

MA-5

Authoring Tool

User's Manual

(ATS-SMAFPhraseL2 Edition)

Ver.1.3.4.1

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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*) to Synthetic Music Mobile Application Format (hereafter called "*SMAF* ") which is proposed by Yamaha, editing of voices, editing of management information, and verification of voice generation using "*MA-5 Emulator*."

Recommended Operating Environment

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

Compatible OS	Microsoft® Windows® XP Microsoft® Windows® 2000
CPU/Clock	Pentium®, Celeron™, or compatible processor / 400MHz or over
Memory	64MB or more
Necessary Hard Disk Space	40MB or more

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Revision History

Version	Date of issue	Contents
1.3.4.1	2006/11/28	4.2.2 Event List Window, its figure was corrected.
1.3.4	2004/12/17	Newly Released.

1. About MA-5 Authoring Tool

Possible to Create Contents 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 switching the AT-mode (For details about AT-mode, see *p.17*).

[Note] This Authoring Tool does not support creating a content for MA-2. Please note it.

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, 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.

Event Viewer Function

This function allows to confirm the event information on Score Window by reading SMF file (*.spf). In addition, it allows to verify the contents of SMF files on “*Event List Window*” or “*Piano Roll Window*.” During a confirmation of playback, Piano Roll Window advances synchronously. Furthermore, it allows to perform an editing of music information.

Real Time Voice Editing Function

The loaded SMF data can be verified on Event Viewer. Real time voice change can be made. In addition, voice can be changed while confirming them.

Realize the Various Sound Easily by Using Voice Library

In this application, Voice Libraries (*VLF-MA3 /VLP-MA3 /VLP-MA5/ VLW-MA3*) which record various voices data are attached.

- “*VLF-MA3*” is the extended voice library of FM voice. The sound, which has a different idea to default voices, can be extended and used easily.
- Both “*VLP-MA3*” and “*VLP-MA5*” is PCM voice library, and real sounds which are different from FM sound are easily realizable.
- “*VLW-MA3*” is the Ethnic Library and is possible to extend a sound of ethnic instruments.

The various sounds are possible to realize easily by using these.

For details, such as registration methods of each voice library refer to the following manuals attached to library. (*VLF-MA3_v***.pdf, VLP-MA3_v***.pdf, VLP-MA5_v***.pdf, VLW-MA3_v***.pdf*)

2. Program Start-up Procedure

This chapter describes the procedures to install MA-5 Authoring Tool and to start up MA-5 Authoring Tool.

2.1. Installation of MA-5 Authoring Tool

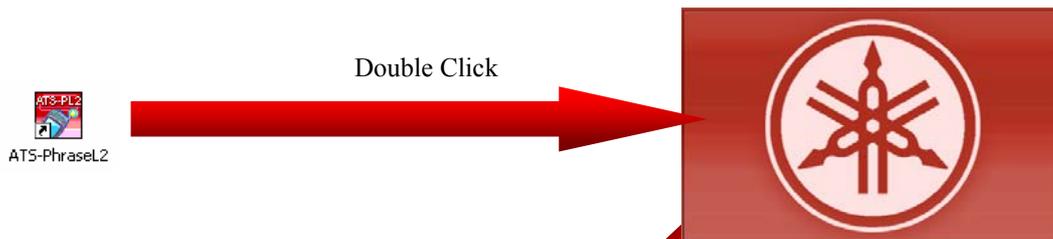
This section describes the installation procedures for MA-5 Authoring Tool.

1. Double click “*setup.exe*” icon.
2. “*Setup Wizard*” dialog is displayed.
3. Click “*Next*” on “*Setup Wizard*” dialog.
4. “*Select Installation Folder*” dialog appears.
5. Designate a folder to install this application; then, press “*Next*” on “*Select Installation Folder*.”
6. “*Confirm Installation*” dialog appears.
7. Press “*Next*”, then, installation is started. When the installation is completed, “*Installation Complete*” dialog is displayed.
8. Press “*Close*” on “*Installation Complete*” dialog.
9. Finally, installation of MA-5 Authoring Tool is now completed; in addition, a shortcut icon “*ATS-PhraseL2*” is also created on your desktop.

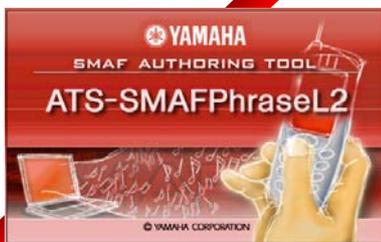


2.2. Start-up

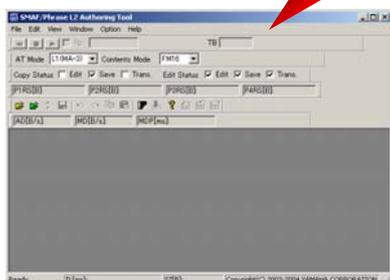
After the installation of MA-5 Authoring Tool was completed, MA-5 Authoring Tool can be started up with the following procedures.



1. Double-click the “*ATSPHraseL2.exe*” that can be found in “*Exe*” folder or double-click the shortcut of “*ATSPHraseL2*” icon which was created on your desktop at installation.



2. Startup-screens are displayed in the order shown in figure.



3. Program is started up normally, and then “*Application Window*” is appeared on your desktop. (For details, 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,*” “*Report bar,*” “*Tool bar,*” “*Preference bar,*” “*Content Information bar,*” “*Density Report bar,*” and “*Status bar,*” that are applicable commonly to all edit windows. “*Report bar,*” “*Event Density bar*” and “*Status bar*” show the present status; in addition, other bars are used to select or execute various functions by clicking or dragging. For details about each bar, see the reference pages shown in following figure.

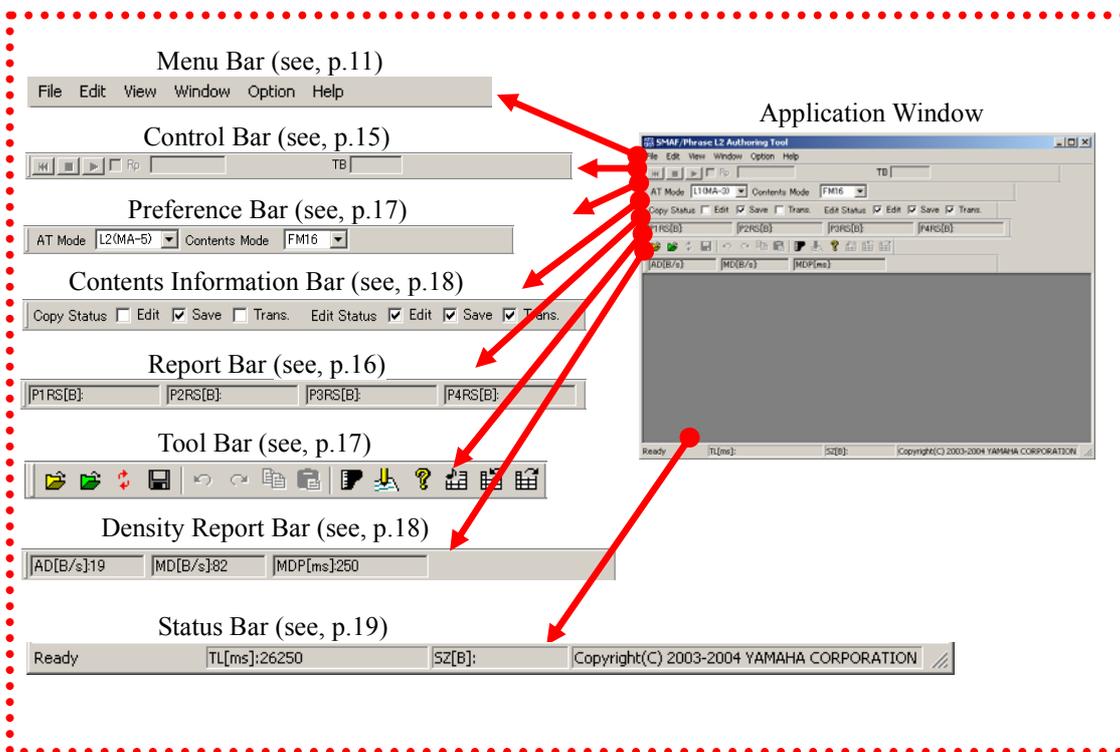


Figure 3-1 Application Window

【Note】 By clicking a name of each bar to place/re-place a check-mark from “*View Menu (p.13),*” each bar can be displayed or hidden as necessary. Moreover, each bar except “*Status Bar*” can be arranged by dragging so that it may be easy to use a user.

3.2. Title Bar

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

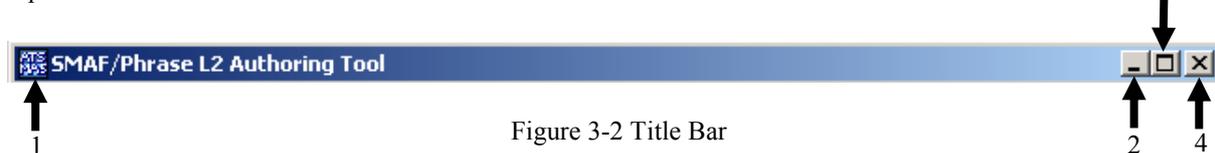


Figure 3-2 Title Bar

No.	Name	Description
1	Application Icon	By clicking this icon, “System Menu” is opened. (For details, see “3.2.1 System 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 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 “Application Icon” located on the extreme left on “Title bar,” this “System Menu” is displayed. Functions provided in this menu are described as follows.

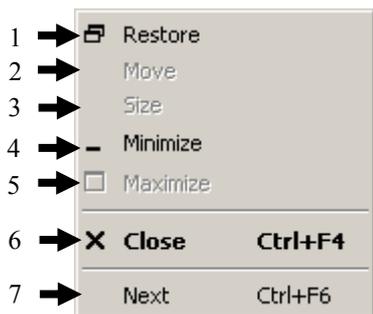


Figure 3-3 System Menu

No.	Name	Description
1	Restore	When the size of window has been changed by size change etc., windows are 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 drags 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 “*Menu Bar*,” the following menus are provided to execute and to control functions. For details about each function, see the reference page, which are shown in the following figure.

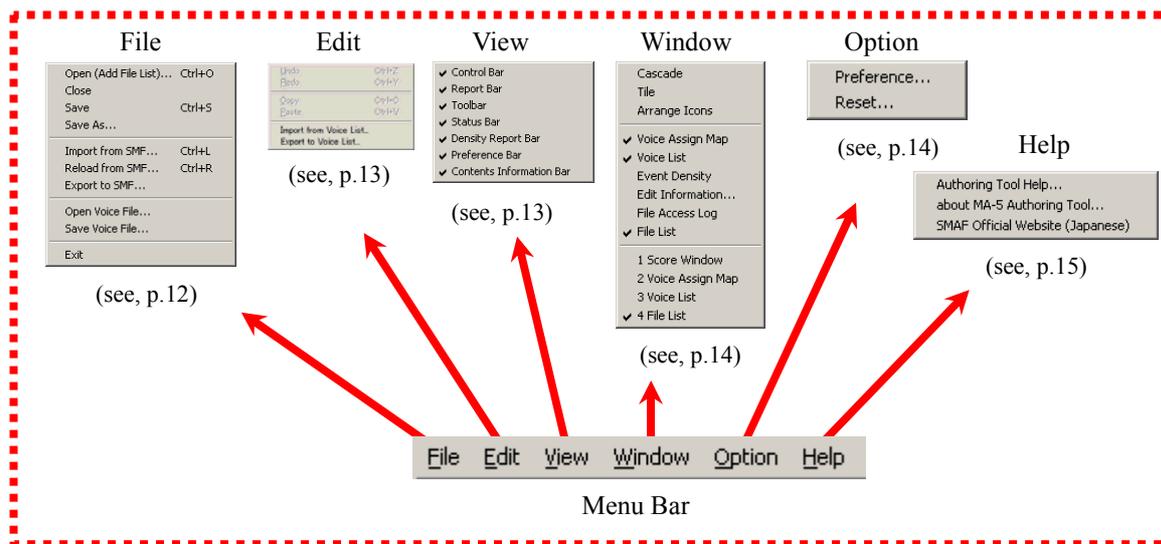


Figure. 3-1 Menu Bar

3.3.1. File Menu

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

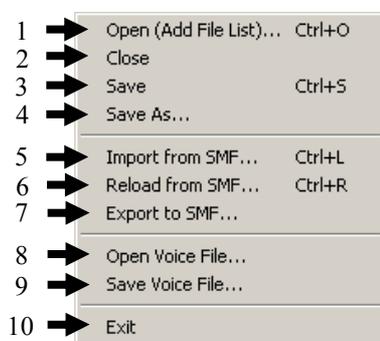


Figure 3-4 File Menu

No.	Name	Description
1	Open (Add File List)...	Opens a SMAF file into “ <i>File List Window</i> .” (*.spf) <L1 (MA-3 Mode)> Opens a SMAF/MA-3 file. <L2 (MA-5 Mode)> Opens a SMAF/MA3 and SMAF/MA5 file.
2	Close	Closes a SMF/SMAF file (*.mid/*.spf)
3	Save	Saves a file in SMAF file format. (*.spf) <L1 (MA-3 Mode)> Saves as a SMAF/MA-3 file. <L2 (MA-5 Mode)> Saves as a SMAF/MA-3/5 file.
4	Save As	Saves a SMAF file with another name. (*.spf) <L1 (MA-3 Mode)> Saves as a SMAF/MA-3 file. <L2 (MA-5 Mode)> Saves as a SMAF/MA-3/5 file.
5	Import from SMF	Loads a SMF file. (*.mid)
6	Reload from SMF	Reloads a SMF file. (*.mid)
7	Export to SMF	Saves a file in SMF format. (*.mid) Only the events described in the “ <i>SMF Authoring Guideline</i> ” is output.
8	Open Voice File	<L1 (MA-3 Mode)> Loads a MA-3 voice file. (*.vm3). <L2 (MA-5 Mode)> Loads a MA-3 voice file. (*.vm3) and MA-5 voice file (*.vm5).
9	Save Voice File	Saves a file in MA-3/MA-5 voice file format. (*.vm3/.vm5). <L1 (MA-3 Mode)> Saves a file in MA-3 voice file format (*.vm3). <L2 (MA-5 Mode)> Saves a file in MA-3/MA-5 voice file format (*.vm3/.vm5).
10	Exit	Exists from MA-5 Authoring Tool.

