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# Introduction to MIDIART™

## *"The Interactive Music Visualizer"*

### What is MIDIART

MIDIART uses the PC sound card or MIDI sound generator connected to your computer to play pre-recorded music stored in standard MIDI file format. But MIDIART goes beyond simply playing the music, it uses the musical information contained in the standard MIDI file to create beautiful graphic images. These images are controlled by the music, and thus synchronized to the music. MIDIART extends the power of music to the visual world and creates a new electronic art form. It also demonstrates the power of the new Multimedia PCs now on the market.

To create the graphics, MIDIART uses what are called Image Generators. Image Generators determine how the music will influence the images that are created. Image Generators control the look and feel of MIDIART as the program plays music. MIDIART allows you to select one of several different Image Generators and also allows you to interact with each Image Generator. While music is playing, function keys can be pressed which will change the images being created by the Image Generator. MIDIART also responds to other keyboard commands which give you full control over the music being played.

### Program Requirements

MIDIART requires a 386 or 486 PC running the Microsoft Windows™ Operating System, Version 3.1. (Windows must also be running in 386 enhanced mode). A 486 PC with an accelerated graphics card is highly recommended. (This insures that MIDIART images will keep in sync with the music being played).

MIDIART will work with a MIDI capable sound card. (Examples would be the ProAudio Spectrum 16 card or the Creative Labs Sound Blaster card. Many other MIDI capable sound cards are available). The sound card and sound card driver software must be correctly configured to work under Windows. Be aware that most of the sound cards being used today produce musical instrument sounds using a special FM synthesizer chip. The instrument sounds created by this chip are not as realistic as sounds created by a true MIDI sound generator.

MIDIART also works with a MIDI interface card connected to an external MIDI sound generator such as the Roland Sound Canvas. A sound generator stores the sounds of real musical instruments electronically, and is able to reproduce these sounds very accurately. For music recorded using MIDI, an external sound generator will produce the best possible sound. The drawback to a MIDI sound generator is that they cannot play digital .WAV files.

### Note:

If you currently have a sound card and are not happy with the sound quality being produced by it when playing MIDI files, you may want to consider some of the newer sound cards now coming on the market. These sound cards can play both .WAV files and MIDI files with very good sound quality. Currently they are expensive (between \$200 and \$300) but are a better value than a MIDI

sound generator that can play MIDI only. Some examples of these newer sound cards would be the Roland RAP-10 card, the Turtle Beach MultiSound card, or the Creative Labs Sound Blaster AWE32 card.

# What is MIDI

MIDI stands for Musical Instrument Digital Interface. MIDI is a computer protocol developed in the early 1980's to allow computers to control and play electronic musical keyboards, synthesizers, and sound generating devices. After the MIDI protocol was developed, a standard file format was developed to allow MIDI information to be stored on computer disk. The file format is called the standard MIDI file format. When stored on disk, a MIDI file resembles a musical score much like an orchestra conductor uses when conducting an orchestra. The file contains information on which musical instruments are playing, as well as the individual notes that must be played by each instrument in order to create the musical work. Normally, a single standard MIDI file will contain all the music for a single song. Many studio musicians these days create and store their music in standard MIDI file format.

MIDIART uses information in a standard MIDI file to perform several tasks:

- It tells the sound card or MIDI sound generator which instrument to select for each musical part being played.
- It sends individual notes for each instrument to the sound generator.
- It sends the individual notes to the Image Generator component of the program. The Image Generator then creates a graphical image by displaying graphical objects or visual elements that correspond to each musical note. Typically, each graphical object has a different color which depends on the musical instrument.

Standard MIDI files can store musical parts for up to 16 different musical instruments. Each instrument is assigned to a MIDI channel number. MIDI channel numbers are labeled 1 through 16. The standard MIDI file may also contain a "Track Name" which identifies the musical instrument assigned to a given MIDI channel. A track name is an optional component of the standard MIDI file, and if it exists, the MIDIART program will display the track name or musical instrument assigned to each MIDI channel in the file. (Refer to "[Using MIDIART](#)".)

## The General MIDI Instrument List:

Many current MIDI capable sound cards and MIDI sound generators are able to produce the sounds of musical instruments that conform to the [General MIDI instrument list](#). This is a list of 128 different musical instrument sounds assigned in sequence from 1 to 128. Most standard MIDI files will automatically select an appropriate musical instrument from the General MIDI instrument list. The MIDIART program will also let you change the instrument assigned to a particular MIDI channel. (Refer to "[MIDIART Keyboard Commands](#)".) Under the General MIDI standard, drum sounds are placed on one MIDI channel (channel number 10) instead of one drum sound per channel. Each drum sound is assigned a specific note value on channel 10.

Currently, examples of sound cards that conform to the General MIDI standard are the Creative Labs Sound Blaster card and the ProAudio Spectrum 16 card. Older sound cards may not support the General MIDI standard, in which case you will most likely have to use the [Microsoft MIDI Mapper](#) program to map General MIDI instrument numbers to the correct instruments on your device. (Refer to the on-line help that is included in the MIDI Mapper program which is located in the Microsoft Windows control panel.)

## **Where to Get Standard MIDI Files:**

The MIDIART program comes packaged with a small number standard MIDI files that were recorded by Romeo Music International. This is a company that records, packages, and sells MIDI music for personal and commercial uses. The Microsoft Windows Operating System is shipped with a standard MIDI file called CANYON.MID which can be located in the main Windows directory. (Usually C:\WINDOWS). To avoid copyright infringement, no other standard MIDI files are shipped with MIDIART. If you would like to obtain more standard MIDI files, you can purchase them through Romeo Music (stores that sell computer software may carry Romeo Music products), or you can easily download MIDI files from computer bulletin boards, information services such as CompuServe, or the Internet. For a large selection, you should try the CompuServe MIDI forum. (On CompuServe use GO MIDI). Standard MIDI files will end with the file extension .MID.

## **Suggestions:**

Please spend some time reading through the rest of the on-line help. Become familiar with the MIDIART configuration dialog and the keyboard commands. After this you will want to put on a good pair of headphones, turn off the lights, turn up the music, and enjoy.

