Art Song™   Help

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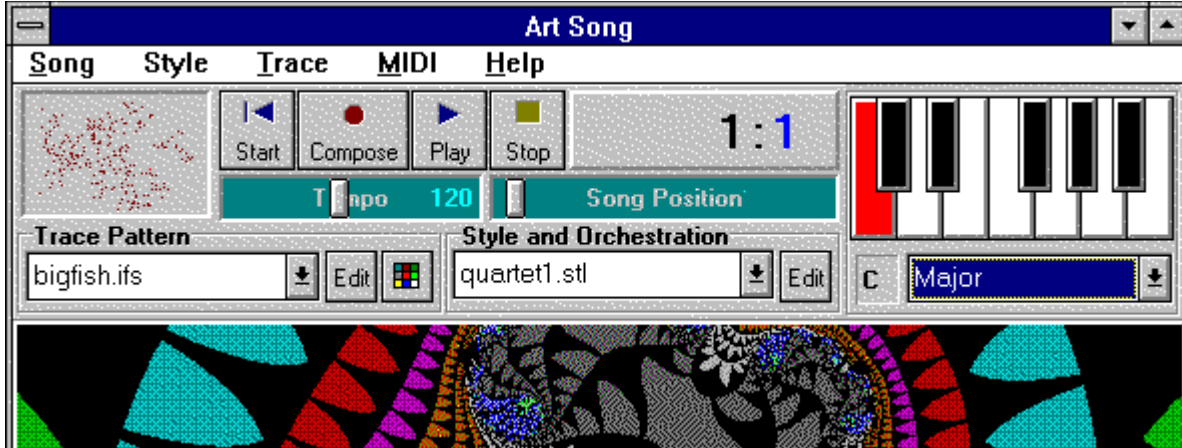
Help Version

Help Version 2.0 for **Art Song** Release 2
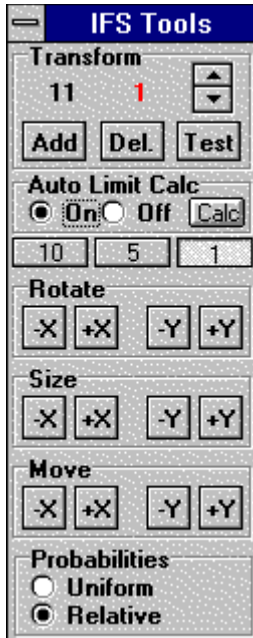
DT Strohbeen

Tuesday, January 30, 1996

![Main Screen icon]

Main Screen

![Art Song application window showing menu bar with Song, Style, Trace, MIDI, Help; playback controls Start, Compose, Play, Stop; Tempo 120; Song Position; piano keyboard; Trace Pattern bigfish.ifs; Style and Orchestration quartet1.stl; C Major; and colorful graphic display below]

Click on the buttons for a brief description.

Trace Pattern Editing Tools Window

IFS Tools

Transform
11   1   ▲▼

[Add] [Del.] [Test]

Auto Limit Calc
⦿ On ◯ Off [Calc]

[10] [5] [1]

Rotate
[-X] [+X] [-Y] [+Y]

Size
[-X] [+X] [-Y] [+Y]

Move
[-X] [+X] [-Y] [+Y]

Probabilities
◯ Uniform
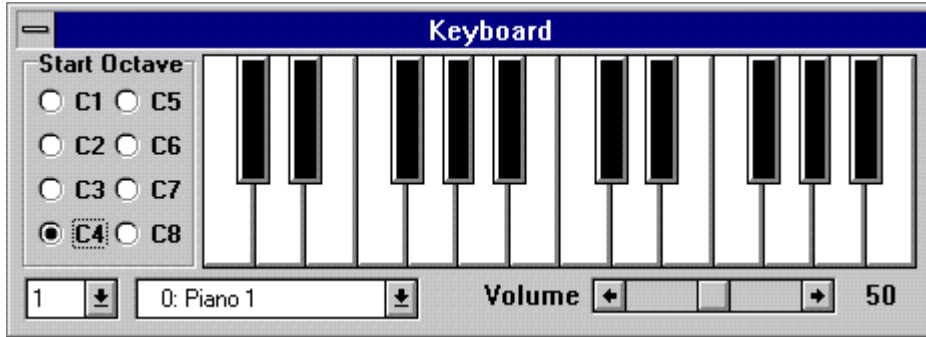⦿ Relative

Click on the buttons for a brief description.

Keyboard

Click on the buttons for a brief description.

Styles Window

Style: Orchestration and Arrangement

N	Volume	Pan
1	64	0
2	64	0
3	64	0
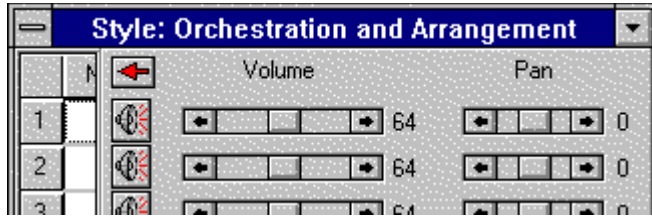
Click on the buttons for a brief description.