3.3.2. Edit Menu

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



Figure 3-5 Edit Menu

No.	Name	Description
1	Undo	In Voice Assign Map, voice parameter updated by paste operations is returned to the condition before the operation.
2	Redo	The voice parameter updated by “Undo” operation is returned to the parameter before the operation.
3	Copy	Copies voices which is selected from “Voice List” or “Voice Assign Map.” When nothing is selected, it is grayed-out.
4	Paste	Pastes the copied voices into the optional 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.

3.3.3. View Menu

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



Figure 3-6 View Menu

No.	Name	Description
1	Control Bar	Switches a display/non-display of Control Bar. (For details, see “p.15.”)
2	Report Bar	Switches a display/non-display of Report Bar. (For details, see “p.16.”)
3	Tool Bar	Switches a display/non-display of Toolbar. (For details, see “p.17.”)
4	Status Bar	Switches a display/non-display of Status Bar. (For details, see “p.19.”)
5	Density Report Bar	Switches a display/non-display of Density Report Bar. (For details, see “p.18.”)
6	Preference Bar	Switches a display/non-display of Preference Bar. (For details, see “p.17.”)
7	Contents Information Bar	Switches a display/non-display of Contents (For details, see “p.18.”)

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. Checks are marked 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*.”

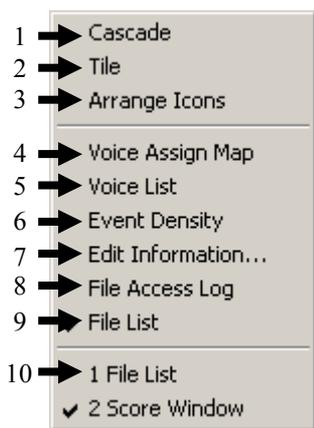


Figure 3-7 Window Menu

No.	Name	Description
1	Cascade	Displays windows in piles.
2	Tile	Displays windows in a line.
3	Arrange Icons	Arranges the minimized windows on the bottom of “ <i>Application Window</i> .”
4	Voice Assign Map	Displays Voice Assign Map. (For details, see “ <i>4.3Voice Assign Map</i> .”)
5	Voice List	Displays Voice List Window. (For details, see “ <i>4.4Voice List Window</i> .”)
6	Event Density	Displays Event Density Window (For details, see “ <i>4.5Event Density Window</i> .”)
7	Edit Information	Displays Management Information Dialog. (For details, see “ <i>4.7Edit Information Window</i> .”)
8	Velocity Change	Displays Velocity Change Dialog. (For details, “ <i>4.6Velocity Change Dialog</i> .”)
9	File Access Log	Displays File Access Log Window. (For details, see “ <i>4.8File Access Log Window</i> .”)
10	File List	Displays File List window. (For details, see “ <i>4.1File List Window</i> .”)
11	List of Active 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 Authoring Tool, etc. can be set up. For details, see the section for each function.

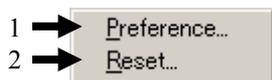


Figure 3-8 Option Menu

No.	Name	Description
1	Preference	Opens preference dialog. (For details, “ <i>4.9Preference Window</i> .”)
2	Reset	Initializes an emulator.

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 3-9 Help Menu

No.	Name	Description
1	Authoring Tool Help...	Displays “ <i>MA-5 Authoring Tool User’s Manual.</i> ”
2	about MA-5 Authoring Tool...	Displays “ <i>about MA-5 Authoring Tool.</i> ” (For details, see “ <i>4.10about Authoring Tool Window.</i> ”)
3	SMAF Official Website (Global)	URL http://smaf-yamaha.com/

3.4. Control Bar

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

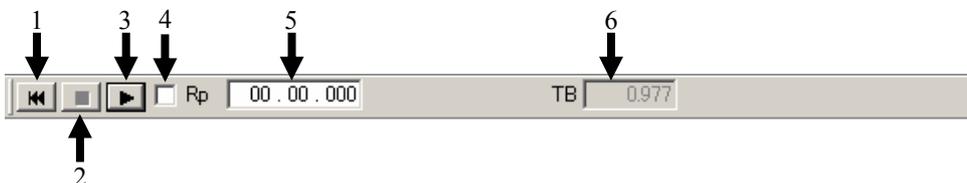


Figure 3-10 Control Bar

No.	Name	Description
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 “ <i>ms.</i> ”
6	TimeBase (TB)	Time base is displayed. It displays a time about 1Tick in “ <i>ms</i> ” unit.

【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. Report Bar

In “*Report Bar*”, RAM size (n:1~4) used in music is displayed. Unit is “*Byte.*”



Figure 3-11 Report Bar

No.	Name	Description
1	P1RS[B]:	Phrase1 RAM is displayed by [B] (byte) unit.
2	P2RS[B]:	Phrase2 RAM is displayed by [B] (byte) unit.
3	P3RS[B]:	Phrase3 RAM is displayed by [B] (byte) unit.
4	P4RS[B]:	Phrase4 RAM is displayed by [B] (byte) unit.

RAM size is displayed and updated with the following timing.

In addition, when any file is not opened, it displays “*RS[B]:* ” (Default).

For details about RAM size, see the following section “*3.5.1 About RAM Size.*”

RAM Size Check Timing
When “ <i>OK</i> ” button on Voice Edit Dialog is clicked.
When SMF (*.mid) is imported.
When SMF (*.mid) is reloaded.
When voices are pasted into Voice Assign Map.
When “ <i>OK</i> ” in Preference is selected.
When “ <i>Phrase Assign</i> ” on Score Window and/or Voice Assign Map is changed.

3.5.1. About RAM Size

Size List	
Registration of Voice Parameter	FM2op : 16 bytes / one voice
	FM4op : 30 bytes / one voice
	PCM : 14 bytes / one voice

【Note】 A warning message is displayed when RAM size exceeds 1.75-kbyte (1792-kbyte); moreover, the background color is displayed by flashing in original color and red color alternately.

3.6. Tool Bar

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

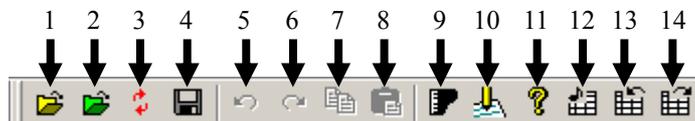


Figure 3-12 Tool Bar

No.	Name	Description
1	Open	Registers a SMAF file into “ <i>File List Window</i> .” Opens a SMAF file (*. <i>spf</i>)
2	Import from SMF	Imports a SMF (*. <i>mid</i>). Refer to the following “ <i>Note</i> .”
3	Reload from SMF	Reloads a SMF (*. <i>mid</i>).
4	Save	Saves a SMAF file. (*. <i>spf</i>)
5	Undo	The latest operation is undone.
6	Redo	The latest operation is redone.
7	Copy	Copies a voice data.
8	Paste	Pastes a voice data.
9	Voice List	Displays “ <i>Voice List Window</i> .” (For details, see “ <i>4.4Voice List Window</i> .”)
10	Information	Displays Edit Information Window. (For details, see “ <i>4.7Edit Information Window</i> .”)
11	Help	Opens “ <i>MA-5 Authoring Tool User’s Manual</i> .”
12	Voice Assign Map	Displays “ <i>Voice Assign Map</i> .” (For details, see “ <i>4.3Voice Assign Map</i> .”)
13	Import from Voice List	Loads voices into “ <i>Voice List</i> ” that bank number and voice number is same into “ <i>Voice Assign Map</i> .”
14	Export to Voice List	Writes voices into “ <i>Voice List</i> ” that bank number and voice number is same from “ <i>Voice Assign Map</i> .”

[Note] It is only applicable for “*SMF Format 0*” and “*SMF Format 1*.”

3.7. Preference Bar

This is a dialog bar to set the MA-5 Authoring Tool operational environments. For more details about each function, see “*4.9Preference Window*.”



Figure 3-13 Preference Bar

No.	Name	Description
1	AT Mode	Switches the Authoring Tool mode. (L1 “ <i>MA-3 mode</i> ”/L2 “ <i>MA-5 mode</i> ”). This combo box can be changed only when application is started up or when any file is not opened in Authoring Tool. For details about AT mode, see “ <i>4.9Preference Window</i> .”
2	Contents Mode	Switches FM mode. For details about Contents mode, see “ <i>4.9Preference Window</i> .” L1 (MA-3 mode)→FM16/FM32 L2 (MA-5 mode)→FM16/FM32

3.8. Contents Information Bar

By placing/displacing a check into each box in this bar, the available control in SMAF file can be set and changed.



Figure 3-14 Contents Information Bar

No.	Name	Description
1	Copy Status	Copy status can be edited and set up by placing/displacing a check into each box. For details, see “4.9Preference Window.”
2	Edit Status	Edit status can be edited and set up by placing/displacing a check into each box.

3.9. Density Report Bar

This bar shows the event density of content which is currently opened in Authoring Tool. The unit is **“byte/sec.”**



Figure 3-15 Event Density Report Bar

No.	Name	Description
1	AD (Average Density)	It converts the event density in loaded music into MIDI byte numbers, and displays. 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 music.
3	MDP (Max Density Position)	Displays the position which has the highest event density in music. The unit is “Byte/sec.”

【Note】 When the value of **“Average Density”** exceeds **“500-byte/s”**, a warning message will be displayed; in addition, **“AD”** on Status Bar is blinked in read.

【Note】 When the value of **“Max Density”** exceeds **“1000-byte/s”**, a warning will be displayed; moreover, **“MD”** and **“MDP”** on Status Bar are blinked in read.

【Note】 When either of **“AD”**, **“MD”**, or **“MDP”** is blinking in red, SMAF file can not be saved.

3.9.1. Calculation Method for Event Density

The size consumed by MIDI event is differed. When an error comes out in event density, it is necessary to cut the event in reference to “4.5Event Density.”

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

3.10.Status Bar

This bar shows a status of Application Window and contents currently opened in Authoring Tool.

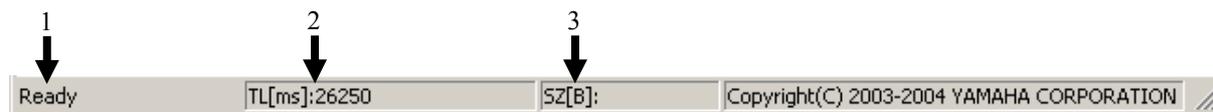


Figure 3-16 Status Bar

No.	Name	Description
1	Status Display	Displays the simple explanation about each button and function of where mouse pointer points.
2	TL (Total Length)	Displays the “ <i>Total Time (end position) in Actual Playing</i> ” in loaded music. 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 a loaded music data is saved in SMAF format or when SMAF is loaded.

4. Description of each Windows

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

4.1. File List Window

SMAF files (*.spf) are listed and displayed in this window.

If one of SMAF file listed in “*File List Window*” is selected; and then, “*Play button*” on “*Control Bar*” is pressed, “*DirectPlay*” will be operated. For details about “*DirectPlay*,” see “*4.1.1 Direct Play*.”

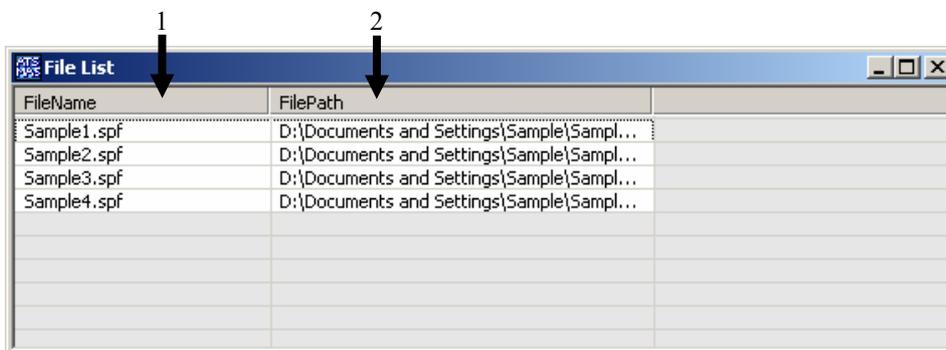


Figure 4-1 File List Window

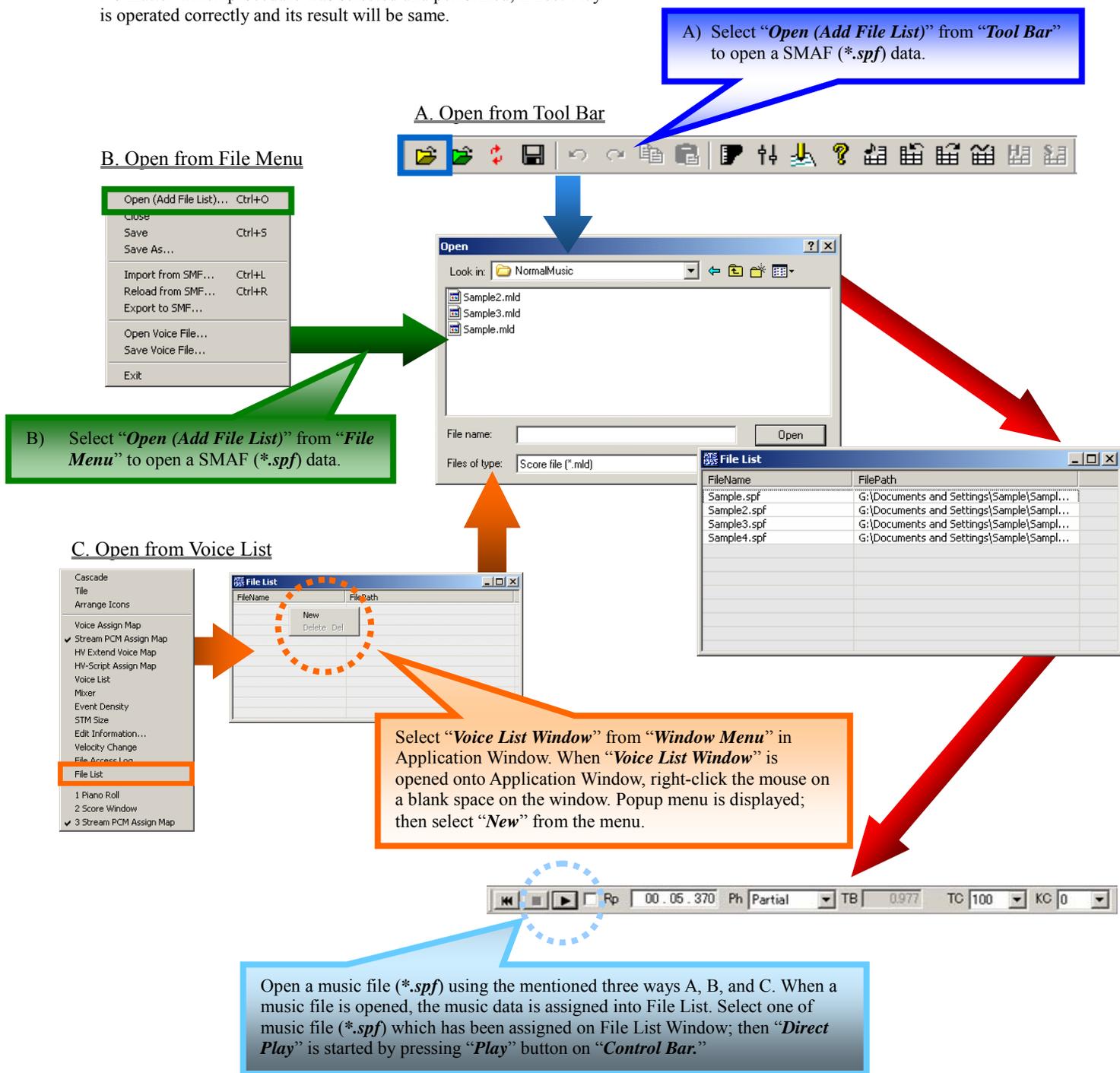
No.	Name	Description
1	File Name	Displays a name of loaded SMAF file (*.spf).
2	File Path	Displays a path of loaded SMAF file.