## Using MIDIART

When you start the MIDIART program, a MIDIART configuration dialog window will appear. This is the main dialog window that you use to configure MIDIART. Each button or list box in this dialog allows you to configure some aspect of MIDIART. Below is a list of help topics that describe each configuration option controlled by either a list box or button contained in the configuration dialog window.

**MIDI Output Device to Use:**

**Graphic Image Generators:**

**Enabled MIDI channels:**

**Select File(s):**

**Files Selected / Current File:**

**Active Channels in Current File:**

**MIDIART Control Bar**

**Select Colors:**

**Configuring Image Generators:**

**Begin Playing Music:**

## MIDI Output Device to Use

In the upper left corner of the configuration dialog is a list box that allows you to select the MIDI output device to use. If you have a MIDI capable sound card or a MIDI interface card correctly configured for Windows, the name of the MIDI device driver for the card will appear in this list. If this list is empty, you will need to install a MIDI device driver from the Windows control panel. (Refer to the documentation that came with your sound card or MIDI interface.) Normally, two device driver names will appear in this list, the Microsoft MIDI Mapper, and the name of the device driver corresponding to your sound card or MIDI interface.

If you have a newer sound card or MIDI sound generator, you should select the name of the device that corresponds to your sound card driver or MIDI interface driver. (Note: If you have a Creative Labs Sound Blaster sound card, you should select the "Voyetra Super Sapi FM Driver" from this list box.)

If you have an older sound card or sound generator that is not general MIDI compatible, you should select the Microsoft MIDI Mapper as the output device. Before selecting the MIDI Mapper, you should exit MIDIART, (select the CANCEL button) and run the MIDI Mapper Program from the Windows control panel. You will then need to edit a MIDI Mapper "Setup" and a MIDI Mapper "Patch Map" to correctly map General MIDI channel numbers and instrument numbers to the channels and instruments used by your sound card or sound generator. Refer to the "General MIDI instrument list" in this help file.

## Graphic Image Generators

In the upper right corner of the configuration dialog is a list box that allows you to select a MIDIART Image Generator. An Image Generator will determine what visual effects MIDIART will create when playing music. Typically, a MIDIART Image Generator creates a graphical image by displaying graphical objects or visual elements that correspond to the musical notes that are being played, and each graphical object has a different color which depends on the musical instrument. The names of the Image Generators displayed in the list box give you a rough idea of their visual effects.



## Enabled MIDI Channels

Below the list of Image Generators is a matrix of 16 check boxes. Each check box corresponds to one of the 16 MIDI channels. When a box is checked, the selected Image Generator will create graphic objects for the instrument playing on that channel. If the box is unchecked, no graphics will be produced for the instrument playing on that channel. Normally, drums play on MIDI channel 10 and this box is unchecked. Producing graphics for the drum channel is very CPU intensive and only clutters the display.

**Note:**

Depending on the speed of your computer and the speed of your video card, you may need to uncheck more than the one MIDI channel. You will have to experiment with this. If you have a Pentium computer with a fast graphics card try checking all boxes.

## Select file(s)

In the lower right corner of the configuration dialog is a button labeled 'Select File(s)'. Click on this button (or press ALT-F) to bring up an Open File dialog box. This dialog box will begin by displaying all files with the .MID extension in the current directory. The list box on the right will allow you to select a new directory. The list box on the left will allow you to select one or more standard MIDI files to play. To select more than one MIDI file, press the 'CTRL' key while selecting each file with the left mouse button. After you select a file or files, select the 'OK' button.

## Files Selected / Current File

The MIDIART program works much like a CD player. The program will let you select many songs (Refer to "Select File(s)"). and will play each song one by one in sequence. When playing a song, you can skip ahead to the next song using the 'n' key, or you can go to the previous song using the 'b' key. (Refer to "[MIDIART Keyboard Commands](#)".) The pull down list box labeled 'Files Selected / Current File' will display the name of the current MIDI file being played. If you click on the down arrow next to this box, a list will be displayed showing all the MIDI files that you selected. This list is called the MIDIART play list. The MIDIART program will save this play list when the program ends. When the MIDIART program is re-started, the play list will automatically be restored. If you select a new MIDI file from the play list, the file you select will become the new current file and MIDIART will play this new file when the 'OK' button is pressed.

### **Note:**

If a MIDI file has previously saved performance data associated with it, such as key press data or configuration option data, special symbols will appear after the file name in the 'Files Selected' list box. If key press data is saved with the MIDI file, a caret symbol (^) will appear next to the file name. If Image Generator configuration data is saved with the MIDI file, an asterisk symbol (\*) will appear next to the file name. (Refer to "[Creating a MIDIART Performance](#)".)

## Active Channels in Current File

The list box labeled 'Active Channels in Current File' will display the names of the musical instruments assigned to each MIDI channel in the current MIDI file being played. (Note: If the standard MIDI file does not contain track name information, one or more of the active channels may contain "No track name" as the instrument name assigned to that channel.)

You use the information in this list to determine which MIDI channels correspond to a given musical instrument. Several MIDIART keyboard commands affect the currently selected MIDI channel, and you need to know which instrument is playing on the selected channel. (Refer to "MIDIART Keyboard Commands".)

You will also notice that just underneath the 'Active Channels' list box is a small display box that contains the song length or playback time of the current MIDI file selected in the play list, as well as the total playback time of all the MIDI files in the play list. These times are displayed in an hours:minutes:seconds format.

## The MIDIART Control Bar

Above the 'Select File(s)' button in the MIDIART configuration dialog is a check box labeled 'Use Control Bar'. If you check this box, MIDIART will create a control bar window at the bottom of the screen when it begins playing music and creating graphics. The control bar window will allow you to control the MIDIART program using the mouse instead of the keyboard. Since there are so many keyboard commands available in MIDIART to control the music and graphics, it may be difficult at first to remember all the keyboard commands. The control bar window will allow you to activate the most commonly used MIDIART commands without remembering which key to press.

