshot	F4	User	A	User	A	・・・		User	A	User	A

*1:50cent/halftone, #69=F#4
*2:50cent/halftone, #69=A2
*3:50cent/halftone, #69=C#4
*4:50cent/halftone
*5:20cent/halftone
*6:5cent/halftone
*7:10cent/halftone
The voice, which is set to Pch# with "*" is treated as drum voice by key control judging. (User Bank is also.)

(*) Type F2: FM 2 Operator, F4: FM 4 Operator, P: PCM, A: F2/F4/P Assignable

5.1.3. MA-5 Native Normal Voice Map (FM32 mode 0 to 63)

Bank MSB	124		124		124		124		124		124	
Bank LSB	0		1		2		3～7		8		9	
	Default		User Assignable									
Pch#	Inst	Typ	Inst	Typ	Inst	Typ			Inst	Typ	Inst	Typ
0	GrandPno	F2	User	A	User	A	・・・		User	A	User	A
1	BritePno	F2	User	A	User	A	・・・		User	A	User	A
2	E.GrandP	F2	User	A	User	A	・・・		User	A	User	A
3	HnkyTonk	F2	User	A	User	A	・・・		User	A	User	A
4	E.Piano1	F2	User	A	User	A	・・・		User	A	User	A
5	E.Piano2	F2	User	A	User	A	・・・		User	A	User	A
6	Harpsi.	F2	User	A	User	A	・・・		User	A	User	A
7	Clavi.	F2	User	A	User	A	・・・		User	A	User	A
8	Celesta	F2	User	A	User	A	・・・		User	A	User	A
9	Glocken	F2	User	A	User	A	・・・		User	A	User	A
10	MusicBox	F2	User	A	User	A	・・・		User	A	User	A
11	Vibes	F2	User	A	User	A	・・・		User	A	User	A
12	Marimba	F2	User	A	User	A	・・・		User	A	User	A
13	Xylophon	F2	User	A	User	A	・・・		User	A	User	A
14	TubulBel	F2	User	A	User	A	・・・		User	A	User	A
15	Dulcimer	F2	User	A	User	A	・・・		User	A	User	A
16	DrawOrgn	F2	User	A	User	A	・・・		User	A	User	A
17	PercOrgn	F2	User	A	User	A	・・・		User	A	User	A
18	RockOrgn	F2	User	A	User	A	・・・		User	A	User	A
19	ChrchOrg	F2	User	A	User	A	・・・		User	A	User	A
20	ReedOrgn	F2	User	A	User	A	・・・		User	A	User	A
21	Acordion	F2	User	A	User	A	・・・		User	A	User	A
22	Harmnica	F2	User	A	User	A	・・・		User	A	User	A
23	TangoAcd	F2	User	A	User	A	・・・		User	A	User	A
24	NylonGtr	F2	User	A	User	A	・・・		User	A	User	A
25	SteelGtr	F2	User	A	User	A	・・・		User	A	User	A
26	Jazz Gtr	F2	User	A	User	A	・・・		User	A	User	A
27	CleanGtr	F2	User	A	User	A	・・・		User	A	User	A
28	Mute.Gtr	F2	User	A	User	A	・・・		User	A	User	A
29	Ovrdrive	F2	User	A	User	A	・・・		User	A	User	A
30	Dist.Gtr	F2	User	A	User	A	・・・		User	A	User	A
31	GtrHarmo	F2	User	A	User	A	・・・		User	A	User	A
32	Aco.Bass	F2	User	A	User	A	・・・		User	A	User	A
33	FngrBass	F2	User	A	User	A	・・・		User	A	User	A
34	PickBass	F2	User	A	User	A	・・・		User	A	User	A
35	Fretless	F2	User	A	User	A	・・・		User	A	User	A
36	SlapBas1	F2	User	A	User	A	・・・		User	A	User	A
37	SlapBas2	F2	User	A	User	A	・・・		User	A	User	A
38	SynBass1	F2	User	A	User	A	・・・		User	A	User	A
39	SynBass2	F2	User	A	User	A	・・・		User	A	User	A
40	Violin	F2	User	A	User	A	・・・		User	A	User	A
41	Viola	F2	User	A	User	A	・・・		User	A	User	A
42	Cello	F2	User	A	User	A	・・・		User	A	User	A
43	ContraBs	F2	User	A	User	A	・・・		User	A	User	A
44	Trem.Str	F2	User	A	User	A	・・・		User	A	User	A
45	Pizz.Str	F2	User	A	User	A	・・・		User	A	User	A
46	Harp	F2	User	A	User	A	・・・		User	A	User	A
47	Timpani	F2	User	A	User	A	・・・		User	A	User	A
48	Strings1	F2	User	A	User	A	・・・		User	A	User	A
49	Strings2	F2	User	A	User	A	・・・		User	A	User	A
50	Syn.Str1	F2	User	A	User	A	・・・		User	A	User	A
51	Syn.Str2	F2	User	A	User	A	・・・		User	A	User	A
52	ChoirAah	F2	User	A	User	A	・・・		User	A	User	A
53	VoiceOoh	F2	User	A	User	A	・・・		User	A	User	A
54	SynVoice	F2	User	A	User	A	・・・		User	A	User	A
55	Orch.Hit	F2	User	A	User	A	・・・		User	A	User	A
56	Trumpet	F2	User	A	User	A	・・・		User	A	User	A
57	Trombone	F2	User	A	User	A	・・・		User	A	User	A
58	Tuba	F2	User	A	User	A	・・・		User	A	User	A
59	Mute.Trp	F2	User	A	User	A	・・・		User	A	User	A
60	Fr.Horn	F2	User	A	User	A	・・・		User	A	User	A
61	BrasSect	F2	User	A	User	A	・・・		User	A	User	A
62	SynBras1	F2	User	A	User	A	・・・		User	A	User	A
63	SynBras2	F2	User	A	User	A	・・・		User	A	User	A