4.1.1. Direct Play

This section describes the procedure of how to play back a SMAF (*.spf) 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.



4.2. Score Window

The contents in loaded SMF (*.spf) data are displayed in this window.

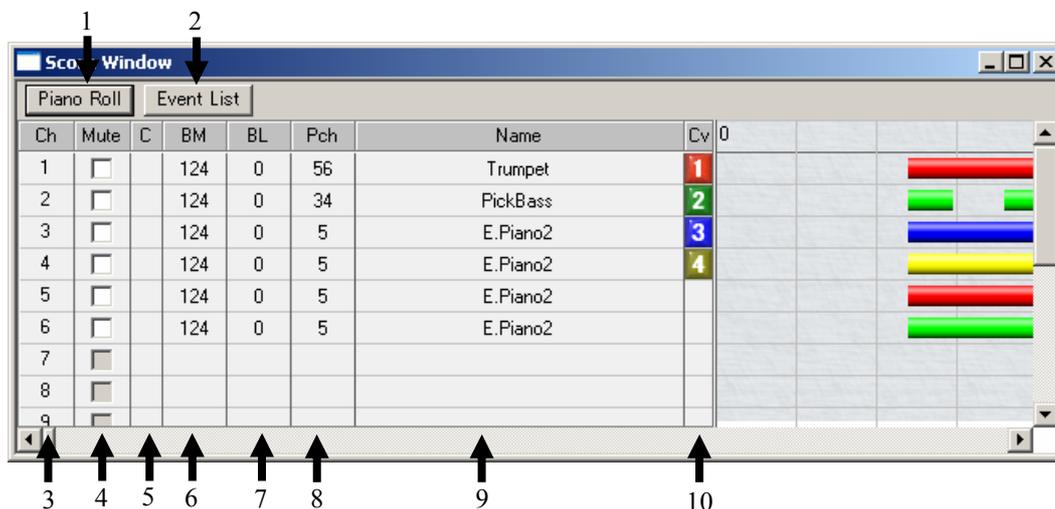


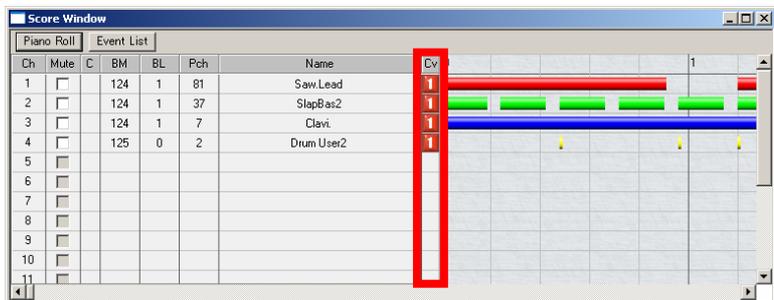
Figure 4-2 Score Window

No.	Name	Description
1	Piano Roll	Displays the contents loaded into Score Window to Piano Roll Window (p.24).
2	Event List	Displays the data loaded into Score Window to Event List Window (p.25).
3	Ch	Displays the channel numbers.
4	Mute	Silences the applicable channel by placing a check into this box. This setting is not reflected to SMAF file.
5	C (Change Flag)	If it differ when comparing a voice of voice number and same back numbers of voice list, a blue circle is displayed. Even if a voice which differs from one in Voice List exists in applicable channel, a blue circle is also displayed.
6	BM (Bank Select MSB)	Displays Bank Select MSB.
7	BL (Bank Select LSB)	Displays Bank Select LSB.
8	Pch (Program Change)	Displays Program Change Numbers.
9	Name	Displays a name of voice. When a voice name is double-clicked, Voice Edit Window will be opened.
10	CV (Convert)	File to output for each channel can be set up. For details, see the following pages.

Details about CV settings

By sorting a CV setting (1, 2, 3, 4, and blank), an output place of each channel in music data can be designated.

In the following, details and procedures for CV settings are described.



A. Loading a music data into MA-5 Authoring Tool

- When a SMF (*.mid) is loaded into Authoring Tool, “Cv” on all channels show 1 (Default).
- When this data is save as a SMAF File (*.spf), only one file is created into an optional folder.

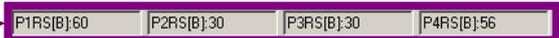


- Only the section “P1RS[B]” shows its RAM size.

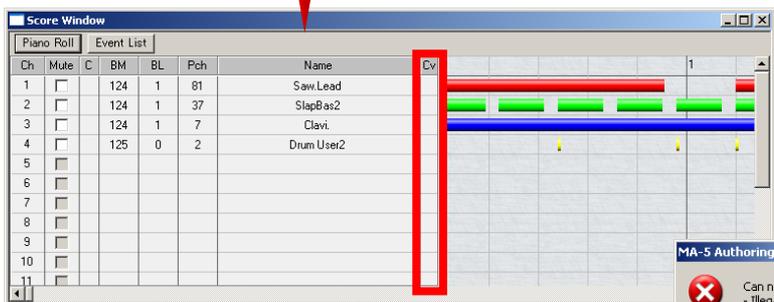


B. Sorting a music data as an individual phrase by channel

- By setting each channel as an individual phrase data, such as 1, 2, 3, 4 and blank, channels can be saved individually.
- In addition, the sorted music data can be played individually.

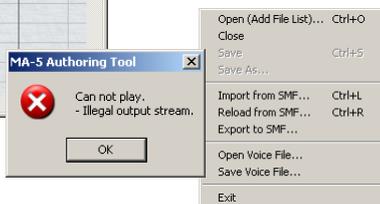


- Channels assigned as an individual phrase data are shown in Density Report Bar respectively.



C. Blank Setting

- If any “Cv” is not set in channels, an error message is output; in addition, the music data can not be played back and saved.



4.2.1. Piano Roll Window

Displays the data loaded into “Score Window” on “Piano Roll Window.”

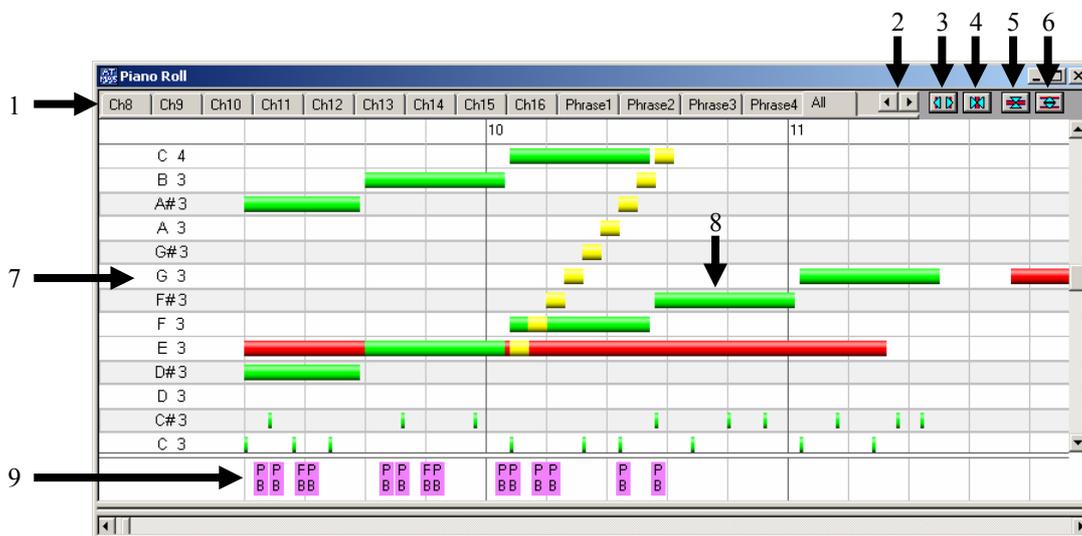


Figure 4-3 Piano Roll

No.	Name	Description
1	[Ch1 to 16][Phrase1 to 4][All] part tab	By clicking each tab, parts to display on “Piano Roll Window” can be changed.
2	Scroll button	Part tabs are scrolled left and right. Part tab that was not displayed on screen can be displayed.
3	Horizontal zoom-in button	By clicking this button, display size of window can be enlarged horizontally.
4	Horizontal zoom-out button	By clicking this button, display size of window can be decreased horizontally.
5	Vertical zoom-in button	By clicking this button, display size of window can be enlarged vertically.
6	Vertical zoom-out button	By clicking this button, display size of window can be decreased vertically.
7	Interval display	Displays an interval of Piano Roll Window.
8	Note Bar	Displays an interval and gate time of each MIDI note.
9	Controller display	Displays a control change or pitch bend input in each part.

4.2.2. Event List Window

Display the contents loaded into “Score Window” to “Event List Window.”

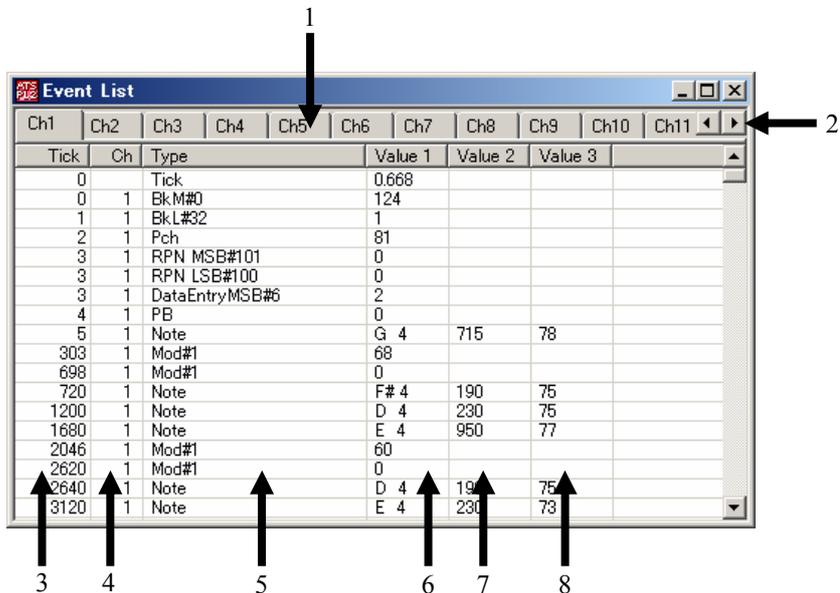


Figure 4-4 Event List

No.	Name	Description
1	[Ch1 to 16] [Phrase1 to 4] [All] Part tab	By clicking each tab, a part displayed on “Event List Window” can be changed.
2	Scroll button	Part tab is scrolled left and 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 the channels of each event.
5	Type	Displays the types of each event.
6	Value1	“Control Change”...Displays a data value. “Pitch Bend”.....Displays a pitch bend value. “Note”...Displays a note number.
7	Value2	“Note”...Displays gatettime on note.
8	Value3	“Note”...Displays velocity on note.

4.3. Voice Assign Map

Displays voices used in each channels by channel.
 Up to 128 voices can be displayed by totaling all channels.
 (Data which use over 128 voices cannot be loaded.)

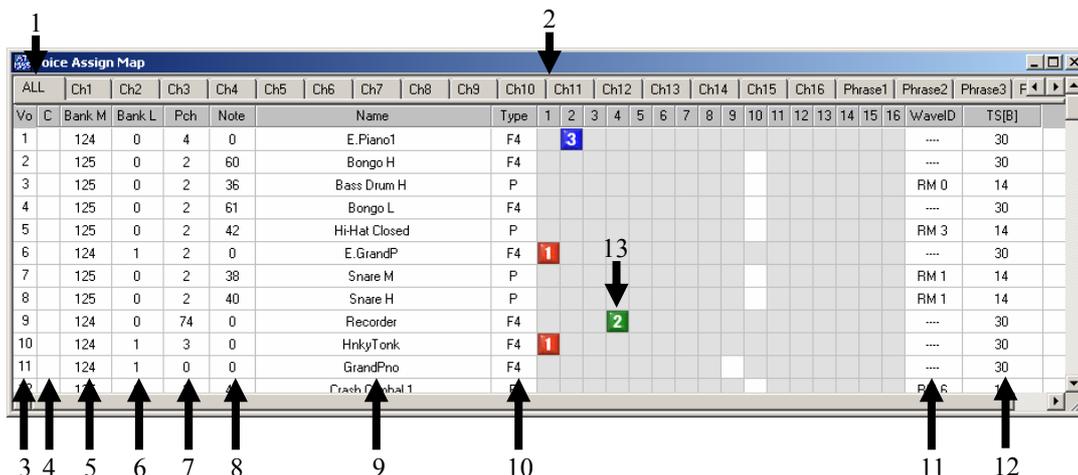


Figure 4-5 Voice Assign Map

No.	Name	Description
1	ALL	Displays all voices in used.
2	Ch1 to Ch16, Phrase1 to 4	Displays voices per hannel.
3	Vo.	Displays the number of voices in used.
4	C (Change Flag)	Compares the voices with the same back number and voice number of Voice List. Displays a blue circle when it differ.
5	Bank M(Bank Select MSB)	Displays the BankSelect MSB.
6	Bank L (Bank Select LSB)	Displays the BankSelect LSB.
7	Pch	Displays program change numbers.
8	Note	Displays note numbers.
9	Name	Displays the name of voices. "Voice Edit Window" is opened by double clicking the name field. For details about "Voice Edit Window", see "p.39."
10	Type	Displays the voice types in used. F4: 4-Operator setting, F2 2-Operator setting, P: PCM setting
11	WaveID	Displays its WaveID when currently voice is using RAM voice in PCM. Displays "RM 0 to 6" when currently voice is using Drum voice "RM" of ROM.
12	TS "B" (Total Size)	Displays RAM size of currently voice. Unit is "Byte". For more details about RAM, refer to "(p)."
13	1 to 16 (ch) Phrase Number	Phrase number of each channel can be assigned. The maximum voice number of channel assigned same phrase number becomes as follows. <L1 (MA-3) mode>: 4-voices <L2 (MA-5) mode>: 16-voices

4.3.1. Voice Assign Map (Copy & Paste) Function

Right-click a voice name on "Voice Assign Map" to display "Copy/Paste" menu.