The control bar window is divided into 32 small boxes. The top 16 boxes display the names of the instruments assigned to each of the 16 MIDI channels in the current MIDI file. If you mouse click inside one of the boxes, you will be selecting a single MIDI channel in which to control with the other MIDIART commands. You can also select multiple MIDI channels by pressing and holding the 'CTRL' key while you mouse click inside one of these boxes.

The bottom 16 boxes in the control bar window contain words that represent 16 of the most commonly used MIDIART commands. If you mouse click inside one of these boxes, you will activate the command. This is equivalent to pressing the key shown inside each box. If you press and hold down the left mouse button, the command will be activated several times just as if you had pressed and held down a key on the keyboard.

You can easily remove the control bar window from the screen by simply pressing the 'L' key. This key will toggle the display of the control bar window.

Note that only 16 of the most commonly used MIDIART commands can be activated from the control bar window and that the other commands must be activated from the keyboard. For more information on all the keyboard commands available within MIDIART, refer to "[MIDIART Keyboard Commands](#)".

## Select Colors

Also in the lower right corner of the configuration dialog is a button labeled 'Select Colors'. Click on this button (or press ALT-L) to bring up the Color Configuration dialog box. This dialog will allow you to control the color of graphic objects created by the MIDIART Image Generator you select.

When an Image Generator creates a graphic object on the screen, the color of the object depends on the musical instrument that is playing on a given MIDI channel. Using this dialog, you can click on a MIDI channel number and view or change the color assigned to the musical instrument playing on the MIDI channel. To change a color, select a MIDI channel number, then click on the pull down list of colors and select a new color. There are currently 20 colors in which to choose from. If you check the "Use Colors Randomly" selection, each Image Generator will use the 16 colors you selected but will assign them randomly to each MIDI channel. This allows you to create a color pallet that the Image Generator will use in a random fashion. If you do not check the "Use Colors Randomly" selection, each Image Generator will assign the colors exactly as you specified in the dialog box.

## Configuring Image Generators:

There are two ways to control the graphic images being created by a MIDIART Image Generator:

- 1 While MIDIART is playing music, pressing the function keys F2 through F8 will change certain aspects of the graphics being generated by the selected Image Generator. (Refer to "[Image Generator Control Keys](#)".) In other words, the function keys control the Image Generator graphic effects in real time.
- 2 Prior to playing music with MIDIART, you can select an Image Generator from the list box in the upper right corner of the configuration dialog, and then select the button labeled 'Configure'. This will display a configuration dialog window that will allow you to control certain aspects of the graphics prior to playing music. In other words, the configuration dialog will control the initial settings of the graphic effects for the selected Image Generator.

Most MIDIART Image Generators will display a standard configuration dialog window when the 'Configure' button is selected. This dialog will contain a group of radio buttons in the upper right corner of the dialog. These buttons allow you to select the type of graphic effect that you want to modify. (A common graphic effect would be "Object Size".) After you select a graphic effect, a scroll bar will be displayed next to each active MIDI channel contained in the currently selected MIDI file. You can use the scroll bar to increase or decrease the amount of graphic effect that will be applied to graphic objects on the specific MIDI channel. You can also enter a value directly in the edit box next to each scroll bar.

After you adjust each scroll bar, you can select a different graphic effect using the buttons in the upper right corner. Once you have adjusted all the values for each graphic effect, you press the 'OK' button to save these values.

### **Note:**

A few MIDIART Image Generators do not display the standard configuration dialog window as described above. These are the special MIDIART Image Generators. Currently, the "Bitmaps" and "Mixer" Image Generators are considered special, and have special configuration dialogs. (For information on configuring these Image Generators refer to "[Special Image Generators](#)".)

It should also be noted that the two methods described above for controlling the graphic images can be used in combination. For example, function keys F5 and F6 normally control the size of graphic objects being created by an Image Generator while a song is playing. Before playing the song, you can configure the initial object size using the configuration dialog window for the selected Image Generator. Then, when the song begins playing, you can make fine adjustments to the object size using the F5 and F6 function keys. You will notice that if you return to the configuration dialog window after pressing these function keys, you will see that the numbers assigned to the scroll bars under "Object Size" will have changed their values. To permanently save these new values, simply select the 'OK' button.

## **Begin Playing Music**

To begin playing the song or songs you have selected, simply select the 'OK' button.



# MIDIART Keyboard Commands

While MIDIART is playing music, several keys on the computer keyboard can be pressed which will affect either the music being played, the graphics being created by the Image Generator, or the general function of the MIDIART program itself. The following is a list of these MIDIART command keys and descriptions of what will happen when these keys are pressed. The command key list is divided into three groups based on their function.

It is important that you take some time to learn about these command keys because they provide a great deal of interactive capability and are the keys to fully enjoying the MIDIART experience. You should also make sure the CAPS LOCK is turned off before using MIDIART, since some commands act differently depending on whether or not the SHIFT key was pressed. Commands keys that are activated using the SHIFT key are listed in upper case.

## Music Control Keys

## Image Generator Control Keys

## Program Control Keys

# Music Control Keys

The following command keys listed below will control the playback of the MIDI music within MIDIART:

## **s**

Stops the music and clears the screen. Use the 'p' key to begin playing once again from the point that the music stopped.

## **r**

Stops the music and rewinds back to beginning of the current song.

## **p**

Begins playing music and creating graphics. Use this key after using 's' or 'r'.

## **n**

Begins playing the next song in the list of songs selected in the MIDIART configuration window. (Refer to "Using MIDIART" for selecting more than one song.) When the next song is selected, a new Image Generator will be picked at random, unless you disable this random mode by pressing the 'R' key described below.

## **b**

Begins playing the previous song in the list of songs selected in the MIDIART configuration window. (Refer to "Using MIDIART" for selecting more than one song.) When the previous song is selected, a new Image Generator will be picked at random, unless you disable this random mode by pressing the 'R' key described below.

## **a**

Stops the music, advances ten seconds forward into the current song and then continues playing.

## **A**

Stops the music, advances ten seconds backward in the current song and then continues playing.

## **+**

Increases the tempo or playback speed of the song being played. You may need to press this key several times to here a change in the tempo.

-

Decreases the tempo or playback speed of the song being played. You may need to press this key several times to here a change in the tempo.