5.1.4. MA-5 Native Normal Voice Map (FM32 mode 64 to 127)

Bank MSB	125		125		125		125	125	
Pch#	0		1		2		3～8	9	
	Default				User Assignable				
Note#	Inst	Typ	Inst	Typ	Inst	Typ		Inst	Typ
24	Seq Click H	F4	Seq Click H	F4	User	A	・・・	User	A
25	Brush Tap	F4	Brush Tap	F4	User	A	・・・	User	A
@ 26	Brush Swirl	F4	Brush Swirl	F4	User	A	・・・	User	A
27	Brush Slap	F4	Brush Slap	F4	User	A	・・・	User	A
@ 28	Brush Tap Swirl	F4	Brush Tap Swirl	F4	User	A	・・・	User	A
@ 29	Snare Roll	F4	Snare Roll	F4	User	A	・・・	User	A
30	Castanet	F4	Castanet	F4	User	A	・・・	User	A
31	Snare L	P	Snare L	F4	User	A	・・・	User	A
32	Sticks	F4	Sticks	F4	User	A	・・・	User	A
33	Bass Drum L	P	Bass Drum L	F4	User	A	・・・	User	A
34	Open Rim Shot	F4	Open Rim Shot	F4	User	A	・・・	User	A
35	Bass Drum M	P	Bass Drum M	F4	User	A	・・・	User	A
36	Bass Drum H	P	Bass Drum H	F4	User	A	・・・	User	A
37	Closed Rim	F4	Closed Rim	F4	User	A	・・・	User	A
38	Snare M	P	Snare M	F4	User	A	・・・	User	A
39	Hand Clap	F4	Hand Clap	F4	User	A	・・・	User	A
40	Snare H	P	Snare H	F4	User	A	・・・	User	A
41	Floor Tom L	P	Floor Tom L	F4	User	A	・・・	User	A
42	Hi-Hat Closed	P	Hi-Hat Closed	F4	User	A	・・・	User	A
43	Floor Tom H	P	Floor Tom H	F4	User	A	・・・	User	A
44	Hi-Hat Pedal	P	Hi-Hat Pedal	F4	User	A	・・・	User	A
45	Low Tom	P	Low Tom	F4	User	A	・・・	User	A
46	Hi-Hat Open	P	Hi-Hat Open	F4	User	A	・・・	User	A
47	Mid Tom L	P	Mid Tom L	F4	User	A	・・・	User	A
48	Mid Tom H	P	Mid Tom H	F4	User	A	・・・	User	A
49	Crash Cymbal 1	P	Crash Cymbal 1	F4	User	A	・・・	User	A
50	High Tom	P	High Tom	F4	User	A	・・・	User	A
51	Ride Cymbal 1	P	Ride Cymbal 1	F4	User	A	・・・	User	A
52	Chinese Cymbal	P	Chinese Cymbal	F4	User	A	・・・	User	A
53	Ride Cymbal	F4	Ride Cymbal	F4	User	A	・・・	User	A
54	Tambourine	F4	Tambourine	F4	User	A	・・・	User	A
55	Splash Cymbal	P	Splash Cymbal	F4	User	A	・・・	User	A
56	Cowbell	F4	Cowbell	F4	User	A	・・・	User	A
57	Crash Cymbal 2	P	Crash Cymbal 2	F4	User	A	・・・	User	A
58	Vibraslap	F4	Vibraslap	F4	User	A	・・・	User	A
59	Ride Cymbal 2	P	Ride Cymbal 2	F4	User	A	・・・	User	A
60	Bongo H	F4	Bongo H	F4	User	A	・・・	User	A
61	Bongo L	F4	Bongo L	F4	User	A	・・・	User	A
62	Conga H Mute	F4	Conga H Mute	F4	User	A	・・・	User	A
63	Conga H Open	F4	Conga H Open	F4	User	A	・・・	User	A
64	Conga L	F4	Conga L	F4	User	A	・・・	User	A
65	Timbale H	F4	Timbale H	F4	User	A	・・・	User	A
66	Timbale L	F4	Timbale L	F4	User	A	・・・	User	A
67	Agogo H	F4	Agogo H	F4	User	A	・・・	User	A
68	Agogo L	F4	Agogo L	F4	User	A	・・・	User	A
69	Cabasa	F4	Cabasa	F4	User	A	・・・	User	A
70	Maracas	F4	Maracas	F4	User	A	・・・	User	A
@ 71	Samba Whistle	F4	Samba Whistle	F4	User	A	・・・	User	A
@ 72	Samba Whistle	F4	Samba Whistle	F4	User	A	・・・	User	A
73	Guiro Short	F4	Guiro Short	F4	User	A	・・・	User	A
74	Guiro Long	F4	Guiro Long	F4	User	A	・・・	User	A
75	Claves	F4	Claves	F4	User	A	・・・	User	A
76	Wood Block H	F4	Wood Block H	F4	User	A	・・・	User	A
77	Wood Block L	F4	Wood Block L	F4	User	A	・・・	User	A
78	Cuica Mute	F4	Cuica Mute	F4	User	A	・・・	User	A
79	Cuica Open	F4	Cuica Open	F4	User	A	・・・	User	A
80	Triangle Mute	F4	Triangle Mute	F4	User	A	・・・	User	A
81	Triangle Open	F4	Triangle Open	F4	User	A	・・・	User	A
82	Shaker	F4	Shaker	F4	User	A	・・・	User	A
83	Jingle Bells	F4	Jingle Bells	F4	User	A	・・・	User	A
84	Bell Tree	F4	Bell Tree	F4	User	A	・・・	User	A

*1:50cent/halftone, #69=F#4
*2:50cent/halftone, #69=A2
*3:50cent/halftone, #69=C#4
*4:50cent/halftone
*5:20cent/halftone
*6:5cent/halftone
*7:10cent/halftone
The voice, which is set to Pch# with "*" is treated as drum voice by key control judging. (User Bank is also.)