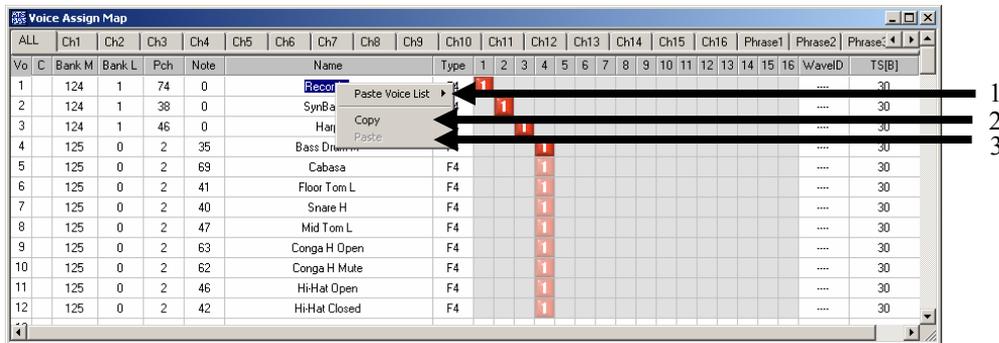
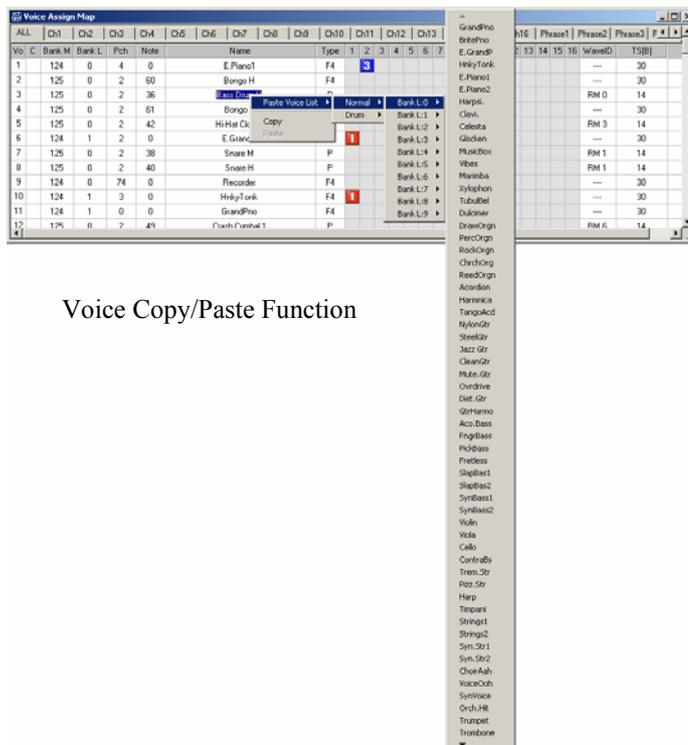


Figure 4-6 Copy/Paste Function (Voice Assign Map)

No.	Name	Description
1	Paste Voice List	The contents of Voice List are displayed. Refer the following figure for details.
2	Copy	Copies voices.
3	Paste	Pastes voices.

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.



Voice Copy/Paste Function

4.3.2. Voice Assign Map (Right Click Menu)

When right-click the status such as “BankM”, “Voice Assign Map Right-click menu” is appeared.



Figure 4-7 Voice Assign Map (Right Click Menu)

No.	Name	Description
1.	Import from Voice List	Reads the voice of same bank number and voice number of voice list into voice assignment map. Same operation can be done by “ <i>Import from Voice List</i> ” button of Tool bar.
2.	Export to Voice List	Writes the voice of same bank number and voice number of voice list from voice assignment map. Same operation can be done by “ <i>Export to Voice List</i> ” button of Tool bar.
3.	Undo	Copy operation of voice performed immediately before is repealed, and it returns to the state before a copy.
4.	Redo	The same processing as the processing performed immediately before is repeated and performed.

【Note】 Voices may not be generated correctly when the real time playback is performed by sequencer immediately after transmitting a parameter in “Send Assigned Voice Message.” In that case, wait a while and performs the real time playback after transmitting parameter.

4.4. Voice List Window

Voice map is displayed.

In order to open this window, click “**Voice List**” button of the application window or select “**VoiceList**” from Window menu of the menu-bar.

4.4.1. Normal Voice List

By clicking the “**Normal Tab**”, the Normal voice list is displayed.

Normal voice list shows voice names and voice types that correspond to the program numbers by bank.

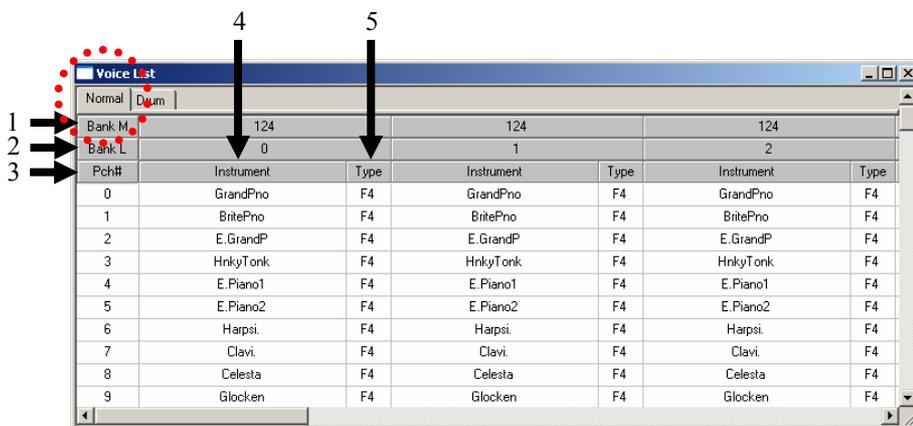


Figure 4-8 Normal Voice List

No.	Name	Description
1	Bank M	Displays the Bank Select MSB.
2	Bank L	Displays the Bank Select LSB.
3	Pch#	Displays the voice number.
4	Instrument	Displays the name of voice. Double-click on the item to open the Voice Edit Window. Refer to “ 4.11 Voice Edit Window ” for the details about Voice Edit Window.
5	Type	Displays a used voice type. F4: 4-operator setting, F2: 2-operator setting, P: PCM setting

[Note] With the Import from Voice List button of a tool bar, it is from Voice List. Voice data can be exported to Voice Assign Map from Voice Assign Map with import of voice data and an Export from Voice List button to Voice List.

[Note] By the drum voice list, the voice name corresponding to the note number in the voice name corresponding to the program number and the voice type and a voice type are expressed as a normal voice list for every program for every bank.

[Note] Voice change is possible for each voice respectively, and the changed voice can be saved per bank. Refer to “**4.4.4 Saving Voice List**”, for the details about the preservation of a voice list.

4.4.2. Drum Voice List

Click **“Drum Tab”** to display Drum voice list.
 Drum voice list shows the voice names and voice types that correspond to note numbers by bank.

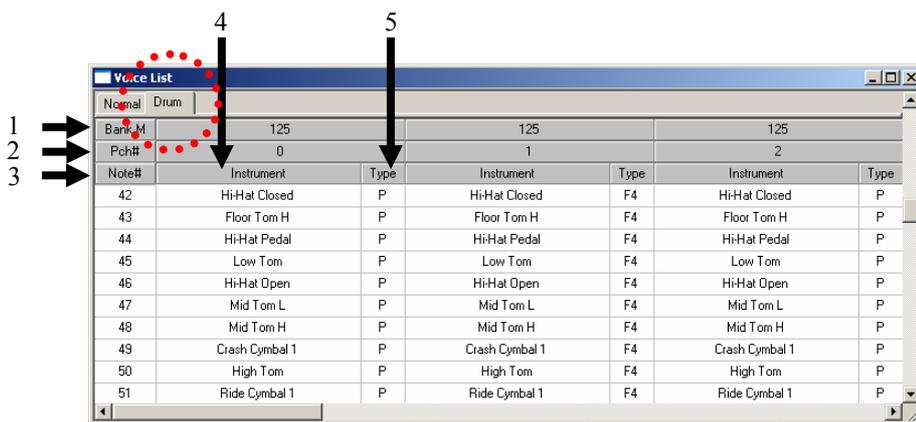


Figure 4-9 Drum Voice List

No.	Name	Description
1	Bank M	Displays the Bank Select MSB.
2	Pch#	Displays the voice number.
3	Note#	Displays the note number.
4	Instrument	Displays the name of voice. The background of voices that includes AL parameters is displayed with green. Double-click on the item to open the Voice Edit Window. For details about Voice Edit Window, refer to “4.11 Voice Edit Window.”
5	Type	Displays a used voice type. F4: 4 operator setting, F2 2 operator setting, P: PCM setting

4.4.2.1. Voice List Window (Copy & Paste Function)

By right-click a voice in “Voice List Window”, “Copy & Paste” popup function is displayed.

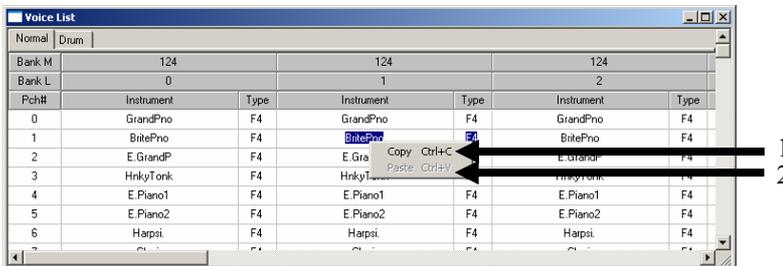


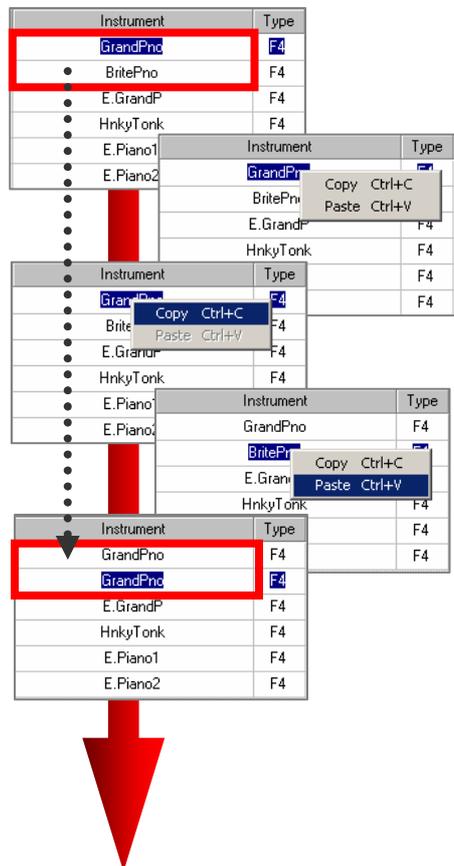
Figure 4-10 Copy/Paste Function

No.	Function Name	Contents
1	Copy	Copies a voice data.
2	Paste	Pastes a voice data.

Copy & Paste

1. At first, right-clicks the mouse on the voice, which you want to copy onto “Voice List Window.” Popup menu is displayed, and then selects “Copy.”
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.
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 in Application Window, or by using Toolbar in Application Window.



4.4.3. Loading of Voice List

4.4.3.1. Loading All Voices

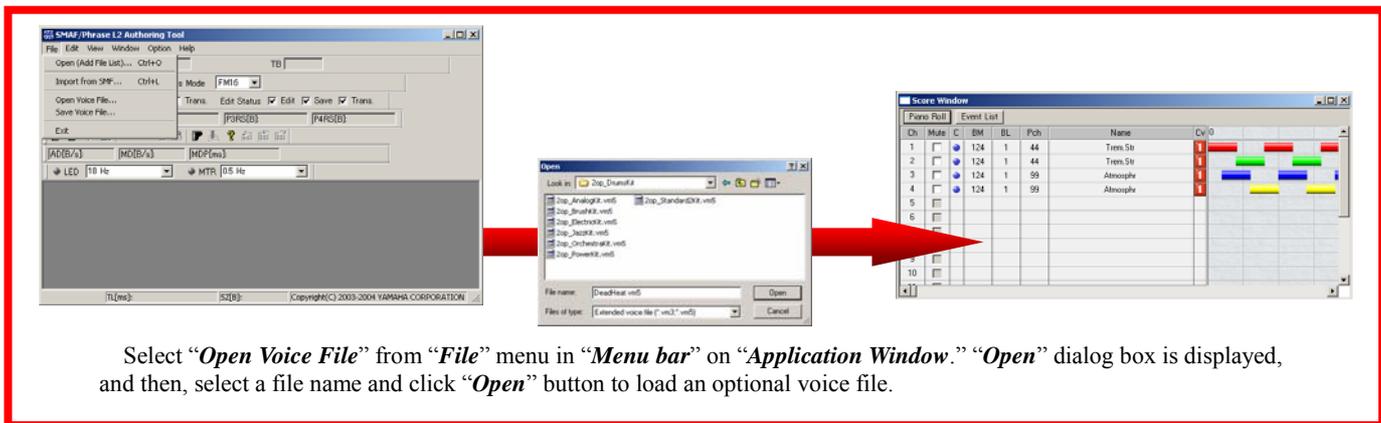
Saved voice file can be read.