## 1 - 9

Selects MIDI channel 1 through MIDI channel 9 as the current MIDI channel. One of these keys must be pressed before using the command keys listed below. This will cause the command keys listed below to act on a single MIDI channel. Pressing key '0' will select MIDI channel number 10, and pressing keys '1' through '6' while pressing and holding the SPACE bar key will select MIDI channels 11 through 16.

You can also select multiple MIDI channels by pressing and holding the 'CTRL' key followed by a number key. For example to select MIDI channels 1 and 2, first press '1', then press and hold the 'CTRL' key while pressing '2'. In order to see what instruments are playing on a given MIDI channel, you can press 'F1' and look at the active channels list in the MIDIART configuration window, or you can press the 'L' key to display the MIDIART control bar window. (Refer to "Using MIDIART".)

=

Selects all MIDI channels. This will cause the command keys listed below to act on all MIDI channels. Press this key before using the command keys listed below.

## Up Arrow

Increases the volume of the instruments playing on the currently selected MIDI channels. You may need to press this key several times before hearing a change in the volume. You must select the appropriate MIDI channel or channels before using this key. If all MIDI channels were selected using the '=' key, the volume of all instruments on all channels will increase.

## Down Arrow

Decreases the volume of the instruments playing on the currently selected MIDI channels. You may need to press this key several times before hearing a change in the volume. You must select the appropriate MIDI channel or channels before using this key. If all MIDI channels were selected using the '=' key, the volume of all instruments on all channels will decrease.

## Right Arrow

Selects a new instrument to play on the currently selected MIDI channel. The next instrument in the General MIDI instrument list is selected. If you press the SHIFT key followed the RIGHT-ARROW key, you will skip 10 instruments ahead in the General MIDI standard instrument list. Only one MIDI channel will be affected by this command.

## Left Arrow

Selects a new instrument to play on the currently selected MIDI channel. The previous instrument in the General MIDI instrument list is selected. If you press the SHIFT key followed the LEFT-ARROW key, you will skip 10 instruments back in the General MIDI standard instrument list. Only one MIDI channel will be affected by this command.

**]**

Transposes the instruments playing on the currently selected MIDI channels one octave higher. This will give the instruments a higher pitch. Pressing this key more than once will continue to increase the pitch of the instruments.

**[**

Transposes the instruments playing on the currently selected MIDI channels one octave lower. This will give the instruments a lower pitch. Pressing this key more than once will continue to decrease the pitch of the instruments.

**m**

Mutes the instruments playing on the currently selected MIDI channels. This prevents a particular instrument from creating sound. If this key is pressed a second time, the instruments will be unmuted. If all MIDI channels were selected using the '=' key, all instruments on all channels will be muted. If you want to prevent all but one instrument from sounding, press '=' followed by 'm' to mute all instruments, then select a single MIDI channel with a number key and press 'm' to un-mute the single instrument.

# Image Generator Control Keys

The following command keys and function keys listed below will control the graphics being created by the individual Image Generators within MIDIART. Most of these keys are MIDI channel specific. This means that when you press these keys, they will control the graphics being created on the currently selected MIDI channels. To control the graphics on a single MIDI channel, you must first select a MIDI channel using a number key. To control the graphics on all MIDI channels, you must first press the '=' key. (Refer to the "[Music Control Keys](#)".)

## **c**

Clears the screen and selects a new random color for graphic objects being created for the instruments playing on the currently selected MIDI channels.

## **C**

Starts random color cycling. At random intervals the screen is cleared and a new set of random colors are selected. Press this key again to stop color cycling.

## **e**

Clears (or erases) the screen like the 'c' key, but does not change the color of any graphic objects on the screen.

## **g**

Enables or disables the creation of graphic objects for the instruments playing on the currently selected MIDI channels. Enabling MIDI channels can also be controlled from the MIDIART configuration dialog. Refer to "[Enabled MIDI Channels](#)".

## **i**

Selects a new Image Generator while the current song continues to play. The Image Generator selected is the next Image Generator in the Image Generator list.

## **l**

Selects a new Image Generator while the current song continues to play. The Image Generator selected is the previous Image Generator in the Image Generator list.

## **TAB + 1 - 9**

Pressing and holding the TAB key while pressing a number key will select a new Image Generator while the current song continues to play. The Image Generator selected will depend on the number key pressed. Key '1' selects the first Image Generator in the Image Generator list. Key '0' selects the 10th Image Generator. To select Image Generators 11 through 19, press and hold the TAB and SPACE bar keys before pressing a number key.

The following function keys will affect the visual elements being created on the currently selected MIDI channels. Before using these function keys, press the '=' key to select ALL MIDI channels, or press a number key to select a single MIDI channel.

Note: The following function keys perform the indicated action for most but not all Image Generators. Each Image Generator may interpret these function keys differently. You may need to experiment with their effect by repeatedly pressing the specific function key.

## **F2**

Normally an Image Generator will create and destroy objects on the screen as the music plays. Pressing F2 will stop image objects from being destroyed. This creates a collage of objects on the screen. Pressing F2 again will undo this effect. To clear what's on the screen, remember to press the 'e' (erase) key.

## **F3**

If an Image Generator is moving objects on the screen, pressing F3 will slow this movement down. You may need to press this key several times to see an effect.

## **F4**

If an Image Generator is moving objects on the screen, pressing F4 will speed this movement up. You may need to press this key several times to see an effect.

## **F5**

Pressing this key will decrease the size of objects being created by the Image Generator. You can hold this key down in order to rapidly change object sizes.

## **F6**

Pressing this key will increase the size of objects being created by the Image Generator. You can hold this key down in order to rapidly change object sizes.

## **F7**

Pressing this key will increase the rate at which objects shrink while they are on the screen. Pressing this key will also reverse the effect of function key F8.

## **F8**

Pressing this key will increase the rate at which objects expand while they are on the screen. Pressing this key will also reverse the effect of function key F7.

## **SHIFT + F1 - F8**

Pressing these keys will affect an Image Generator in different ways depending on the Image Generator. The Image Generators currently supplied with MIDIART do not handle these function keys. (They do not modify the graphics in any way.) Future MIDIART Image Generators may use these extended function keys to perform other special effects.