(*) Type F2: FM 2 Operator, F4: FM 4 Operator, P: PCM, A: F2/F4/P Assignable

5.1.5. MA-5 Native Normal Drum Instrument (FM16 mode)

Bank MSB	125		125		125		125	125	
Pch#	0		1		2		3～8	9	
	Default				User Assignable				
Note#	Inst	Typ	Inst	Typ	Inst	Typ		Inst	Typ
24	Seq Click H	F4	Seq Click H	F4	User	A	・・・	User	A
25	Brush Tap	F4	Brush Tap	F4	User	A	・・・	User	A
@ 26	Brush Swirl	F4	Brush Swirl	F4	User	A	・・・	User	A
27	Brush Slap	F4	Brush Slap	F4	User	A	・・・	User	A
@ 28	Brush Tap Swirl	F4	Brush Tap Swirl	F4	User	A	・・・	User	A
@ 29	Snare Roll	F4	Snare Roll	F4	User	A	・・・	User	A
30	Castanet	F4	Castanet	F4	User	A	・・・	User	A
31	Snare L	P	Snare L	F4	User	A	・・・	User	A
32	Sticks	F4	Sticks	F4	User	A	・・・	User	A
33	Bass Drum L	P	Bass Drum L	F4	User	A	・・・	User	A
34	Open Rim Shot	F4	Open Rim Shot	F4	User	A	・・・	User	A
35	Bass Drum M	P	Bass Drum M	F4	User	A	・・・	User	A
36	Bass Drum H	P	Bass Drum H	F4	User	A	・・・	User	A
37	Closed Rim	F4	Closed Rim	F4	User	A	・・・	User	A
38	Snare M	P	Snare M	F4	User	A	・・・	User	A
39	Hand Clap	F4	Hand Clap	F4	User	A	・・・	User	A
40	Snare H	P	Snare H	F4	User	A	・・・	User	A
41	Floor Tom L	P	Floor Tom L	F4	User	A	・・・	User	A
42	Hi-Hat Closed	P	Hi-Hat Closed	F4	User	A	・・・	User	A
43	Floor Tom H	P	Floor Tom H	F4	User	A	・・・	User	A
44	Hi-Hat Pedal	P	Hi-Hat Pedal	F4	User	A	・・・	User	A
45	Low Tom	P	Low Tom	F4	User	A	・・・	User	A
46	Hi-Hat Open	P	Hi-Hat Open	F4	User	A	・・・	User	A
47	Mid Tom L	P	Mid Tom L	F4	User	A	・・・	User	A
48	Mid Tom H	P	Mid Tom H	F4	User	A	・・・	User	A
49	Crash Cymbal 1	P	Crash Cymbal 1	F4	User	A	・・・	User	A
50	High Tom	P	High Tom	F4	User	A	・・・	User	A
51	Ride Cymbal 1	P	Ride Cymbal 1	F4	User	A	・・・	User	A
52	Chinese Cymbal	P	Chinese Cymbal	F4	User	A	・・・	User	A
53	Ride Cymbal	F4	Ride Cymbal	F4	User	A	・・・	User	A
54	Tambourine	F4	Tambourine	F4	User	A	・・・	User	A
55	Splash Cymbal	P	Splash Cymbal	F4	User	A	・・・	User	A
56	Cowbell	F4	Cowbell	F4	User	A	・・・	User	A
57	Crash Cymbal 2	P	Crash Cymbal 2	F4	User	A	・・・	User	A
58	Vibraslap	F4	Vibraslap	F4	User	A	・・・	User	A
59	Ride Cymbal 2	P	Ride Cymbal 2	F4	User	A	・・・	User	A
60	Bongo H	F4	Bongo H	F4	User	A	・・・	User	A
61	Bongo L	F4	Bongo L	F4	User	A	・・・	User	A
62	Conga H Mute	F4	Conga H Mute	F4	User	A	・・・	User	A
63	Conga H Open	F4	Conga H Open	F4	User	A	・・・	User	A
64	Conga L	F4	Conga L	F4	User	A	・・・	User	A
65	Timbale H	F4	Timbale H	F4	User	A	・・・	User	A
66	Timbale L	F4	Timbale L	F4	User	A	・・・	User	A
67	Agogo H	F4	Agogo H	F4	User	A	・・・	User	A
68	Agogo L	F4	Agogo L	F4	User	A	・・・	User	A
69	Cabasa	F4	Cabasa	F4	User	A	・・・	User	A
70	Maracas	F4	Maracas	F4	User	A	・・・	User	A
@ 71	Samba Whistle	F4	Samba Whistle	F4	User	A	・・・	User	A
@ 72	Samba Whistle	F4	Samba Whistle	F4	User	A	・・・	User	A
73	Guiro Short	F4	Guiro Short	F4	User	A	・・・	User	A
74	Guiro Long	F4	Guiro Long	F4	User	A	・・・	User	A
75	Claves	F4	Claves	F4	User	A	・・・	User	A
76	Wood Block H	F4	Wood Block H	F4	User	A	・・・	User	A
77	Wood Block L	F4	Wood Block L	F4	User	A	・・・	User	A
78	Cuica Mute	F4	Cuica Mute	F4	User	A	・・・	User	A
79	Cuica Open	F4	Cuica Open	F4	User	A	・・・	User	A
80	Triangle Mute	F4	Triangle Mute	F4	User	A	・・・	User	A
81	Triangle Open	F4	Triangle Open	F4	User	A	・・・	User	A
82	Shaker	F4	Shaker	F4	User	A	・・・	User	A
83	Jingle Bells	F4	Jingle Bells	F4	User	A	・・・	User	A
84	Bell Tree	F4	Bell Tree	F4	User	A	・・・	User	A

Only the voice attached "@" reacts to KeyOff.
- Exclusion allotment of Key#42/#44/#46
- Exclusion allotment of Key#71/#72
- Exclusion allotment of Key#73/#74
- Exclusion allotment of Key#78/#79
- Exclusion allotment of Key#80/#81

Use Exclusion allotment, if the voice is set to the avobe NoteNo. of UserBank.