<L1 (MA-3 mode)>

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

<L2 (MA-5 mode)>

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



Select "Open Voice File" from "File" menu in "Menu bar" on "Application Window." "Open" dialog box is displayed, and then, select a file name and click "Open" button to load an optional voice file.

4.4.3.2. Loading Voices by Bank Unit (Normal/Drum)

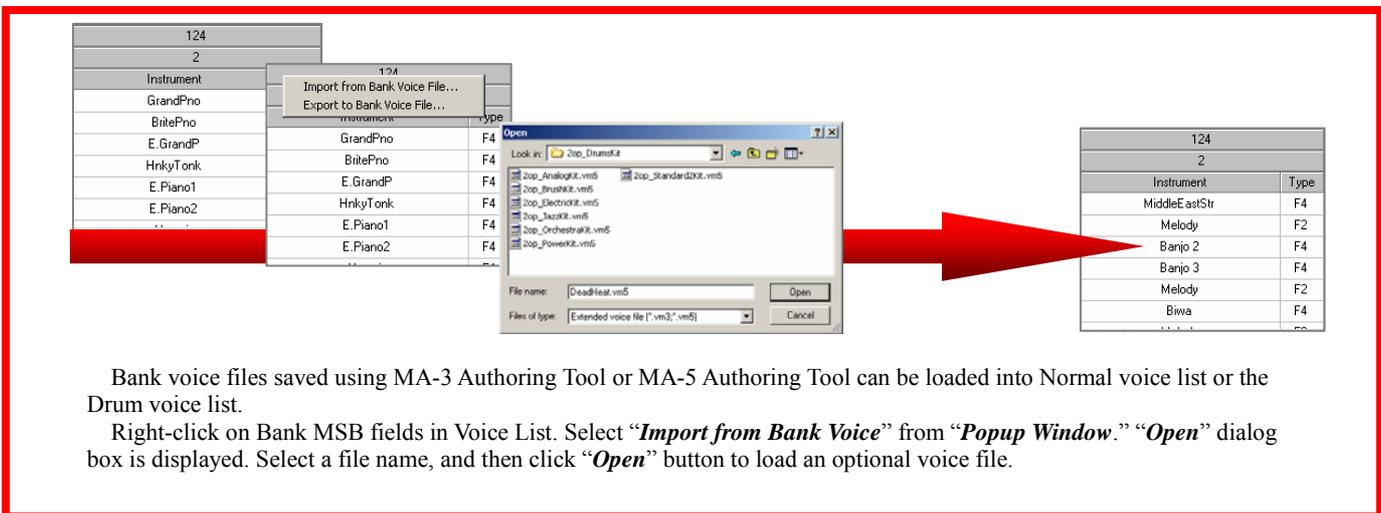
Saved voice file can be loaded into Normal Voice List or Drum Voice List.

<L1 (MA-3 mode)>

Bank voice file saved by MA-3 format (*.vm3) can be read.

<L2 (MA-5 mode)>

Bank voice file saved by MA-3/MA-5 format (*.vm3/*.vm5) can be read.



Bank voice files saved using MA-3 Authoring Tool or MA-5 Authoring Tool can be loaded into Normal voice list or the Drum voice list.

Right-click on Bank MSB fields in Voice List. Select "Import from Bank Voice" from "Popup Window." "Open" dialog box is displayed. Select a file name, and then click "Open" button to load an optional voice file.

4.4.4. Saving Voice List

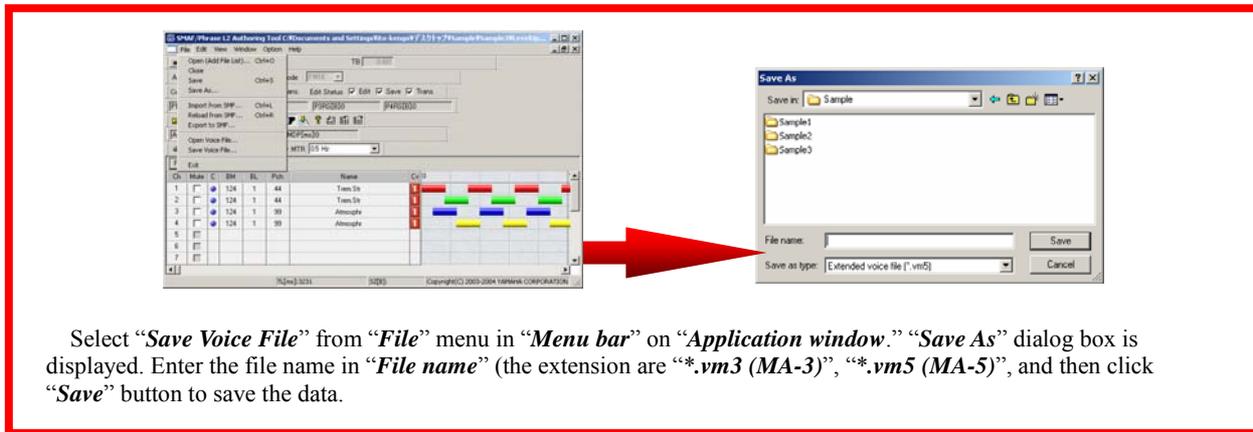
4.4.4.1. Saving All Voices

<L1 (MA-3 mode)>

Bank voice file saved by MA-3 format (*.vm3) can be read.

<L2 (MA-5 mode)>

Bank voice file saved by MA-3/MA-5 format (*.vm3/*.vm5) can be read.



Select "Save Voice File" from "File" menu in "Menu bar" on "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.

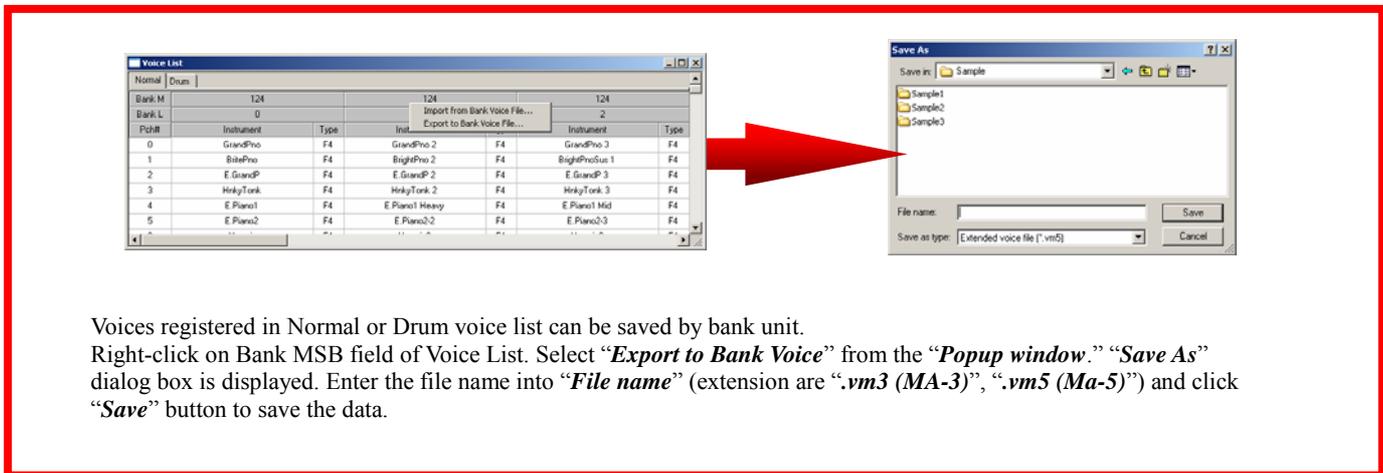
4.4.4.2. Saving by Bank Unit (Normal/Drum)

<L1 (MA-3 mode)>

Allows saving a file in MA-3 format. (Extension is ".vm3".)

<L2 (MA-5 mode)>

Allows saving a file in MA-3/MA-5 format. (Extensions are ".vm3", ".vm5".)



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

4.5. Event Density Window

Event density contained in a loaded data is converted into MIDI-byte-number, and is displayed.

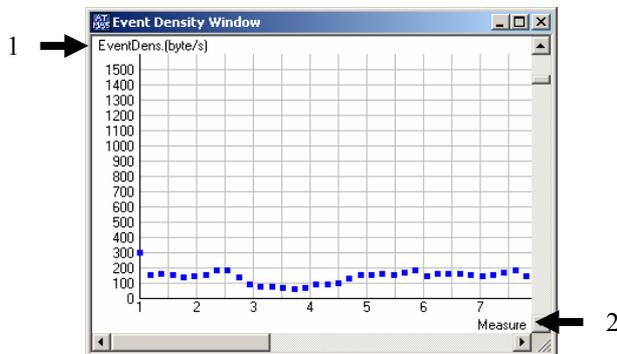


Figure 4-11 Event Density

No.	Name	Description
1	Event Density “byte/s”	Displays an event density. The unit time used as a standard for converting event density can be set by preference. (For details, see “3.7Preference Bar.”)
2	Measure/Time “Sec”	Displays time. • at SMF import: Measure (<i>beat unit</i>) is displayed. • at SMAF Open: Time “sec” is displayed.

4.6. Velocity Change Dialog

Velocity of note event can be changed in the read music.

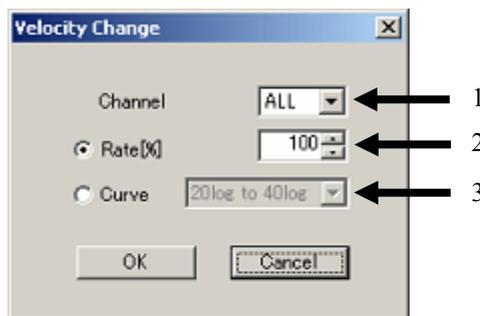


Figure 4-12 Velocity Change Dialog

No.	Name	Description
1	Channel	Designates channels that become objects of velocity change. Channels 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16, STM(<i>Stream PCM</i>), or ALL (<i>all note events</i>) can be designated.
2	Rate “%”	The rate for changing velocity value can be selected from the range of 50 to 200 %. When the value is inputted directly, press “Enter” key after inputting the data.
3	Curve	The curve to which velocity is changed can be specified. There are two kinds, “20-log to 40-log” and “40-log to 20-log.”

4.7. Edit Information Window

Management Information can be input/edited.

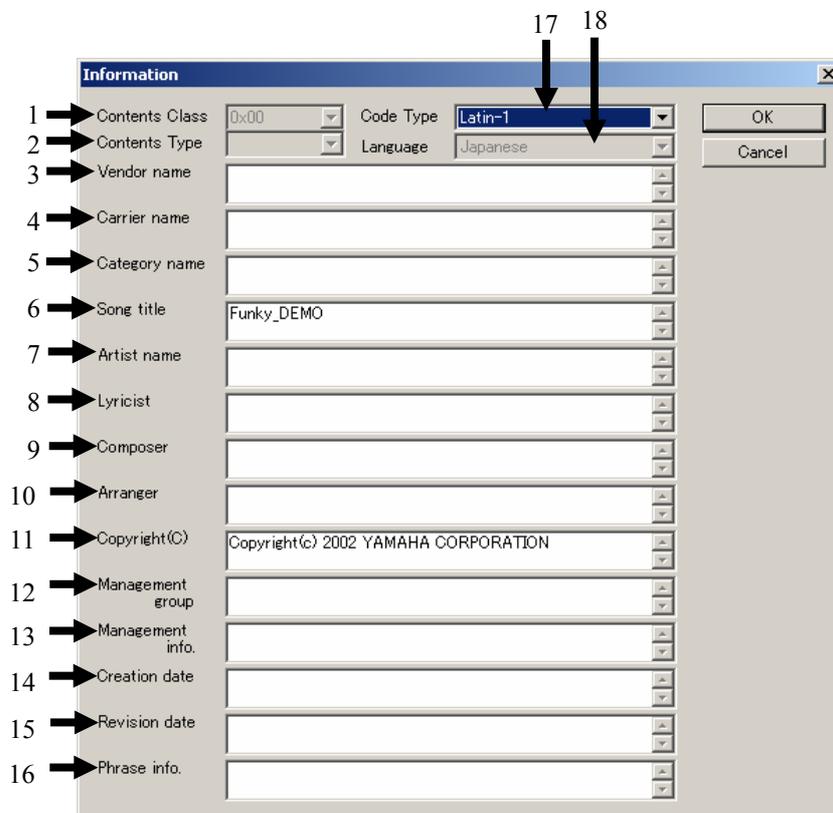


Figure 4-13 Edit Information

No.	Name	Description
1	Contents Class	Contents Class can be displayed
2	Contents Type	Contents Type can be displayed.
3	Vendor name	Vendor's name can be input.
4	Carrier name	Carrier name can be input.
5	Category name	Category name can be input.
6	Song Title	Music title can be input.
7	Artist name	Artist's name can be input.
8	Lyricist	Lyricist name can be input.
9	Composer	Composer's name can be input.
10	Arranger	Arranger's name can be input.
11	Copyright (C)	Copyright can be input.
12	Management group	Name of copyright management group can be input.
13	Management Info.	Management Information can be input.
14	Creation Date	Creation date and time can be input.
15	Revision Date	Revision date can be input.
16	Phrase info.	Phrase Information can be input.
17	Code Type	Code type can be set. Shift-JIS, Latin-1, EUC-KR, or UTF-8 whichever are selectable.
18	Language	Language classification can be set up when UTF-8 is selected in CodeType.

* When a new line is used, it may not be displayed proper depending on a device.

4.8. File Access Log Window

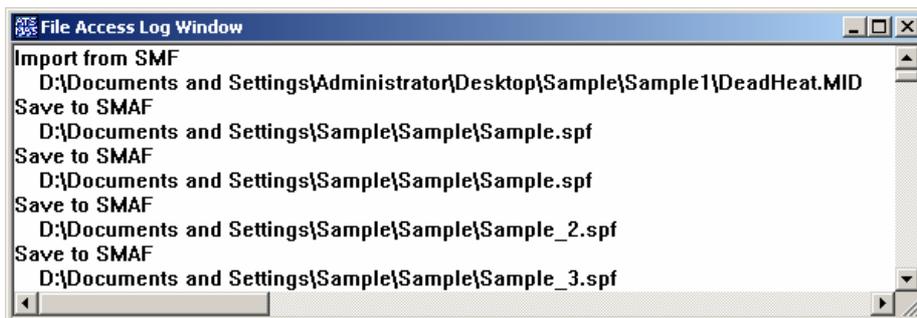


Figure 4-14 File Access Log

When an operation related to a file is performed, the log is displayed. The operation that has been performed and the path of the file are displayed. The displayed contents does not disappear until the application is closed.