# Program Control Keys

The following command keys listed below will control the general function of the MIDIART program itself:

## q

Quits the MIDIART program and returns you back to the Windows operating system.

## ESC

Also quits MIDIART and returns you back to the Windows operating system.

## F1

Stops the music being played and brings up the MIDIART configuration window. If you select a new Image Generator and then select 'OK', the current song will start from the beginning and new graphics will be created. You can also select a new song or songs before selecting 'OK'.

## ?

Stops the music and displays the MIDIART Keyboard Command Summary dialog box.

## h

Returns you to the Windows operating system but continues to play the current song. This key stands for HIDE and will allow you to do other tasks on the computer while MIDIART continues to play music. To go back to MIDIART graphics, double-click on the MIDIART icon on the Windows desktop.

## L

Displays or hides the MIDIART control bar. For information on using the control bar, refer to "[Using MIDIART](#)".

## w

Shrinks the MIDIART graphics display window. To move the graphics window, press and hold the 'CTRL' key while pressing the arrow keys.

## W

Enlarges the MIDIART graphics display window. To move the graphics window, press and hold the 'CTRL' key while pressing the arrow keys.



## f

Expands the MIDIART graphics display window to cover the full screen. Use this key to restore the graphics window to its full size.

## R

Disables the random Image Generator selection mode. Normally, before MIDIART begins playing a new song in the song list, a new Image Generator is selected at random. Pressing this key once will disable this mode. Pressing the key again will re-enable the random selection mode.

## S

Saves the sequence of key presses that were pressed during the performance of the current song. (The key presses are saved in a file with the same name as the MIDI file that was selected along with the .MKP extension.) The next time MIDIART plays this MIDI file, the same keys will automatically be pressed in the same order, and at the same positions in time. You must remember to press the 'S' key sometime before the end of the song. (Refer to "Creating a MIDIART Performance".)

## D

Deletes the key press file that was created when the 'S' key was pressed. If you want to store a new sequence of key presses, or simply do not want MIDIART to automatically press the sequence of keys that were previously saved for the current song, you can press the 'D' key at any time during the playback of the song.

## X

Deletes the current song configuration file. This file is created by pressing and holding the 'CTRL' key while clicking on the 'OK' button in the main MIDIART configuration dialog window. If you do not want MIDIART to restore the previously saved configuration for the current song, you can press the 'X' key at any time during the playback of the song. (Refer to "Creating a MIDIART Performance".)

# General MIDI Instrument List

The following is a list of musical instrument names that belong to the General MIDI instrument list. You can use this list to select different instruments for a particular musical part being played by MIDIART. (Use the LEFT and RIGHT-ARROW keys. Refer to "MIDIART Keyboard Commands".) To print out this list, select (File) and (Print Topic) from the menu above.

- 001 - Acoustic Grand Piano
- 002 - Bright Acoustic Piano
- 003 - Electric Grand Piano
- 004 - Honky-tonk Piano
- 005 - Rhodes Piano
- 006 - Chorused Piano
- 007 - Harpsichord
- 008 - Clavinet
- 009 - Celesta
- 010 - Glockenspiel
- 011 - Music Box
- 012 - Vibraphone
- 013 - Marimba
- 014 - Xylophone
- 015 - Tubular Bells
- 016 - Dulcimer
- 017 - Hammond Organ
- 018 - Percussive Organ
- 019 - Rock Organ
- 020 - Church Organ
- 021 - Reed Organ
- 022 - Accordion
- 023 - Harmonica
- 024 - Tango Accordion
- 025 - Acoustic Guitar (nylon)
- 026 - Acoustic Guitar (steel)
- 027 - Electric Guitar (jazz)
- 028 - Electric Guitar (clean)
- 029 - Electric Guitar (muted)
- 030 - Overdriven Guitar
- 031 - Distortion Guitar
- 032 - Guitar Harmonics
- 033 - Acoustic Bass
- 034 - Electric Bass (finger)
- 035 - Electric Bass (pick)
- 036 - Fretless Bass
- 037 - Slap Bass 1
- 038 - Slap Bass 2
- 039 - Synth Bass 1
- 040 - Synth Bass 2
- 041 - Violin
- 042 - Viola
- 043 - Cello
- 044 - Contrabass
- 045 - Tremolo Strings
- 046 - Pizzicato Strings

047 - Orchestral Harp  
048 - Timpani  
049 - String Ensemble 1  
050 - String Ensemble 2  
051 - SynthStrings 1  
052 - SynthStrings 2  
053 - Choir Aahs  
054 - Voice Oohs  
055 - Synth Voice  
056 - Orchestra Hit  
057 - Trumpet  
058 - Trombone  
059 - Tuba  
060 - Muted Trumpet  
061 - French Horn  
062 - Brass Section  
063 - Synth Brass 1  
064 - Synth Brass 2  
065 - Soprano Sax  
066 - Alto Sax  
067 - Tenor Sax  
068 - Baritone Sax  
069 - Oboe  
070 - English Horn  
071 - Bassoon  
072 - Clarinet  
073 - Piccolo  
074 - Flute  
075 - Recorder  
076 - Pan Flute  
077 - Bottle Blow  
078 - Shakuhachi  
079 - Whistle  
080 - Ocarina  
081 - Lead 1 (square)  
082 - Lead 2 (sawtooth)  
083 - Lead 3 (caliope lead)  
084 - Lead 4 (chiff lead)  
085 - Lead 5 (charang)  
086 - Lead 6 (voice)  
087 - Lead 7 (fifths)  
088 - Lead 8 (brass + lead)  
089 - Pad 1 (new age)  
090 - Pad 2 (warm)  
091 - Pad 3 (polysynth)  
092 - Pad 4 (choir)  
093 - Pad 5 (bowed)  
094 - Pad 6 (metallic)  
095 - Pad 7 (halo)  
096 - Pad 8 (sweep)  
097 - FX 1 (rain)  
098 - FX 2 (soundtrack)  
099 - FX 3 (crystal)  
100 - FX 4 (atmosphere)  
101 - FX 5 (brightness)  
102 - FX 6 (goblins)