(*) Type F2: FM 2 Operator, F4: FM 4 Operator, P: PCM, A: F2/F4/P Assignable

5.1.6. MA-5 Native Normal Drum Instrument (FM32 mode)

Bank MSB	125		125		125		125	125	
Pch#	0		1		2		3～8	9	
	Default				User Assignable				
Note#	Inst	Typ	Inst	Typ	Inst	Typ		Inst	Typ
24	Seq Click H	F2	Seq Click H	F2	User	A	・・・	User	A
25	Brush Tap	F2	Brush Tap	F2	User	A	・・・	User	A
@ 26	Brush Swirl	F2	Brush Swirl	F2	User	A	・・・	User	A
27	Brush Slap	F2	Brush Slap	F2	User	A	・・・	User	A
@ 28	Brush Tap Swirl	F2	Brush Tap Swirl	F2	User	A	・・・	User	A
@ 29	Snare Roll	F2	Snare Roll	F2	User	A	・・・	User	A
30	Castanet	F2	Castanet	F2	User	A	・・・	User	A
31	Snare L	P	Snare L	F2	User	A	・・・	User	A
32	Sticks	F2	Sticks	F2	User	A	・・・	User	A
33	Bass Drum L	P	Bass Drum L	F2	User	A	・・・	User	A
34	Open Rim Shot	F2	Open Rim Shot	F2	User	A	・・・	User	A
35	Bass Drum M	P	Bass Drum M	F2	User	A	・・・	User	A
36	Bass Drum H	P	Bass Drum H	F2	User	A	・・・	User	A
37	Closed Rim	F2	Closed Rim	F2	User	A	・・・	User	A
38	Snare M	P	Snare M	F2	User	A	・・・	User	A
39	Hand Clap	F2	Hand Clap	F2	User	A	・・・	User	A
40	Snare H	P	Snare H	F2	User	A	・・・	User	A
41	Floor Tom L	P	Floor Tom L	F2	User	A	・・・	User	A
42	Hi-Hat Closed	P	Hi-Hat Closed	F2	User	A	・・・	User	A
43	Floor Tom H	P	Floor Tom H	F2	User	A	・・・	User	A
44	Hi-Hat Pedal	P	Hi-Hat Pedal	F2	User	A	・・・	User	A
45	Low Tom	P	Low Tom	F2	User	A	・・・	User	A
46	Hi-Hat Open	P	Hi-Hat Open	F2	User	A	・・・	User	A
47	Mid Tom L	P	Mid Tom L	F2	User	A	・・・	User	A
48	Mid Tom H	P	Mid Tom H	F2	User	A	・・・	User	A
49	Crash Cymbal 1	P	Crash Cymbal 1	F2	User	A	・・・	User	A
50	High Tom	P	High Tom	F2	User	A	・・・	User	A
51	Ride Cymbal 1	P	Ride Cymbal 1	F2	User	A	・・・	User	A
52	Chinese Cymbal	P	Chinese Cymbal	F2	User	A	・・・	User	A
53	Ride Cymbal	F2	Ride Cymbal	F2	User	A	・・・	User	A
54	Tambourine	F2	Tambourine	F2	User	A	・・・	User	A
55	Splash Cymbal	P	Splash Cymbal	F2	User	A	・・・	User	A
56	Cowbell	F2	Cowbell	F2	User	A	・・・	User	A
57	Crash Cymbal 2	P	Crash Cymbal 2	F2	User	A	・・・	User	A
58	Vibraslap	F2	Vibraslap	F2	User	A	・・・	User	A
59	Ride Cymbal 2	P	Ride Cymbal 2	F2	User	A	・・・	User	A
60	Bongo H	F2	Bongo H	F2	User	A	・・・	User	A
61	Bongo L	F2	Bongo L	F2	User	A	・・・	User	A
62	Conga H Mute	F2	Conga H Mute	F2	User	A	・・・	User	A
63	Conga H Open	F2	Conga H Open	F2	User	A	・・・	User	A
64	Conga L	F2	Conga L	F2	User	A	・・・	User	A
65	Timbale H	F2	Timbale H	F2	User	A	・・・	User	A
66	Timbale L	F2	Timbale L	F2	User	A	・・・	User	A
67	Agogo H	F2	Agogo H	F2	User	A	・・・	User	A
68	Agogo L	F2	Agogo L	F2	User	A	・・・	User	A
69	Cabasa	F2	Cabasa	F2	User	A	・・・	User	A
70	Maracas	F2	Maracas	F2	User	A	・・・	User	A
@ 71	Samba Whistle	F2	Samba Whistle	F2	User	A	・・・	User	A
@ 72	Samba Whistle	F2	Samba Whistle	F2	User	A	・・・	User	A
73	Guiro Short	F2	Guiro Short	F2	User	A	・・・	User	A
74	Guiro Long	F2	Guiro Long	F2	User	A	・・・	User	A
75	Claves	F2	Claves	F2	User	A	・・・	User	A
76	Wood Block H	F2	Wood Block H	F2	User	A	・・・	User	A
77	Wood Block L	F2	Wood Block L	F2	User	A	・・・	User	A
78	Cuica Mute	F2	Cuica Mute	F2	User	A	・・・	User	A
79	Cuica Open	F2	Cuica Open	F2	User	A	・・・	User	A
80	Triangle Mute	F2	Triangle Mute	F2	User	A	・・・	User	A
81	Triangle Open	F2	Triangle Open	F2	User	A	・・・	User	A
82	Shaker	F2	Shaker	F2	User	A	・・・	User	A
83	Jingle Bells	F2	Jingle Bells	F2	User	A	・・・	User	A
84	Bell Tree	F2	Bell Tree	F2	User	A	・・・	User	A

Only the voice attached "@" reacts to KeyOff.
- Exclusion allotment of Key#42/#44/#46
- Exclusion allotment of Key#71/#72
- Exclusion allotment of Key#73/#74
- Exclusion allotment of Key#78/#79
- Exclusion allotment of Key#80/#81

Use Exclusion allotment, if the voice is set to the avobe NoteNo. of UserBank.