4.9. Preference Window

This is an environment setting dialog for MA-5 Authoring Tool.

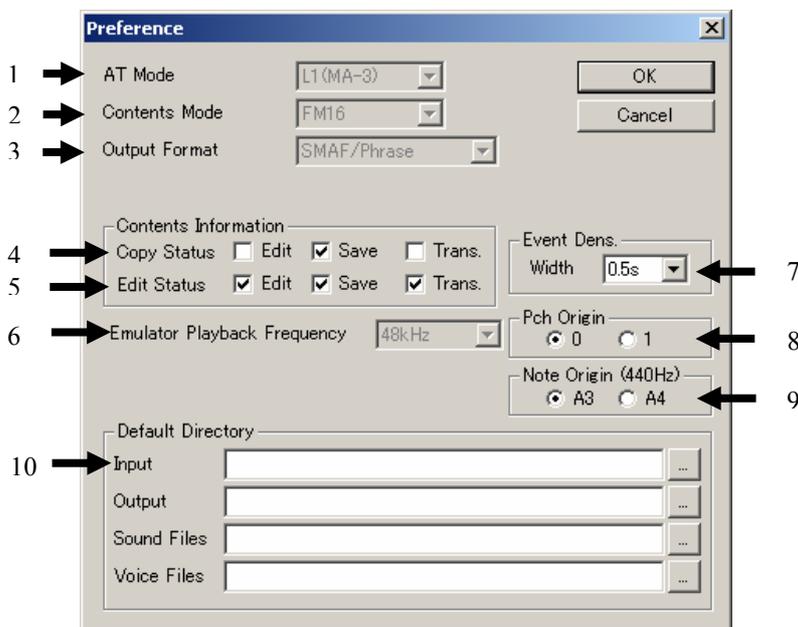


Figure 4-15 Preference

No.	Name	Description	
1	AT Mode	Switches the mode of Authoring Tool.	
		L2 (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 saving a SMAF for MA-3 in MA-5 mode, it is saved in file format for MA-5.)
		L1(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.
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.	
		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.
3	Output Format	Displays the output format. This is dependent on the format types of Authoring Tool.	
Contents Information			
4	Copy Status	Copy status can be set.	
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. For the details, refer to the explanation of the above copy status.	
		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	Playback frequency of emulator can be setup. The default value is 48kHz. In addition, the value can be selected from the followings (44.1kHz, 32kHz, 22.05kHz) additionally. Since this frequency is a parameter which is set up at emulator initialization, it can be changed when any file is not opened. When any file is opened in Authoring Tool, this function is grayout and is un-selectable.	
Event Dens			
7	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.)	
Pch Origin			
8	0/1 (Check Box)	Whether program change number starts from "0" or from "1" can be selected by selecting Pch Origin.	
Note Origin			
9	A3/A4 (Check Box)	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.	
Default Directory			
10	Input/Output Sound/Voice File	It can be set in the default directory at the reading of various files by clicking the right side button and choosing arbitrary folders.	

【Note】 FM mode will change to a setup of the file, if a SMAF file is read. When a SMAF file is read before reading SMF, since a setup may have changed, cautions are required.

4.10.about Authoring Tool Window

This window displays the information; Version, Contents Class, Firmware ID, etc., about MA-5 Authoring Tool

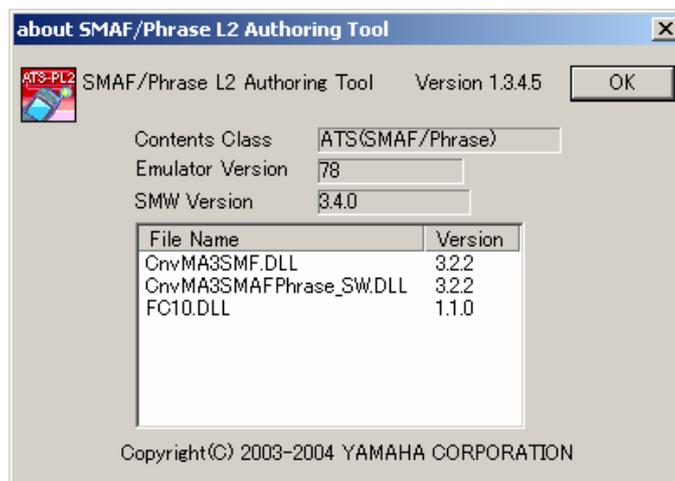


Figure 4-16 about Authoring Tool

4.11. Voice Edit Window

4.11.1. FM/Drum Voice Edit Parameter

Double-click the user voice name shown on “*Voice List Window*” to display “*Voice Edit window*.”

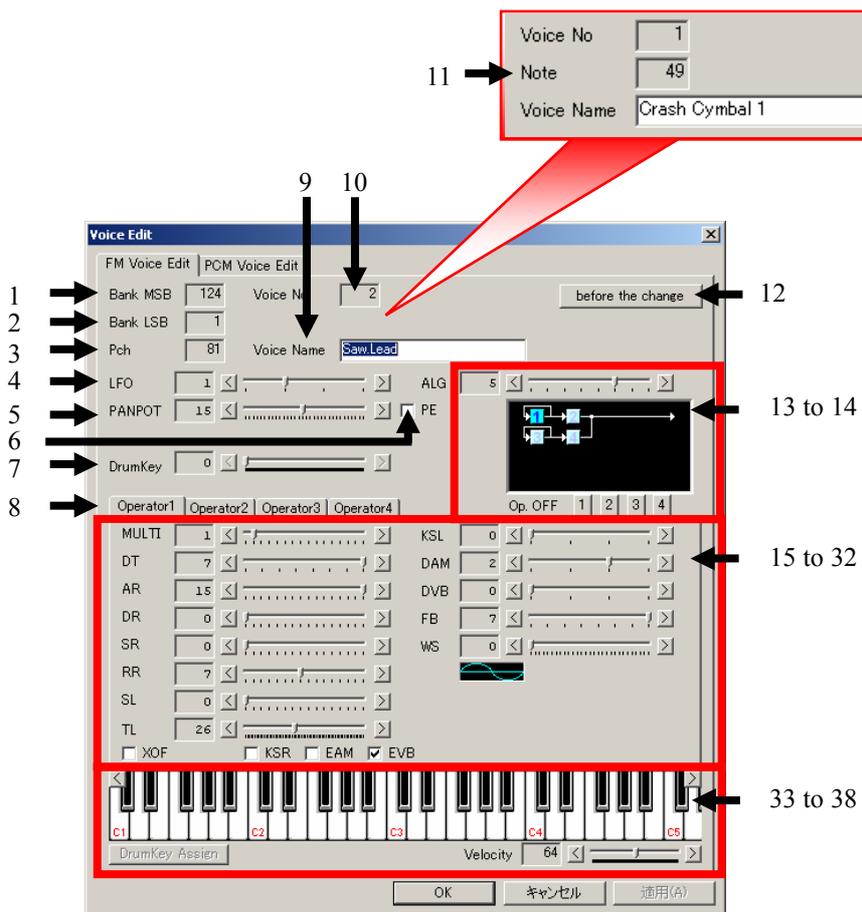


Figure 4-17 FM Voice Edit Window

【Note】 Note number is displayed only when a voice under editing is drum voice.

No. 1 to 12

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	Displays 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 : 4.0Hz / LFO= 2 : 5.9Hz / LFO= 3 : 7.0Hz
5	Panpot	Sets right-left balance for each channel.(0...15...31) Smaller value pans to the left, or larger value pans to the right.
6	PE	Placing a check in this box disables the pan setting of the control change and enables the value of panpot of the voices.
7	Drum Key	This is a parameter that functions only at edition of the drum voice, and 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 Name	Sets the voice name being edited.
10	Voice No.	Displays the voice number being edited with Voice Assign Map
11	Note.	Designates a channel that transits a voice parameter which is under editing.
12	Before the Change	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.

No. 13 to 14

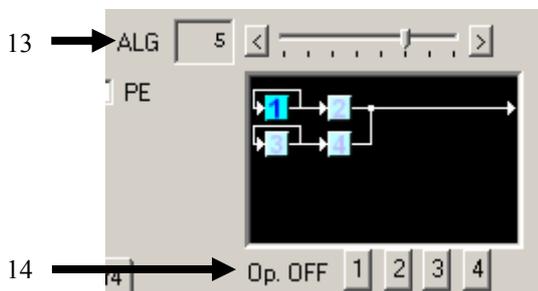


Figure 4-18 Algorithm & Op.OFF

No.	Name	Description
13	ALG (Algorithm)	Sets algorithm. 2 Operator or 4 Operator is set in accordance with the type of algorithm.
14	Op.OFF "Operator OFF 1 ~ 4"	The output of each operator can be turned OFF, by selecting the button of 1 to 4.

No. 15 to 32

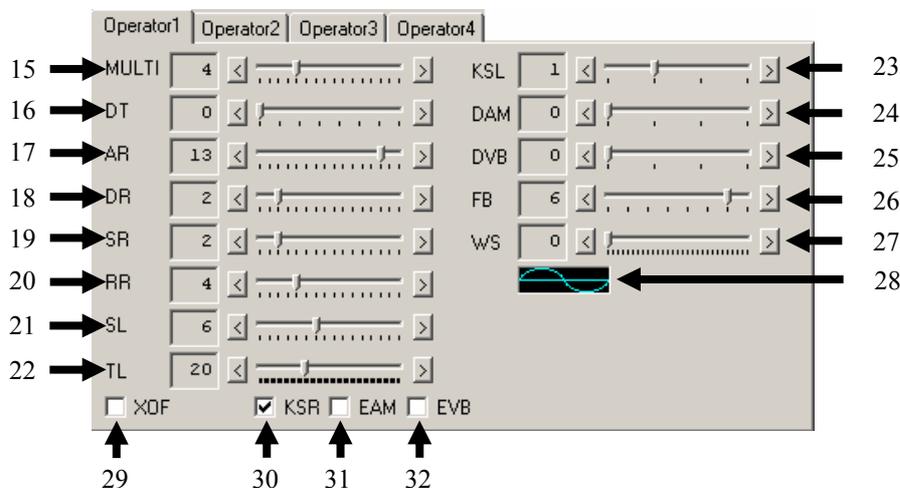


Figure 4-19 Operator

No.	Name	Description																												
15	MULTI	Designates a multiplier for the frequency. <table border="1" style="margin-left: 20px;"> <tr> <td>MULTI</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> <td>8</td> <td>9</td> <td>10,11</td> <td>12,13</td> <td>14,15</td> </tr> <tr> <td>Multiplier</td> <td>1/2</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>12</td> <td>15</td> </tr> </table>	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
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																	
16	DT (Detune)	Designates Detune. Detune shifts the pitch delicately to cause the feeling of chorus. DT=1 to 3 shift the pitch upward. The shift width expands in numerical order. DT=5 to 7 shift the pitch downward. The shift width expands in numerical order. DT=0 and 4 are standard pitch. The frequency of Detune is affected by the setting of MULTI. When MULTI= 2 times, the change of pitch are doubled.																												
17	AR (Attack Rate)	Attack Rate is the time from the starting of play (-96 dB) to the moment maximum volume (0 dB) is attained.																												
18	DR (Decay Rate)	Decay Rate is the decay time from the moment the maximum volume (0 dB) to the moment Sustain Level (SL) is attained.																												
19	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.																												
20	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.																												
21	SL (Sustain Level)	In case of decay sound, this is a level to shift from decay to release rate; in addition, in case of sustain sound, this is a volume level under sustentation.																												
22	TL (Total Level)	Sets the level of envelope.																												
23	KSL (Designation of Level Scaling)	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																												
24	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																												
25	DVB (Depth of vibrato Modulation)	Sets the depth of Vibrato modulation. DVB= 0 : 3.4 cents DVB= 1 : 6.7 cents DVB= 2 : 13.5 cents DVB= 3 : 26.8 cents																												

No.	Name	Description																		
26	FB (Amount of feedback)	<p>This function is valid only for Modulator side Operator. It designates the degree of feedback modulation.</p> <table border="1"> <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>Modulation</td> <td>0</td> <td>$\pi/16$</td> <td>$\pi/8$</td> <td>$\pi/4$</td> <td>$\pi/2$</td> <td>π</td> <td>2π</td> <td>4π</td> </tr> </table>	Setting value	0	1	2	3	4	5	6	7	Modulation	0	$\pi/16$	$\pi/8$	$\pi/4$	$\pi/2$	π	2π	4π
Setting value	0	1	2	3	4	5	6	7												
Modulation	0	$\pi/16$	$\pi/8$	$\pi/4$	$\pi/2$	π	2π	4π												
27	WS (Waveform Selection)	Display FM Basic Waveform which is currently selected.																		
28	WS (Waveform Display)	Display FM Basic Waveform which is currently selected.																		
29	XOF (Ignore KeyOff)	Sets ignoring KeyOff or not. Place a check in the check box to ignore KeyOff. KeyOff does not cause the change of state.																		
30	KSR (Rate Scaling)	Places a check in the check box to set ON/OFF of key scale of rate. For natural musical instrument, the rise and falling of sound become earlier as a pitch becomes high in general. The key scale of the rate simulates this phenomenon.																		
31	EAM (AM Modulation)	Sets ON/OFF of amplitude modulation (AM). Place a check in the check box to enable setting of DAM.																		
32	EVB (Vibrato Modulation)	<p>Sets ON/OFF of vibrato modulation. Place a check in the check box to enable setting of DVB.</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>Be sure to set EVB to ON to enable modulation of MIDI message.</p> </div>																		

4.11.1.1. List of FM Basic Waveform

Table 1 FM Basic Waveform

0		1		2		3	
4		5		6		7	
8		9		10		11	
12		13		14		15	unused number
16		17		18		19	
20		21		22		23	unused number
24		25		26		27	
28		29		30		31	unused number

No. 33 to 38 (Keyboard)

The voice under editing can be monitored by clicking the keyboard

Display at editing of normal voice

In the case of normal voice, voices are generated with higher musical interval to the right side of keyboard, or lower musical interval to the left side.