103 - FX 7 (echoes)  
104 - FX 8 (sci-fi)  
105 - Sitar  
106 - Banjo  
107 - Shamisen  
108 - Koto  
109 - Kalimba  
110 - Bagpipe  
111 - Fiddle  
112 - Shanai  
113 - Tinkle Bell  
114 - Agogo  
115 - Steel Drums  
116 - Woodblock  
117 - Taiko Drum  
118 - Melodic Tom  
119 - Synth Drum  
120 - Reverse Cymbal  
121 - Guitar Fret Noise  
122 - Breath Noise  
123 - Seashore  
124 - Bird Tweet  
125 - Telephone Ring  
126 - Helicopter  
127 - Applause  
128 - Gunshot

## Special Image Generators

The MIDIART Image Generators listed inside the list box in the upper right corner of the MIDIART configuration dialog can be configured prior to playing a MIDI file. To configure an Image Generator, you must first select an Image Generator from the list box and then select the button labeled 'Configure'. When you select this button, a configuration dialog window will appear. The contents of the dialog will depend on the Image Generator you selected. Most MIDIART Image Generators have a standard configuration dialog used to change the graphic effects they create prior to playing a MIDI file. (Refer to "[Configuring Image Generators](#)".) Other Image Generators have special configuration dialogs that depend on the specific Image Generator. Below is a list of the special Image Generators you can configure prior to playing music. To get help on configuring one of these Image Generators, select the name of the Image Generator below.

[Bitmaps](#)

[Mixer](#)

# Configuring the 'Bitmaps' Image Generator

The 'Bitmaps' Image Generator has the ability to display bitmapped images synchronized to the music. A sequence of bitmapped images can be assigned to each of the 16 MIDI channels. After assigning these images, the Image Generator will display the sequence of images assigned to a MIDI channel when musical notes are playing on the MIDI channel. The bitmapped images this Image Generator can display must be in the Microsoft .BMP format. The bitmaps can be in 16 color or 256 color format.

Before configuring this Image Generator, you should first select a MIDI file that you want to play using this Image Generator. Use the 'Select File(s)' button and the 'Current File' list box to select the MIDI file you want to play. By first selecting a MIDI file, you will be able to view the names of the instruments assigned to each MIDI channel from within the Image Generator configuration dialog. Remember that these instrument assignments apply to the current MIDI file only. When another MIDI file is selected, the musical instruments will be assigned differently.

To assign bitmapped images to a specific MIDI channel, select the MIDI channel number from the configuration dialog box. Then select a frame number starting at frame number one. Next, select the button labeled 'Bitmap File'. A file selection dialog box will appear with a list of .BMP files. Use this dialog to select a directory and a bitmap file in which to assign to the MIDI channel and frame. After you select a .BMP file, the bitmap image will appear in the configuration dialog window. The process of selecting .BMP files can be repeated for all 16 frames and all 16 MIDI channels. The sequence of frames can be used to create an animated sequence while the music is playing.

Three other buttons are also available in this configuration dialog window. These buttons and a description of how to use them are listed below:

## ***Copy Button:***

You use this button to copy all bitmaps assigned to a MIDI channel to another MIDI channel, or to copy a single bitmap assigned to a frame to another frame. First select a MIDI channel or frame. Next, select the button labeled 'Copy'. Finally, select the MIDI channel or frame you want the bitmapped image or images copied to.

## ***Swap Button:***

You use this button to swap all bitmaps between two MIDI channels, or to swap a single bitmap between frames. First select a MIDI channel or frame. Next, select the button labeled 'Swap'. Finally, select the MIDI channel or frame you want the bitmapped images or image swapped between.

## ***Clear Button:***

You use this button to clear or un-assign bitmaps assigned to a MIDI channel or frame. First select the button labeled 'Clear'. Then select the MIDI channel or frame you want to clear.

## Configuring the 'Mixer' Image Generator

The 'Mixer' Image Generator has the ability to mix or combine the visual elements created by the other MIDIART Image Generators. You can assign the visual elements created by any Image Generator to a musical instrument playing on a specific MIDI channel.

Before configuring this Image Generator, you should first select a MIDI file that you want to play using this Image Generator. Use the 'Select File(s)' button and the 'Current File' list box to select the MIDI file you want to play. By first selecting a MIDI file, you will be able to view the names of the instruments assigned to each MIDI channel from within the Image Generator configuration dialog. Remember that these instrument assignments apply to the current MIDI file only. When another MIDI file is selected, the musical instruments will be assigned differently.

To assign an Image Generator to a specific MIDI channel, first select a MIDI channel number from the list on the left side of the configuration dialog window. Then select an Image Generator from the list box on the right side of the dialog window. Repeat this process for each of the 16 MIDI channels.

The button labeled 'Set All' is a quick way of assigning a single Image Generator to all 16 MIDI channels. Simply select an Image Generator and then press the button labeled 'Set All'.

The button labeled 'Configure' is just like the Configure button contained in the main configuration dialog. You use it to configure the Image Generator you selected in the list box. (Refer to "[Configuring Image Generators](#)".)

### Controlling the 'Mixer' Image Generator:

When the 'Mixer' Image Generator is being used while music is playing, the image controlling function keys F2 through F8 (Refer to "[MIDIART Keyboard Commands](#)") will be applied to the Image Generator assigned to the currently selected MIDI channel. This means that if you want the function keys to apply to all Image Generators assigned to all MIDI channels, you must press the '=' key before pressing a function key. If you want the function keys to apply to only one Image Generator assigned to a single MIDI channel, you must press a number key in order to select a single MIDI channel, before pressing a function key. For example, to apply the 'F3' function key to the Image Generator assigned to MIDI channel five, you must first press the '5' key, followed by the 'F3' key. Remember that in order to select MIDI channels 11 through 16, you must press and hold the SPACE bar key along with one of the number keys '1' through '6'. The '0' key selects MIDI channel number 10.