(*) Type F2: FM 2 Operator, F4: FM 4 Operator, P: PCM, A: F2/F4/P Assignable

5.1.7. MA-5 Native Normal Drum Instrument (FM32 mode)

WaveID	Instrument
0	Bass Drum
1	Snare Drum
2	Tom Tom
3	Hi-Hat Closed
4	Hi-Hat Open
5	Ride Cymbal
6	Crash Cymbal

5.2. Error Message

5.2.1. Error Message at Input/Output

Display	Description of error	Cause
Can not save SMAF (SMF) file. Illegal output stream.	SMAF file cannot be saved. Output stream is not correct.	The document cannot be saved in SMAF (SMF) file.
Can not open SMAF (SMF) file. Illegal file format.	SMAF file cannot be opened. Format of the file is not correct.	Format of SMAF (SMF) file is not correct at reading.
Can not open MA1 (SMF) file. Illegal file format.	MA1 file cannot be opened. Format of the file is not correct.	Format of MA1 (MA5) is not correct for reading.
Can not import from file. Bank Number is different from selected bank.	File cannot be opened. Type of bank select is wrong.	When importing voices of bank row in Voice List, the type of bank select is wrong.
Can not open voice file. Illegal file format.	Voice file cannot be opened. Format of the file is not correct.	Voice definition file format error
Can not save voice file. Illegal bank voice parameter.	Unable to save a voice filed. Setting of banks in voice parameter is incorrect.	Failed to voice export in bank arrangement by Voice List.
Can not save SMAF file. Illegal output stream.	Unable to save a SMAF file. The "output stream" is incorrect.	Failed to save for the MA5SMAF
Can not open file. Illegal file format.	Unable to open a file. The format of the file is incorrect.	Tried to read the file with an extension besides support.
Can not convert. DLL: Can not create file.	Unable to convert a file. Unable to create a file.	File can no be generated since error is occurred.
Can not convert. DLL: Output buffer overflow.	Unable to convert a file. Unable to fit in a buffer.	Converted file cannot be fit in a buffer.
Can not convert. DLL: Illegal format type.	Unable to convert a file. The types of format are incorrect.	There is an invalid identifier.
Can not convert. DLL: Illegal parameter of function.	Unable to convert a file. A function parameter value is not correct.	A function parameter value is not normal.
Can not convert. DLL: Illegal event.	Unable to convert a file. An event is not correct.	There is an undefined event existing.
Can not convert. DLL: Temporary buffer overflow.	Unable to convert a file. The temporary buffer is overflowing.	Temporary buffer overflow
Can not convert. File size of SMAF is out of range. (256000 bytes)	Unable to convert a file. File size is over 256000 bytes.	Tried to play a SMAF exceeded 256000byte and to save.
Can not assure contents. Total Length is out of range. (2,000,000 msec)	These contents cannot be guaranteed. Total length is over 2000000 (msec).	The total length of the file exceeds 2000000(msec).
Can not save File. File path exceed 260byte.	The file path is over 260 bytes.	When the input file path is over 260 bytes.
Can not save file. File name exceed 59byte.	The file name is over 59byte.	When the input file name (except for an extension) is over 59 bytes.
Can not assure contents. Max Event Density must be under 1000 byte/s.	These contents cannot be guaranteed. The maximum event density is over 1000 at the moment.	When the maximum event density exceeds 1000 (Byte/s) at the moment.
Can not assure contents. Average Event Density must be under 500 byte/s.	These contents cannot be guaranteed. Average event density is over 500.	When average event density exceeds 500 (Byte/s).
Can not save SMAF file. The size of Stream PCM (total %u byte/s) is out of range.	Unable to save a SMAF. The total size of Stream PCM is exceeded.	When the total size of Stream PCM exceeds a standard (8 K byte/s).
Can not convert. DLL: Total length is less than 20(msec).	Unable to convert a file. Total length is 20 or less msec.	The total length after changing into SMAF is too (below 20msec) short.
Can not convert. Program Change is specified at the timing of sounding notes.	Unable to convert a file. A program change is during note pronunciation.	When a program change is between note-off from note-on of arbitrary note messages.
Can not assure of contents. HV Note interval of 100(ms) is required on HV channel.	Contents cannot be secured. The intervals of the note in HV channel are 100 (ms) necessities.	When the interval of the note in HV channel is under 100 (ms).

Display	Description of error	Cause
Can not convert file. PCM voice setting error: Invalid Loop point setting. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Displays a Voice Name)	Unable to convert a file. Setup of Loop Point is inaccurate.	When LP check shows an error.
Can not convert file. PCM voice setting error: Invalid End point setting. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Displays a Voice Name)	Unable to convert a file. Setup of End Point is inaccurate.	When EP check shows an error.
Can not convert file. PCM voice setting error: SR <= 1 and XOF is checked. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Displays a Voice Name)	Unable to convert a file. Setting error: SR <= 1 and XOF is checked.	When the check of EG, LPL, and EPL is an error in the case of LP=EP .
Can not convert file. PCM voice setting error: DR = 0, SL != 0 and XOF is checked. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Displays a Voice Name)	Unable to convert a file. Setting error: DR = 0, SL != 0 and XOF is checked	When the check of EG, LPL, and EPL is an error in the case of LP=EP .
Can not convert file. PCM voice setting error: RR <= 1 and XOF is not checked. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Displays a Voice Name)	Unable to convert a file. Setting error: RR <= 1 and XOF is not checked	When the check of EG, LPL, and EPL is an error in the case of LP=EP.