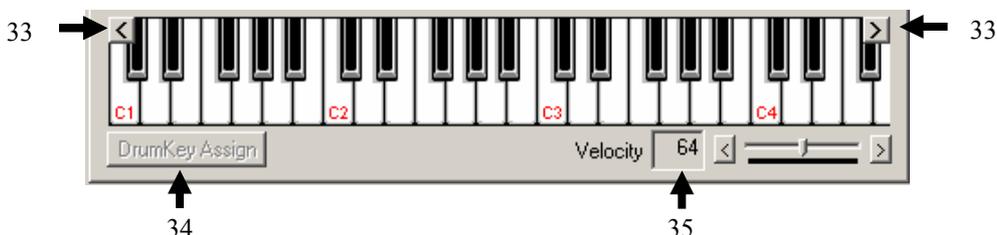


Figure 4-20 Keyboard (Normal Voice)

No.	Name	Description
33	Scroll Button	By pushing this button, the display of keyboard compass can be changed. ▪ Click right side button to display higher interval. ▪ Click left side button to display lower interval.
34	DrumKey Assign	It is not used at edition of normal voices. (It is valid only at edition of drum voices.)
35	Velocity	Only in case of <L2 (MA-5) mode> ,velocity value at monitoring by the keyboard can be changed.

Display at the time of editing of drum voice

In the case of drum voices, voices are generated only when Note No. under edition is clicked.

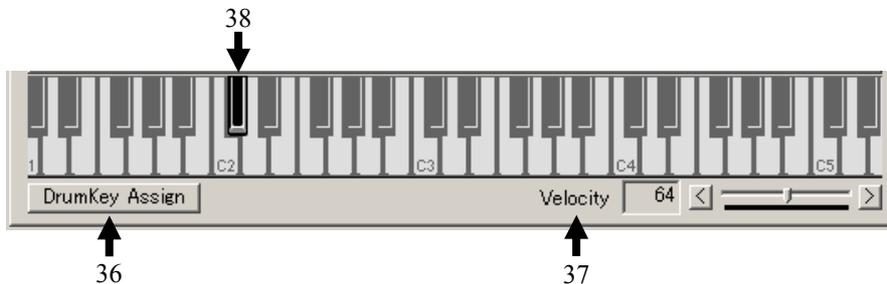
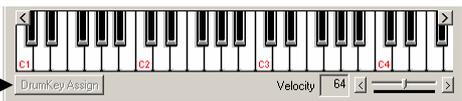


Figure 4-21 Keyboard (Drum Voice)

No.	Name	Description
36	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. Find a desired key to set DrumKey. (Figure DrumKey Assign is in the state in which the DrumKey Assign switch is pushed.) <div style="text-align: center;">  <p>DrumKey Assign →</p> </div> All keys can be made to pronounce by pushing a DrumKey Assign switch.
37	Velocity	Only in case of <L2 (MA-5) mode>, velocity value at monitoring by the keyboard can be changed.
38	Key	Displays only the note number under editing.

4.11.2. PCM Voice Edit Parameter

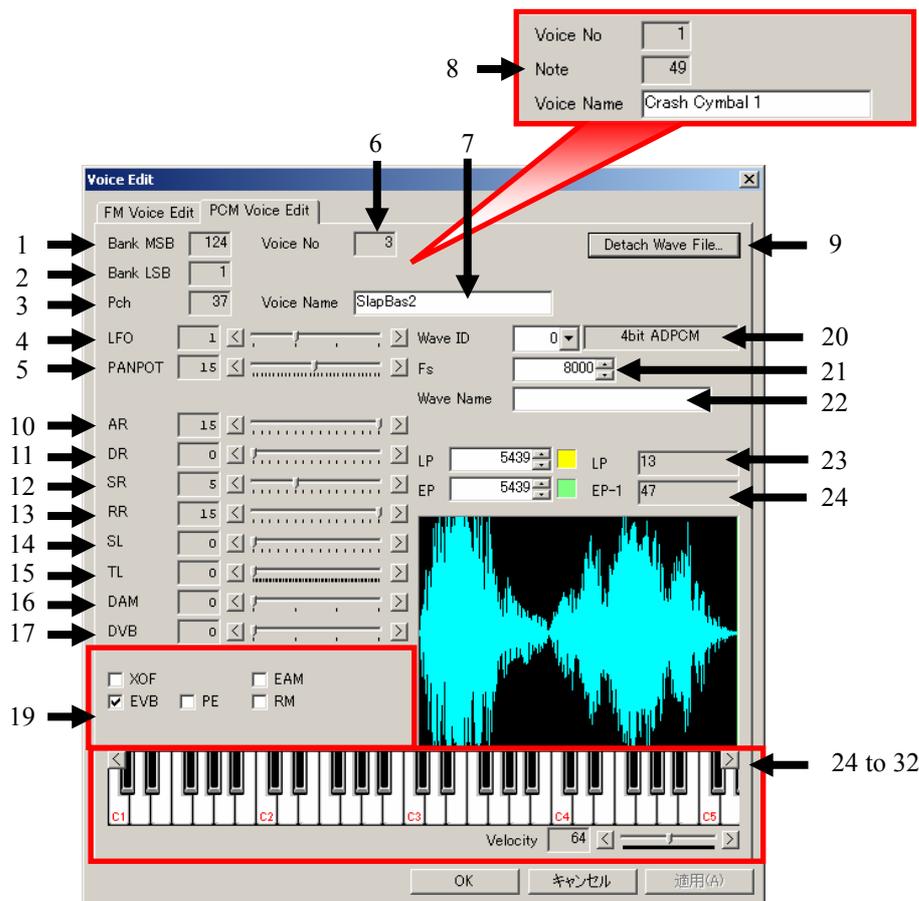


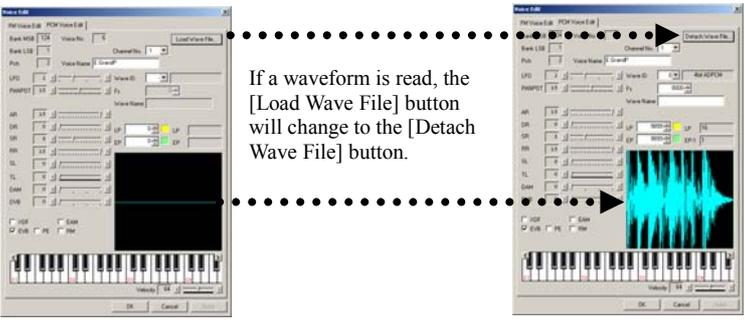
Figure 4-22 PCM Voice Edit Window

[Note] Only when a voice under editing is a Drum voice, Note numbers are displayed.

[Note] When <L1 (MA-3) mode> is selected, PCM Voice Edit Window is not displayed.

No. 1 to 22

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	Displays 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 : 4.0Hz / LFO= 2 : 5.9Hz / LFO= 3 : 7.0Hz
5	Panpot	Sets right-left balance for each channel.(0...15...31) Smaller value pans to the left, or larger value 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.
8	Note.	Displays note numbers.
9	Load Wave File	Monoral sound file (AIFF , WAVE) of up to 48kHz with 16bitPCM can be loaded. The loaded wavedata is converted into 4bitADPCM data, and assigned to NoteNo.60 (C key). “Example” When a 24000Hz sound file is loaded, Playing lower key makes FS lower or playing higher key makes FS higher with

No.	Name	Description
	Detach Wave File	<p>respect to C key (24000Hz) of NoteNo.60.</p> <p>Press this switch to delete the waveform that has been read with "Load Wave File."</p>  <p>If a waveform is read, the [Load Wave File] button will change to the [Detach Wave File] button.</p>
10	AR (Attack Rate)	Attack Rate is the time from the starting of play (-48 dB) to the moment maximum volume (0 dB) is attained.
11	DR (Decay Rate)	Decay Rate is the decay time from the moment the maximum volume (0 dB) to the moment Sustain Level (SL) is attained.
12	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.
13	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.
14	SL (Sustain Level)	The Sustain Level is the one at which Decay Rate changes to Release Rate for decaying voice, or the level at which volume of a continuous voice is sustained.
15	TL (Total Level)	Sets the level of envelope.
16	DAM (Depth of AM)	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
17	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
19	XOF (Ignore KeyOff)	Sets ignoring KeyOff or not. Place a check in the check box to ignore KeyOff. KeyOff does not cause the change of state.
	EAM (AM modulation ON/OFF)	Sets ON/OFF of amplitude modulation (AM). Place a check in the check box to enable setting of DAM.
	EVB (Vibrato modulation ON/OFF")	Sets ON/OFF of vibrato modulation. Place a check in the check box to enable setting of DVB. <div style="border: 1px solid black; padding: 5px; text-align: center;">Be sure to set EVB to ON to enable modulation of MIDI message.</div>
	PE (Pan enable)	Placing a check in this box disables the pan setting of the control change and enables the value of panpot of the voices.
	RM (Designate 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.
20	Wave ID	For MA-5, multiple PCM waveforms can be read and stored. The management number can be displayed and selected.
21	Fs	Displays the frequencies of waveforms that have been read. On MA-5 Authoring Tool, the frequency when playing NoteNo.60 (C key) is displayed. Changing the value changes the pitch.
22	Wave Name	A name can be attached to the read waveform. Wave Name is displayed on Wave ID field. <div style="border: 1px solid black; padding: 5px; text-align: center;">Wave Name is not displayed on Wave ID field immediately after attaching Wave Name. Please reopen Voice Edit to display it.</div>
23	LP	Designates a loop point for loop playback. In addition, value of peak factor at the following points are displayed on right hand. 4 bits ADPCM :Loop Point. 8 Bits PCM :End Point +1

No.	Name	Description
24	EP (End Point)	Designates end point of play and loop End Point of loop playback. In addition, value of peak factor at the following points are displayed on right hand. 4 bits ADPCM : End Point -1 8 bits PCM: End Point The value of "0" generates no voice.

No. 25 to 32

The voice under editing can be monitored by clicking the keyboard

Display at editing of normal voice

In the case of normal voice, voices are generated with higher musical interval to the right side of keyboard, or lower musical interval to the left side.

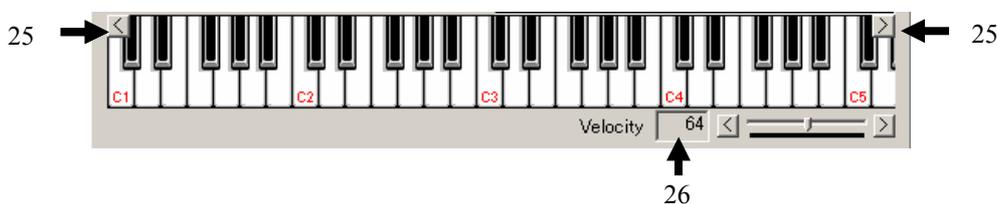


Figure 4-23 Keyboard

No.	Name	Description
24	Scroll Button	By pushing this button, the display of keyboard compass can be changed. ▪ Click right side button to display higher interval. ▪ Click left side button to display lower interval.
25	Velocity	Velocity value at monitoring by the keyboard can be changed.

Display at the time of editing of drum voice

In the case of drum voices, voices are generated only when Note No. under edition is clicked.

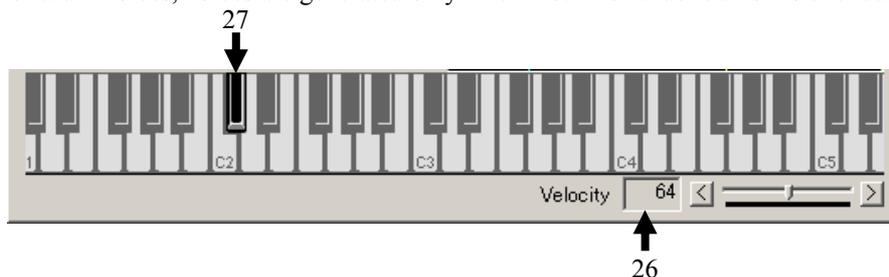


Figure 4-24 Keyboard (Drum Voice)

No.	Name	Description
26	Velocity	Velocity value at monitoring by the keyboard can be changed.
27	Key	Displays only the note number under editing.

4.11.2.1. LP/EP Automatic Control Function

If it is an inaccurate voice which is carried out when reading a sound file and displaying a current PCM voice, the above conformation message will be appeared

“Automatically operated loop and/or End Point adjusted according to PCM mode”

In addition, it is twisted into a correct value automatically.

Example of correcting the sampling number “2000”,

4bit ADPCM

In case of the One-Shot(LoopPoint=EndPoint)