## Creating a MIDIART Performance

After you become familiar with MIDIART and learn how to control the images it creates, you will probably realize that it would be nice to be able to save all the configuration options you selected, as well as all the key presses you used to change the graphics or sound while a particular song was playing. Well the author of MIDIART thought this would be nice too, and added this capability through the use of special command keys.

This section explains how you can save configuration options and key press information with a specific MIDI file. Once this information is saved, MIDIART will automatically restore the configuration options and re-play the key presses for you. By saving this information for a number of MIDI files, you can create a unique MIDIART performance or demonstration which you can use to impress all your friends.

In order to more easily describe the following procedure, let us assume that you have selected a single MIDI file in which to play, and that there are only two musical instruments playing in this song, one instrument on MIDI channel number 1, and the other on MIDI channel number 2. Let us also assume that you have selected the 'Mixer' Image Generator for this song, and that you used the 'Mixer' configuration dialog to assign two different Image Generators to each MIDI channel. You may want to go ahead and perform these steps now, and then follow along with the rest of the procedure described below.

After you have configured the 'Mixer' Image Generator, select the 'OK' button in the main MIDIART configuration dialog. Next, after the song begins to play, you should press the 'R' key which will prevent MIDIART from selecting a new Image Generator at random when the song ends. Next, press the 'b' key in order to back up and begin playing the song again. (Don't use the 'r' key because you do not want to save this key press as we will see later.) Next, you should press some function keys to change the graphic image. Let us assume you press '1' followed by 'F7', which will affect the Image Generator on MIDI channel number 1. Then you press '2' followed by 'F8' to affect the Image Generator on MIDI channel number 2. After you press these function keys, or any other MIDIART command keys that you would like, you should press the 'S' key. The 'S' key will save the previous key presses to a MIDIART key press file. (This file will have the same name as the MIDI file, but will have a .MKP extension.)

After you press the 'S' key, press the 'b' key again and watch the magic. You will notice that as MIDIART is playing the song, it will automatically press the same keys again in the same order and at the same positions in time. In fact, every time you select the song, the same keys will be pressed. If you want to stop this behavior, you must press the 'D' key while MIDIART is playing the song. This will stop the automatic key pressing, and delete the key press file. Note also that if you have already created a key press file using the 'S' key, you must press the 'D' key before saving a new sequence of key presses.

The 'S' key will save key press information for a particular song but it does not save the Image Generator configuration information. For example, after you save key presses for a song, you can use the configuration dialog to select a new Image Generator and then play the song again. You will notice that the keys you saved will automatically be pressed again, but they will be applied to the new Image Generator. If you want the same Image Generator and color selections automatically selected each time you play a particular song, you will need to save the configuration information



with the song. To do this, press 'F1' to bring up the main configuration dialog. Then press and hold the 'CTRL' key while you click on the 'OK' button in the dialog window. This will save the current Image Generator and other configuration information in a file before the song begins to play. (This file will have the same name as the MIDI file, but will have a .INI extension.) You will now notice that every time you play this song the same Image Generator is selected regardless of what you select in the configuration dialog. If you want to stop this behavior, you must press the 'X' key while MIDIART is playing the song. This deletes the song configuration file and allows you to change the Image Generator and color selections once again.

### **Note:**

Be careful you do not begin configuring an Image Generator when you have a MIDI file selected that has configuration information saved with it. You will know if there is configuration information saved with the MIDI file by looking at the file name displayed in the "Current File" list box. If the MIDI file name is followed by an asterisk (\*) symbol, this means that configuration information is saved with the file. The configuration information stored with the file will automatically be restored when you begin playing the file, and you will lose any settings you previously set. Make sure you select a MIDI file that does not have an asterisk by the name, or delete the configuration information by pressing the 'X' key while the song is playing. Also note that if a caret (^) symbol is next to a file name in the "Current File" list box, this means there is key press information saved with the MIDI file.

You now know how to create a complete MIDIART performance. You simply save the key press and configuration information for one or more MIDI songs. After this, you simply select the set of songs that you just configured using the 'Select File(s)' button in the configuration dialog window. When you begin playing the songs, MIDIART will reenact your performance for each song.

You may need to read through the above procedure one more time and then do some experimentation. After that, you should be on your way to creating your own unique MIDIART performances.

### **Exchanging MIDIART Performances:**

After you become proficient at creating MIDIART performances, you may want to show other MIDIART users your "work of art". With the availability of electronic mail on today's online systems, it's easy to send your friends your performance simply by sending them the following files:

- 1 The standard MIDI file you used when creating the performance. (For example, COOLTUNE.MID.)
- 2 The MIDIART key press file (COOLTUNE.MKP).
- 3 The Image Generator configuration file (COOLTUNE.INI).

After you send these files, the person receiving them can simply select the file COOLTUNE.MID and begin playing it with MIDIART. It's that simple. Good luck and have fun...

# Trouble Shooting Guide

The following is a list of problems you may encounter when you begin using MIDIART for the first time. If you are having problems, quickly scan this list to see if there is a quick solution.

## **Problem:**

MIDIART displays graphics but does not generate any sound.

## **Possible Solution:**

If you are using a sound card, make sure you have correctly installed the software that came with the sound card using Microsoft Windows. There must be a Windows device driver correctly installed. Also make sure you have selected the correct output device in the MIDIART configuration dialog.

## **Problem:**

The music does not sound right. There are wrong musical instruments playing.

## **Possible Solution:**

The mostly likely cause of this problem is that you have a MIDI sound card or sound generator that is not general MIDI compatible. You will need to select the Microsoft MIDI Mapper as the MIDIART output device and then create the correct "Setup" in the MIDI Mapper program. Refer to the "[Using MIDIART](#)" section.

## **Problem:**

Sometimes when I select a MIDI file, the "Active Channels in Current File:" list does not contain the names of instruments playing on the different MIDI channels. I see "No track name" listed for each MIDI channel.

## **Reason:**

The information listed in the "Active Channels" list is obtained from track name information stored in the standard MIDI file. Unfortunately, this information is not a required component of the standard MIDI file. Most, but not all standard MIDI files will contain this information. It is up to the person who records the MIDI data to place track name information in the file.

## **Problem:**

The musical instruments do not sound very realistic on my sound card.