5.2.2. Error Message for Start-up

Display	Description of error	Cause
Can not open application. Application is already running.	The application has already been started.	An attempt was made to start MA-5 Authoring Tool that has already been started.
Can not open application. MA5_AT.ini (initial) file not found.	The application cannot be started. The ini file of MA-5 Authoring Tool does not exist.	MA5_AT.ini does not exist.
Can not open application. Illegal parameter of MA-5_AT.ini (initial) file.	The application cannot be started. The parameter of ini file of MA-5 Authoring Tool is not correct.	The setting of parameter of MA-5_AT.ini is not correct.
Exit application. As board not found.	Application is ended since MA-5 board is not found.	Can not obtain a Firmware ID; or Firmware ID is not either 0 or 1.
Exit application. AS board is not supported.	Application is ended since MA-5 board is not supported.	Firmware ID set to "1."

5.2.3. Error Message for Internal Input/Output

Display	Description of error	Cause
Can not export to M5N Unexpected problem is occurred.	M3N cannot be made. An unexpected problem has occurred.	It was impossible to make M3N due to an unknown problem.
Can not export to M5N RAM size overflow.	M3N cannot be made. MA-5 RAM capacity is exceeded.	RAM capacity is exceeded.

5.2.4. Error Message for MIDI

Display	Description of error	Cause
Can not assign sound file. RAM size overflow. (total %u byte)	A sound file is un-assignable. RAM size is exceeded.	When RAM size is exceeded.
Can not open MIDI device. MIDI device is used another application.	Other applications are using the MIDI device.	A MIDI device has not been obtained when [O.K.] of Preference was pushed.

5.2.5. Error Message for Wave Data

Display	Description of error	Cause
Can not open sound file. Stereo sound file is not supported.	Sound file cannot be opened. This is not compatible with stereophonic sound file.	Conversion processing was stopped because WaveFile is stereophonic.
Can not convert sound file. Unexpected problem is occurred.	Sound file cannot be converted.	Processing was stopped due to an unknown problem during WaveFile conversion.
Can not assign sound file. Numbers of Wave Exceed 128 (For SMAF).	Sound file cannot be assigned.	Because of no space WaveID on Voice List, process is interrupted.
Can not convert sound file. Sampling Frequency is not supported. (Must be over 4k Hz)	Sound file cannot be assigned.	With Stream PCM Assign MAP When WaveFile of 8 bit PCM is read Sampling Frequency is under 4000Hz.
Can not convert sound file. Sampling Frequency is not supported. (Must be under 8k Hz)	Sound file cannot be assigned.	Sampling Frequency was over 8000 when Wave-File of Mono 8 bit PCM or Stereo 4 bit ADPCM was read by Stream PCM Assign Map.
Can not convert sound file. Sampling Frequency is not supported. (Must be under 16k Hz)	Sound file cannot be converted.	Sampling Frequency is over 16000Hz when WaveFile of Mono 4 bit ADPCM is read at Stream PCM Assign MAP
Can not convert sound file. Sampling Frequency is not supported. (Must be 4k Hz)	Unable to convert a sound file.	When Wave File of Stereo 8bit PCM was read by Stream PCM Assign Map, Sampling Frequency was except 4000.
Can not convert sound file. Sampling Frequency is not supported. (Must be under 48k Hz)	Sound file cannot be converted.	Sampling Frequency is over 48000Hz when WaveFile is read at Voice Edit/PCM.
Can not assign stereo sound file. Sound file is already assigned.	Unable to assign a sound file. Other sound files are already assigned.	By two continuations, it cannot register with Stream PCM Assign MAP.
Can not assign stereo sound file. Over Wave ID. (ID 1-31)	A sound file is un-assignable. Wave ID. (ID 1-32) is exceeded.	Tried to register the Stream PCM of Stereo into Wave ID 32.
Can not assign the 127th wave.	127th WaveID is unassignable.	It was tried to paste the PCM voice used as WaveID=127 on Voice Assign Map. Or it was going to save and play back the data under edit to which WaveID=127 are assigned.
Sampling Frequency is not supported. –Delete sound file.	The waveform file with un-supported frequency is deleted.	Tried to read arbitrary waveform data (.sm3, .sm5) including waveform file with un-supported frequency.