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

LoopPoint = EndPoint = Sample - 1

Ex) LP=2000/EP=2000 → LP=1999/EP=1999

LP=2000/EP=2001 → LP=1999/EP=1999

4bit ADPCM

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

LoopPoint = EndPoint

Ex) LP=2001/EP=1500 → LP=1500/EP=1500

4bit ADPCM

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

EndPoint = Sample - 1

Ex) LP=1500/EP=2001 → LP=1500/EP=2000

8bit PCM

In case of the One-Shot(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

8bit PCM

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

LoopPoint = EndPoint

ex) LP=2001/EP=1500 → LP=1500/EP=1500

8bit PCM

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

EndPoint = Sample - 1

Ex) LP=1500/EP=2001 → LP=1500/EP=1999

5. Supplement

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					
Bank LSB	0			1			2			3~7			8			9		
	Default						User Assignable											
Pch#	Inst	Typ	Inst	Typ	Inst	Typ		Inst	Typ									
0	GrandPno	F4	User	A	User	A	.	User	A									
1	BritePno	F4	User	A	User	A	.	User	A									
2	E.GrandP	F4	User	A	User	A	.	User	A									
3	HnkvTonk	F4	User	A	User	A	.	User	A									
4	E.Piano1	F4	User	A	User	A	.	User	A									
5	E.Piano2	F4	User	A	User	A	.	User	A									
6	Harpsi.	F4	User	A	User	A	.	User	A									
7	Clavi.	F4	User	A	User	A	.	User	A									
8	Celesta	F4	User	A	User	A	.	User	A									
9	Glocken	F4	User	A	User	A	.	User	A									
10	MusicBox	F4	User	A	User	A	.	User	A									
11	Vibes	F4	User	A	User	A	.	User	A									
12	Marimba	F4	User	A	User	A	.	User	A									
13	Xylophon	F4	User	A	User	A	.	User	A									
14	TubulBel	F4	User	A	User	A	.	User	A									
15	Dulcimer	F4	User	A	User	A	.	User	A									
16	DrawOrgn	F4	User	A	User	A	.	User	A									
17	PercOrgn	F4	User	A	User	A	.	User	A									
18	RockOrgn	F4	User	A	User	A	.	User	A									
19	ChrchOrg	F4	User	A	User	A	.	User	A									
20	ReedOrgn	F4	User	A	User	A	.	User	A									
21	Acordion	F4	User	A	User	A	.	User	A									
22	Harmnica	F4	User	A	User	A	.	User	A									
23	TangoAc	F4	User	A	User	A	.	User	A									
24	NylonGtr	F4	User	A	User	A	.	User	A									
25	SteelGtr	F4	User	A	User	A	.	User	A									
26	Jazz Gtr	F4	User	A	User	A	.	User	A									
27	CleanGtr	F4	User	A	User	A	.	User	A									
28	Mute.Gtr	F4	User	A	User	A	.	User	A									
29	Ovrdrive	F4	User	A	User	A	.	User	A									
30	Dist.Gtr	F4	User	A	User	A	.	User	A									
31	GtrHarmo	F4	User	A	User	A	.	User	A									
32	Aco.Bass	F4	User	A	User	A	.	User	A									
33	FngrBass	F4	User	A	User	A	.	User	A									
34	PickBass	F4	User	A	User	A	.	User	A									
35	Fretless	F4	User	A	User	A	.	User	A									
36	SlapBas1	F4	User	A	User	A	.	User	A									
37	SlapBas2	F4	User	A	User	A	.	User	A									
38	SvnBass1	F4	User	A	User	A	.	User	A									
39	SvnBass2	F4	User	A	User	A	.	User	A									
40	Violin	F4	User	A	User	A	.	User	A									
41	Viola	F4	User	A	User	A	.	User	A									
42	Cello	F4	User	A	User	A	.	User	A									
43	ContraBs	F4	User	A	User	A	.	User	A									
44	Trem.Str	F4	User	A	User	A	.	User	A									
45	Pizz.Str	F4	User	A	User	A	.	User	A									
46	Harp	F4	User	A	User	A	.	User	A									
47	Timpani	F4	User	A	User	A	.	User	A									
48	Strings1	F4	User	A	User	A	.	User	A									
49	Strings2	F4	User	A	User	A	.	User	A									
50	Svn.Str1	F4	User	A	User	A	.	User	A									
51	Svn.Str2	F4	User	A	User	A	.	User	A									
52	ChoirAah	F4	User	A	User	A	.	User	A									
53	VoiceOoh	F4	User	A	User	A	.	User	A									
54	SvnVoice	F4	User	A	User	A	.	User	A									
55	Orch.Hit	F4	User	A	User	A	.	User	A									
56	Trumpet	F4	User	A	User	A	.	User	A									
57	Trombone	F4	User	A	User	A	.	User	A									
58	Tuba	F4	User	A	User	A	.	User	A									
59	Mute.Trp	F4	User	A	User	A	.	User	A									
60	Fr.Horn	F4	User	A	User	A	.	User	A									
61	BrasSect	F4	User	A	User	A	.	User	A									
62	SvnBras1	F4	User	A	User	A	.	User	A									
63	SvnBras2	F4	User	A	User	A	.	User	A									

5.1.2. MA-5 Native Normal Voice Map (FM16 Mode 64 to 127)

Bank MSB	124		124		124		124		124		124			
Bank LSB	0		1		2		3~7		8		9			
Pch#	Default		User Assignable											
Inst	Typ	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	PolySvPd	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	Crvstal	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	Svn.Drum	F4	User	A	User	A	.	.	.	User	A	User	A
*4	119	RevCymb	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/halfnote, #69 = F#4
 *2: 50cent/halfnote, #69 = A2
 *3: 50cent/halfnote, #69 = C#4
 *4: 50cent/halfnote
 *5: 50cent/halfnote
 *6: 5cent/halfnote
 *7: 10cent/halfnote

The key control judgment of voice set Pch# attached "*" is treated as drum. (Also UserBank)

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

5.1.3. MA-5 Native Drum Instrument MAP (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	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	F4	Brush Tap	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	F4	Open Rim	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	P	Crash Cymbal	F4	User	A	•	•	User	A	
50	High Tom	P	High Tom	F4	User	A	•	•	User	A	
51	Ride Cymbal	P	Ride Cymbal	F4	User	A	•	•	User	A	
52	Chinese	P	Chinese	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	P	Splash	F4	User	A	•	•	User	A	
56	Cowbell	F4	Cowbell	F4	User	A	•	•	User	A	
57	Crash Cymbal	P	Crash Cymbal	F4	User	A	•	•	User	A	
58	VibraSlap	F4	VibraSlap	F4	User	A	•	•	User	A	
59	Ride Cymbal	P	Ride Cymbal	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	F4	Conga H	F4	User	A	•	•	User	A	
63	Conga H	F4	Conga H	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	F4	Samba	F4	User	A	•	•	User	A	
@ 72	Samba	F4	Samba	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	F4	Wood Block	F4	User	A	•	•	User	A	
77	Wood Block	F4	Wood Block	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 above NoteNo. Of UserBank.

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

5.1.4. MA-5 Native Drum Instrument MAP (FM32 mode)

Bank MSB	125		125		125	125	125
Pch#	0		1		2	3~8	9
	Default				User Assignable		
Note#	Inst	Tvp	Inst	Tvp	Inst	Tvp	Inst
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 above NoteNo. Of UserBank.

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

5.1.5. MA-5 ROM Wave Map

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 Issued 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) file is not correct at reading.
Can not import from SMF file. Can not assign 4 operator on GM1 mode.	SMAF file cannot be opened. 4 operator voices cannot be assigned in GM1 mode.	4 operator voice of Bank 124 is stored in SMF defined as GM32 sound mode.
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
Cannot open SMAF file. Cannot open SMAF Phrase L2 in L1 mode.	Unable to open a SMAF file. Phrase L2 can not open by L1 mode.	Tried to open a Phrase L2 file by L1 mode.
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: Cannot 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: Illegal SMAF file.	Unable to convert a file. Required chunk does not exist.	It was going to open the SMAF Phrase file in which required chunk does not exist. <Required cunk> Optional Data Chunk
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.
Cannot assure contents. Total Length of SMAF is out of range. (2000000 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 260 bytes.	The file path is over 260 bytes.	When the input file path is over 260 bytes.
Can not save file. File name exceed 59 byte.	The file name is over 59byte.	When the input file name (except for an extension) is over 59 bytes.
Can not convert file. PCM voice setting error : Invalid Loop point setting. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Display Voice Name)	Unable to convert a file. Setup of Loop Point is inaccurate.	When LP check shows an error.

Display	Description of error	Cause
Can not convert file. PCM voice setting error : Invalid End point setting. Bank MSB/LSB: %u / %u Pch: %u Note: %u (Display 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 (Display 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 (Display 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 (Display 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 Issued at 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 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.	The application is closed because MA-5 board is not found.	Firmware ID cannot be obtained. Or Firmware ID is other than "0" or "1"
Exit application. AS board is not supported.	The application is closed because MA-5 board is not supported	Firmware ID is "1".

5.2.3. Error Message related to Internal Input/Output

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

5.2.4. Error Message related to MIDI

Display	Description of error	Cause
Can not assign sound file. RAM size overflow. (total %u byte)	Can not assign sound file. Over MA-5 RAM size (total %u byte)	Sound file cannot be assigned RAM capacity is exceeded.
Can not assign sound file. RAM size overflow.	Unable to assign a sound file. The memory area of MA-5 board is exceeded.	When the memory area of MA-5 board is exceeded.
Can not open MIDI device.	MIDI device has been used by other application.	MIDI device was not able to be opened.
Can not open MIDI device. MIDI device is used another application.	MIDI device has been used by other application.	When "OK" on "Preference" is clicked, MIDI device was not able to be obtained.

5.2.5. Error Message of Wave Data

Display	Description of error	Cause
Can not open sound file. Stereo sound file is not supported.	Unable to open a sound file. It does not correspond to a stereo sound file.	Since WaveFile was a stereo, conversion processing was interrupted.
Can not convert sound file. Unexpected problem is occurred.	Unable to convert a sound file.	Processing was interrupted for a certain problem during WaveFile conversion.
Can not assign sound file. Numbers of Wave Exceed 128.	Unable to assign a sound file.	Since there was no free WaveID in VoiceList, processing was interrupted.
Can not convert sound file. Sampling Frequency is not supported. (Must be under 48k Hz)	Unable to convert a sound file.	Sampling Frequency was over 48000 when Wave File was read by Voice Edit/PCM.
Can not assign the 127 th wave.	127th WaveID is unassignable.	It was going to paste the PCM voice used as WaveID=127 on Voice Assign Map.Or the data under edit to which WaveID=127 is assigned tended to be saved, and it was going to reproduce.

5.2.6. Error Message Related to User's Operation

Display	Description of error	Cause
Can not play. AS board not found.	File cannot be played The board is not found	Playback position / indicator level message does not return after playback
Can not play. Illegal output stream.	File cannot be played	Playback data are not normal
Can not convert file. AS board not found.	File cannot be converted. The board is not found	When Firmware ID of MA-5 board is not 0 or 1 at saving
Can not close Voice Edit. Please load wave file or check 'RM'.	Voice Edit can not be closed. Load wave file or place a check to 'RM'.	OK button of PCM Voice Edit was selected in the status that voice wave is not loaded, or 'RM' is not checked.
Can not close Voice Edit. Invalid Loop point setting.	Unable to close a Voice Edit. Loop Point is set un-correctly.	When LP check is in an error.
Can not close Voice Edit. Invalid End point setting.	Unable to close a Voice Edit. Loop Point is set un-correctly.	When EP check is in an error.
Can not close Voice Edit. Setting Error : SR <= 1 and	Unable to close a Voice Edit Setting error : SR <= 1 and XOF is checked.	EG in case of LP = EP, or a check of both LPL and EPL is in an error

Display	Description of error	Cause
XOF is checked.		
Can not close Voice Edit. Setting Error : DR = 0, SL != 0 and XOF is checked.	Unable to close a Voice Edit Setting error : DR = 0, SL != 0 and XOF is checked.	EG in case of LP = EP, or a check of both LPL and EPL is in an error
Can not close Voice Edit. Setting Error : RR <= 1 and XOF is not checked.	Unable to close a Voice Edit Setting error : RR <= 1 and XOF is checked.	EG in case of LP = EP, or a check of both LPL and EPL is in an error
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 does not exist.	Unable to open "Help". There is no help file.	Since there is no help file, a help is not opened.

5.2.7. Other Error Message

Display	Description of error	Cause
Exit application Unexpected problem is occurred.	Unable to close a Voice Edit. Loop Point is set un-correctly.	When LP check is in an error.

5.3. Warning/Verification Message

5.3.1. Warning Message which comes out 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 of SMAF 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 vendors 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, and when a note number controls an output.
Bank Number of Voice file is adjusted automatically.	When the specification of un-supporting voice is changed. * Since it checks by DLL and the main part, it may be displayed two or more times.
Automatically operated. The overlapping note was tied.	When tie processing of the overlapping note message is carried out.
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 duration:0 in a monochrome mode specification channel at the time of a SMAF output. * Only the last note message is output (it is filtered at DLL).
Can not output Information to SMF. Invalid Information.	Since the contents of Information are inaccurate, Information cannot be output to SMF.
Phrase L1 voice file. Can not import BankM: 125 Pch#:1 bank voice.	When a voice set of BM:125/Pch#:1 is read and cut out after a voice file for Phrase L1 is loaded in Phrase L2 mode.
Number of assigned voices is exceed 128. Can not output excess voices.	When 128 or more voice is assigned to Voice Assign Map. When the check of HV check box is removed by Score Window, there is a possibility that this situation will occur.
Can not convert sound file. 8-bit PCM sound file is not supported. (Must be 16-bit PCM sound file.)	When trying to read a 8-bit PCM waveform into a PCM voice with the AT-MA5-SMAFPhrase version.

5.3.2. Warning Message issued at Start-up

Display	Display Timing
Automatically operated. System has been changed to use COM%d	The connection port was changed into the one different from the setting

5.3.3. Warning Message of Wave Data

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

5.3.4. Warning Message issued at User's Operation

Display	Display Timing
Exist editing document Save the document?	When it is going to cancel a document in the condition in which the document under editing exists
Exist editing voice parameter. Save the voice parameter?	When it is going to cancel application in the condition in which the voice under editing exists
Loop / End Point is adjusted automatically.	When the LP/EP automatic control function starts to the timing in which performing SMAF Open, reading voice files, and opening the PCM Voice Edit.

5.3.5. Verification Message issued at 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.

5.3.6. Verification Message related to 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 VoiceList (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 VoiceList (Drum)

5.3.7. Verification Message which comes out at User's Operation

Display	Display Timing
Confirm operation. Reset MA-5 board?	When Reset of the Option menu is clicked.
Confirm operation. Sound file will be detached automatically.	With the condition in which a sound file is loaded to a PCM Voice Edit dialog, and when it is going to turn ON the check of RM.
Overwriting Voice List. Save the changed voice parameters?	When Open Voice File of the File menu is chosen.
Overwriting Voice List. Save the changed voice parameters?	When Preference of the Option menu is chosen.
The drum voice is selected more than once. Select other drum voice?	When trying to assign the drum voice of the same note number to the same phrase by different program change number on an extended drum tone.
Do you want to delete this file?	When a file is considered as Delete use by Play List.

5.4. Shortcut Key

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

Sign “+” of each item means “while pushing and holding”. For example, “[CTRL] + [F4]” means that “Push [F4] key while pushing and holding [Ctrl] key”.

5.4.1. Shortcut Key Common to Each Window

Corresponding command	Corresponding key
[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 edit window.
[Alt](or GRPH)+ [F4]	Closes application.

5.4.2. Shortcut Key related to Menu Bar

Corresponding command	Corresponding key
[Alt](or [GRPH])+character 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. Copy will be chosen when [C] key is pushed on it.
[Alt](or [GRPH])	Moves cursor to [File] of menu bar. In this state, the cursor can be moved to the right or left by pushing the cursor key of computer keyboard, or can be moved up or down on the opened menu.

5.4.3. Shortcut for Control Button

Corresponding command	Corresponding key
Start/Stop Button	[Space]

5.4.4. Shortcut for File Menu

Corresponding command	Corresponding key
Open	[Ctrl]+[O]
Save	[Ctrl]+[S]
Import from SMF	[Ctrl]+[L]
Reload from SMF	[Ctrl]+[R]

5.4.5. Shortcut for Edit Menu

Corresponding command	Corresponding key
Copy	[Ctrl]+[C]
Paste	[Ctrl]+[V]
Undo	[Ctrl]+[Z]
Redo	[Ctrl]+[Y]