## **Solution:**

MIDIART sends MIDI data to your sound card and the sound card then creates music by using an on board FM synthesizer chip. This synthesizer chip can only crudely approximate the sound of real musical instruments. To produce more realistic sound, you should purchase an external MIDI sound generator, (an example would be the Roland Sound Canvas) or a more advanced sound card, such as the Roland RAP-10 card. A MIDI sound generator or advanced sound card contains digital recordings of real musical instruments stored in electronic memory. (These digital recordings are sometimes called wave tables or sound samples.) The difference between MIDI music played on an inexpensive sound card and music played on an MIDI sound generator is like night and day. You can purchase a MIDI sound generator or an advanced sound card at a good music store or through mail order catalogs.

### **Problem:**

MIDIARTs' graphics do not keep up with the music being played.

### **Solution:**

MIDIART is a program that is very CPU and graphics hardware intensive. Its' performance will depend on both your CPU and on your graphics video card. If you have a 386 or slow 486 PC, you should purchase an accelerated graphics video card. This will not only improve the performance of MIDIART but all Windows applications. If you can't afford such a luxury, try un-checking the boxes shown on the right side of the MIDIART configuration dialog box. When a box is un-checked, the selected Image Generator will not produce graphics for the musical instrument assigned to that MIDI channel.

### **Problem:**

The 'Color Cube' Image Generator does not create a moving graphic image. (An image is created only when the 'c' key is pressed.)

### **Solution:**

Some MIDIART Image Generators use an animation technique called color cycling. Color cycling requires a graphics video device driver capable of displaying 256 colors simultaneously. If the 'Color Cube' Image Generator does not create a moving image, the graphics video device driver you have installed on your system can only display 16 colors. If you have a super VGA video card installed in your system, you should install a 256 color device driver using the Windows Setup program located in the Program Manager Main group.

### **Question:**

Why can't MIDIART perform its' magic using .WAV files?

### **Reason:**

One must be aware of the fact that .WAV files do not contain musical information like .MID files. .WAV files contain sound information, which can be anything from the sound of musical instruments to the sound of a barking dog. MIDIART uses musical events (notes) to create images and these

events can not be isolated within a .WAV file. In the distant future, someone may figure out a way of isolating these musical events within a .WAV file, but right now the technology is not available.

## Registration Details

MIDIART is being distributed as shareware. This form of software distribution allows you to try out the software for thirty days free of charge. If you find this program interesting and fun, and find that you are using MIDIART after the thirty day period, you must register the software for a small fee. When you register, you will receive additional features and will be eligible for future software upgrades. If you do not register, you will be violating federal copyright law.

If you register MIDIART today, you will receive the following added benefits:

- A registered copy of the MIDIART program. The registered version does not contain the registration reminder window that appears before the main configuration window. This registered version also allows you to play any standard MIDI file without restriction.
- A Windows screen saver version of MIDIART. This program can be installed as a screen saver in the Windows desktop control. When your computer is left idle for a specified time, MIDIART will begin performing its magic.
- Four additional Image Generators will be included with the registered version. They are called "Mixer", "Bitmaps", "Cosmic I", and "Cosmic II". The first two Image Generators are the "Special" Image Generators that are referred to in the documentation. The "Mixer" Image Generator has the ability to mix or combine the visual elements created by the other MIDIART Image Generators. This allows you to assign specific visual elements to a specific musical instrument. The "Bitmaps" Image Generator has the ability to display bitmapped images synchronized to the music. A sequence of bitmapped images can be assigned to each of the 16 MIDI channels. This allows you to create your own musical animations. And finally, "Cosmic I" and "Cosmic II" are hot off the press. These last two Image Generators are the authors favorite and are truly mind altering.
- Announcements of future software upgrades and new Image Generators that will be developed for MIDIART.
- Technical support available via CompuServe or the Internet. You can send questions via electronic mail to the author of MIDIART.
- Documentation describing how to create your own MIDIART Image Generators. (You must have knowledge of computer programming.) MIDIART invokes Image Generators via a Microsoft Windows DLL (Dynamic Link Library). This documentation will describe how to build this DLL so that you can create your own MIDIART images. The possibilities are endless.

### How to Register

## How to Register

MIDIART is being distributed by Pik A Program, Inc. If you are ordering by mail or fax, please completely fill out the order form contained in the help topic below and send it in. (To print the order form, select the Order Form topic and then select "File" and "Print Topic" from the help file menu.)

If you are ordering by e-mail or fax-modem, you can fill out the order form contained in the file ORDERFRM.WRI (MS-Write format) or ORDERFRM.TXT (DOS Text format) and send it electronically.

Important: If you are sending a check or money order, please make sure that payment is made in US funds drawn on a US bank. Please make checks/money orders payable to Pik A Program, Inc.

You can also place your order by phone by calling toll free at:

1-800-867-3447

Technical support is not available from Pik A Program. For any technical help, please contact AJF Consulting directly online:

Compuserve: 73612,3116 (or GO PIKAPRO (PCVENH, section 18))  
Internet: 73612.3116@compuserve.com

For registered users of any program which Pik A Program distributes, who do not already have access to Compuserve, we can supply a FREE Compuserve membership with a \$15.00 usage credit and access software. This is much more than enough online time to have your technical support questions answered, and still have some fun!

### [Order Form](#)

**AJF Consulting, Inc. / Pik A Program Order Form:**

Please send this completed order form, along with payment to:

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 13 Saint Marks Place  
 New York, NY 10003  
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 Compuserve: 74777,3233

TOLL FREE (Orders only) 1-800-TOREGISTER  
 (867-3447)  
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## **Image Generators**

A software component of the MIDIART program that is responsible for creating the computer graphics that visualizes the music. An nearly infinite number of Image Generators can be developed and "plugged into" MIDIART in the future.

## **Microsoft MIDI Mapper**

The Microsoft MIDI Mapper is a program available from the Microsoft Windows control panel. The main purpose of the MIDI Mapper is to convert or map General MIDI channel numbers and instrument numbers to the correct channel and instrument numbers used by older MIDI devices or sound cards that do not conform to the General MIDI standard.