5.2.6. Error Message for User's Operation

Display	Description of error	Cause
Can not paste voice parameter. Can not assign 4 operators on GM1 mode.	Unable to paste a voice parameter.	4 operators are pasted from VoiceList to VAM.
Can not play. As board not found.	Can not play back. Board can not be found.	When a message does not return to a reproduction position or an indicator level after reproduction.
Can not play. Illegal output stream.	Unable to playback.	The playback is un-normal.
Can not convert file. As board not found.	Can not convert. Board can not be found.	When saving, FirmwareID of MA-5 board is not 0 or 1.
Can not close Voice Edit. Please load wave file or check 'RM'.	Unable to close a Voice Edit. Be sure to check RM, or load a Wave file.	In state, either the voice wave load completed or RM unchecked, O.K button is selected.
Can not close Voice Edit. Please load basic waveform.	Unable to close Voice Edit. Please load a basic-waveform.	When "O.K" is pressed in FM Voice Edit; in the condition of which one of WS15, 23, or 31 is selected and when one of operator 1 or 4 is selected;
Can not close clear. This basic waveform is used.	Unable to clear. This basic waveform is used.	When the correspond FM basic waveform is used by other operators (include others voice)
Can not close Voice Edit. Invalid Loop point setting.	Unable to close a Voice Edit. Loop Point setting is illegal.	In case of the LP check shows an error.
Can not close Voice Edit. Invalid End point setting.	Unable to close a Voice Edit. End Point setting is illegal.	In case of the EP check shows an error.
Can not close Voice Edit. Setting Error: SR <= 1 and XOF is checked.	Unable to close a Voice Edit. Setting is error: SR <= 1 and XOF is not checked.	EG in case of LP=EP, or check boxes of LPL, and EPL show an error
Can not close Voice Edit. Setting Error: DR = 0, SL != 0 and XOF is checked.	Unable to close a Voice Edit. Setting is error: DR = 0, SL != 0 and XOF is checked.	EG in case of LP=EP, or check boxes of LPL and EPL show an error
Can not close Voice Edit. Setting Error: RR <= 1 and XOF is not checked.	Unable to close a Voice Edit. Setting is error: RR <= 1 and XOF is not checked.	EG in case of LP=EP, or check boxes of LPL and EPL show an error
Can not check AL enable. Number of AL voice exceed16.	Unable to check the AL Enable.	Al voice numbers exceeds 16.
The Maximum length of a segment in HV-Script must be under %u bytes.	Contents cannot be secured. The number of the maximum bytes per clause in HV-Script is less than 100 (byte).	When the number of the maximum bytes per clause in HV-Script is over 100 (byte).
Can not convert HV-Script. Invalid file format.	HV-Script is inconvertible. It is an unjust format.	When the format of HV-Script which it is going to convert is inaccurate (a header cannot be interpreted).
Can not open help. Unexpected problem is occurred.	Unable to open "Help". The unexpected problem is occurred.	A help is not opened on a certain problem.
Can not open help. Help file doesn't exist.	Unable to open "Help". There is no help file.	Since there is no help file, a help is not opened.
Can not open file.¥n- file size is too large. (Over 65533byte).	Since file size exceeds 65533 bytes, it cannot be read.	The size of the file specified to be karaoke option data is too large.

5.2.7. Other Error Message

Display	Description of error	Cause
Exit application. Unexpected problem is occurred.	Application is ended because of an unexpected problem.	Application is ended because of an unexpected problem.

5.3. Warning Message

5.3.1. Warning Message at Input/Output

Display	Display Timing
Nonsupport chunk detect. DLL: Illegal chunk found in SMAF.	When a chunk, which SMAF.MA-5 does not define, is found.
Contents Code Type is not supported. DLL: Contents Code Type will be ignored.	Un-supporting code type is found in SMAF
ATSig Information. DLL: Created by other tool.	When the venders ID of ATSig differ
ATSig Information. DLL: Created by software version.	When the versions of ATSig differ
ATSig Information. DLL: Created by Lower version.	When the versions of ATSig differ
ATSig Information. DLL: Created by Upper version.	When the versions of ATSig differ
ATSig Information. DLL: Illegal Magic Code.	When the magic codes of ATSig differ
ATSig Information. DLL: ATSig not found.	When ATSig does not exist
Note Number (115-127) in SMAF is not supported. DLL: Note Message (#115-127) is ignored.	Since the note message of 115 to 127 exists, output of note number is controlled.
Bank Number of Voice file is adjusted automatically.	When tie processing of the overlapping note message is carried out.
Automatically operated. The overlapping note was tied.	All voices registered into VoiceAssginMap Preference When the trial calculation of the amount of RAM size consumption is made and the sum total is over 8176 (Byte).
Can not convert. RAM size overflow.	Make a trial calculation of RAM size consumption from all voice registered in VoiceAssginMap and the setting of Stream PCM Reserved in Preference; if the sum total of calculation is over 8176 (Byte).
More than one Note messages found on the same duration in a mono mode channel. Only the last Note message will be accepted.	When two or more note messages exist in dilation: 0 in a mono-mode specification channel at the time of a SMAF output. * Only the thing of last note-message is output (it is a filter at DLL).
Can not convert. Max Event Density must be under 1000 byte/s.	The maximum event density at the moment is over 100 (Byte/s) at the time of SMF Import.
Can not convert. Average Event Density must be under 500 byte/s.	When average event density is over 500 (Byte/s) at the time of SMF Import.
Can not output Information to SMF. Invalid Information.	Since the contents of Information are inaccurate, Information cannot be output to SMF.
FM voice setting error: Invalid wave style Setting. - Set wave style '0' automatically.	When opening SMAF or a voice file, an unjust Wave style setting is found and it corrects to '0' automatically.
Phrase L1 voice file. Can not import BankM:125 Pch#1 bank voice	When the voice file for Phrase L1 is loaded in the Phrase L2 mode and the voice set of BM: 125/Pch#:1 is read and thrown away.
Some FM basic waves were overwritten. WS(15):%s WS(23):%s WS(31):%s	When the FM basic wave is overwritten by Import from Bank Voice file.
Number of assigned voices exceeded 128. Can not output excess voices.	When more than 128 voices are assigned to Voice Assign Map. * No-checking of HV check box in Score Window may cause this issue.
Invalid HV-Script.¥n- Delete HV-Script.	When invalid HV-Script is found in "Import from Multi HV-Script File".
Karaoke grading section is adjusted automatically.	When the karaoke scoring section is adjusted automatically in at SMF reading.

5.3.2. Warning Message for Start up

Display	Display Timing
Automatically operated. System has been changed to use COM%d	When a connection port is changed into the thing different from a setup.

5.3.3. Warning Message for Wave Data

Display	Display Timing
Please check pitch of actual playing sound. Fs of PCM wave is adjusted automatically.	When Fs of read PCM is over 48000 or less than 1500.

5.3.4. Warning Message at User's Operation

Display	Display Timing
Exist editing file Save the changed file?	When it is going to cancel the application in the state where the voice under edit exists.
Exist editing parameter. Save the voice parameter?	When it is going to cancel the application in the state where the voice under edit exists.
Loop/End Point is adjusted automatically.	When LP/EP automatic control function starts to the timing which opens PCM Voice Edit.
Can not export to Voice List. -Normal Voice=Bank MSB:124/Bank LSB:0 /Pch#:0-127 -Drum Voice=Bank MSB:125 /Pch#:0-1 /Note#:13-91	When it is going to export default voices from Voice Assign Map to Voice List
Sampling Frequency and Loop / End Point is adjusted automatically.	When Fs, LP, and EP are automatically adjusted while a vm3 format file is saved in MA-5 mode.
AL Noise Voice is changed into Preset Voice.	When AL Noise was converted into the default voice while a vm3 format file is saved in MA-5 mode.

5.4. Verification Message

5.4.1. Verification Message for Start up

Display	Display Timing
Firmware Version is older than application Version. Upgrade firmware?	When the firmware version of MA-5 board is older than the version which application hold.
Firmware Version is newer than application Version. Downgrade firmware?	When the firmware version of MA-5 board is newer than the version which application hold.

5.4.2. Verification Message for MIDI

Display	Display Timing
Confirm operation. Send Bank Voice Message? (total 128 voice) Bank MSB/LSB: %u/%u	At the time of voice transmission of the bank sequence in Voice List (Normal)
Confirm operation. Send Bank Voice Message? (total 79 voice) Bank MSB/LSB: %u/%u Pch: %u Note: 13-91	At the time of voice transmission of the bank sequence in Voice List (Drum)

5.4.3. Verification Message at User's Operation

Display	Display Timing
Confirm operation.Reset MA-5 board?	When Reset in the option menu was clicked.
Confirm operation. Sound file will be detached automatically.	An attempt was made to check RM (ON) when a sound file is being loaded into the PCM Voice Edit dialog.
Overwriting Voice List. Save the changed voice parameters?	When Open Voice File in the File menu was selected.
Overwriting Voice List. Save the changed data of Voice List?	When the Import from Bank Voice in the VoiceList was selected.
Overwriting Voice List. Save the changed voice parameters?	When Preference in the Option menu was selected.
Overwriting Stream PCM Assign Map. Export to Stream PCM File?	When the Import from Stream PCM File In the Stream PCM Assign Map was selected.
HV Extend Voice Map will be overwritten. Save the HV Extend Voice parameter?	When Import from HV Extend Voice File is chosen in HV Extend Voice Map.
HV-Script Assign Map will be overwritten. Save the Multi HV-Script?	When Import from Multi HV-Script File is chosen in HV-Script Assign Map.
There is no data in HV-Script file.	When the HV-Script file (*. hvs) opened in the HV Script Edit dialog is empty.
Confirm operation. Sound file will be detached automatically.	An attempt was made to check RM (ON) when a sound file is being loaded into the PCM Voice Edit dialog.
Do you want to delete HV voice parameter?	When deleting HV voice parameter.
Do you want to delete HV-Script?	When deleting HV-Script.
HV-Script is under edit. Do you want to save file?	When opening HV-Script newly while editing HV-Script.
Confirm Operation. Send HV Extend Voice Message.	When performing Send HV Extend Voice Message.
Confirm Operation. Send HV-Script Message.	When performing Send HV HV-Script Message.
Confirm Operation. Send all parameters of AT?	When performing Send All Parameter.
Loop / End Point is adjusted automatically.	When rounding was made because both Loop Point and End Point is incorrect.
Do you want to delete this file?	Tried to delete a file in Play List.
HV Note events exist in SMF. Do you overwrite HV Sequence Edit View?	The FM basic waveform which is same as registered exiting in a read voice file was found in Import from Bank Voice File.
There are FM basic waves already. Do you overwrite assigned FM basic wave?	Tried to delete a file in Play List.

5.5. Shortcut Key

In MA-5 Authoring Tool, the following shortcut keys can be used.

Sign "+" means "with". For example, "[CTRL] + [F4]" means that "Push [F4] key with pushing the [Ctrl]

5.5.1. Shortcut Key for Common to Each Window

Key	Operation
[ESC]	Cancels an editing operation.
[DEL]	Deletes the event chosen.
[CTRL]+ [F4]	Closes an active editing window.
[CTRL]+ [F6](or Tab)	Changes an active window in the editing window opened on the application window.
[Alt](or GRPH)+[Tab]	Opens an application window, while minimizing MA-5 authoring tool.
[Alt](or GRPH)+[Space key]	Opens an icon popup menu from the title bar of an application window.
[Alt](or GRPH)+[-](Hyphen)	Opens an icon popup menu from the title bar of an active editing window.
[Alt](or GRPH)+ [F4]	Closes application.

5.5.2. Shortcut Key for Menu Bar

Key	Operation
[Alt](or [GRPH])+ Letter key	Executes the menu item corresponding to each letter key. For example, when pushes [E] key with pushing [Alt] (or [GRPH]), the pull-down menu of [Edit] menu will open. In addition, copy will be chosen when [C] key is pushed on it.
[Alt](or [GRPH])	Moves cursor to [File] of menu bar. In this status, it is possible to move cursor to right and left by pushing the cursor key of computer keyboard, and move to up and down on the opened menu.

5.5.3. Shortcut Key for Control Button

Key	Operation
Start/Stop button	[Space]

5.5.4. Shortcut Key for File Menu

Key	Operation
Open	[Ctrl]+[O]
Save	[Ctrl]+[S]
Import from SMF	[Ctrl]+[L]
Reload from SMF	[Ctrl]+[R]

5.5.5. Shortcut Key for Edit Menu

Key	Operation
Copy	[Ctrl]+[C]
Paste	[Ctrl]+[V]
Undo	[Ctrl]+[Z]
Redo	[Ctrl]+[Y]