Scales Window

Scales

Minor Pentatonic

| Major |
| Major Pentatonic |
| **Minor Pentatonic** |
| Blues |
| Natural Minor |
| Harmonic Minor |
| Melodic Minor |
| Dorian Minor |
| Phrygian Minor |

New

Delete

Clear

Save

Load

Done
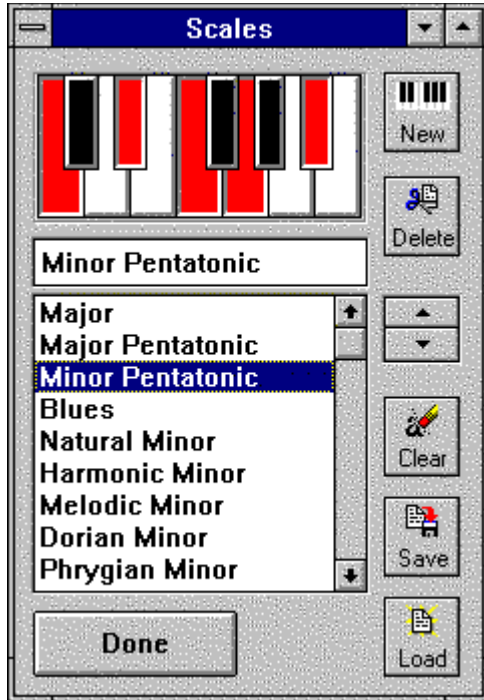
Click on the buttons for a brief description.

New Song

Erases all the existing MIDI note data, creates a new empty sequence, and reloads the currently selected Style.

After composing a complex sequence comprised of multiple Styles, this option should be used to reset the Style compositional parameters.

Open a MIDI File

Opens a dialog box allowing you to select and open an existing standard MIDI file.

Select or type the name of the MIDI file you want to open in the Dialogs Filename Box.

Art Song can read both type 0 and type 1 standard MIDI files.   Only the first 10 tracks of type 1 MIDI files are used.

Save a MIDI File

This saves the current MIDI sequence using the current sequence name.   Use this option to save changes to a sequence that was opened or previously saved using the Save As... command.

If **Art Song** does not know the name of a sequence, a dialog box will open requesting a name.

Save a MIDI File As...

This command displays a dialog box allowing you to save the current MIDI sequence as a new MIDI file.

Compose

This command initiates generation of MIDI data based on the current style setting and outputs the data to the specified MIDI device. Each time a new sequence is composed, the previous sequence data is erased.

Scale changes will occur on a Beat.   If a different Style is selected during composition, it will start on a measure boundary.

If you wish to protect particular parts from being erased , Turn it off.   New data is not created for instrument parts that are turned off.   This feature can also be used to add new parts to previously composed or saved sequences, but only works when only one Style is used.   When composing sequences comprised of several Styles, **Art Song** automatically turns on/off parts based on the new Style.

A marker is provided to allow you to follow the trace path as data is generated; please note that every point visited is not displayed.   The color of this marker can be changed to make it visible over various image colors.

The current measure and beat (Time Signature 4/4) are displayed to the right of the **Play** button.

Play

This command toggles on and off output of the current sequence.
Select this command to hear the current sequence or the most recently composed sequence.   Select again to stop play.

Exit

Ends an **Art Song** session.

New Style

Creates a new Style.   Resets all style parameters to default values and erases the current sequence data.

Save Style

Saves the active Style with the name and location previously set either from the loaded Style or from the Save As dialog box. When you save a Style for the first time, **Art Song** displays the Save As dialog box. If you want to change the name or location of an existing Style, choose the Save As command.

Save Style As...

Displays the Save As dialog box, where you can specify the name and location to save the active Style.

Change Style Directory

Opens a File Dialog box to allow you to specify the directory to search for Style *.STL data files. All the Style files found in the directory will be displayed in the Style List Box.

Load a new Image...

Opens a Dialog box for you to specify a location and filename of a windows bitmap file *.BMP to open.

Edit Style

This opens the Style Window.

New Trace Pattern

Clears current trace pattern and opens <u>IFS Tools</u> Window to allow creating a new IFS Code.

Save Trace Pattern

Saves the active IFS Code with the name and location you previously set in the Save As dialog box. When you save a Trace Pattern for the first time, **Art Song** displays the Save As dialog box. If you want to change the name, or location of an existing pattern, choose the Save As command.

Save Trace Pattern As...

Displays the Save As dialog box, where you specify the name and location to save the active IFS Code.

Change Directory

Opens a File Dialog to allow you to specify the location of the directory to search for IFS Code *.IFS data files.   All the IFS Code files found in the directory will be displayed in the Trace Pattern List Box.

Edit Trace Pattern

Click on the Trace Pattern **Edit** Button to change the Image to the IFS Code transform display and open the IFS Code Editing Tools Window.

The transforms in the IFS Code are displayed as outlined rectangles.   The selected transform is displayed as a filled rectangle; its coefficients are displayed in the bottom of the window.

MIDI Out

This command opens a window displaying the MIDI Output devices available on your computer.   Select a MIDI devices to open or close by clicking on it.   Open devices are highlighted.

The first device opened become the default used by all instruments.   Change the MIDI Port parameter in the Styles window to output an instrument part over a different (non-default) MIDI device.

MIDI Keyboard

This command opens a window containing a keyboard to plays over the default MIDI Out device.   Useful for determining MIDI pitch ranges.

Copyright

You can provide a copyright notice for your original MIDI files by entering the text in the window provided.

Rewind

Resets the playback position to the beginning of the current sequence.

Keyboard

Use this Keyboard to select the Scale Root for Composition.

Scale List

Selects the scale used for composition.

Scale Root

Displays the Scale Root used in composition.

Stop

Stops MIDI composition or playback. You can also stop composition or playback by clicking on the Compose or Play buttons respectively.

Trace Pattern List

Displays a list of all the available Trace Pattern generation codes in the active directory.   You may change the active directory either from the menu or by pressing the SPACEBAR when this List Box is active.

The path of the currently selected trace pattern is displayed in the upper left of the Main Screen.

Iteration Marker Color

Opens a dialog box that allows you to change the color of the marker which displays the trace pattern during composition.

Style List

Displays a list of all the available Styles in the active directory.   You may change the active directory either from the menu or by pressing the SPACEBAR when this List Box is active.

Image and Transform Display

This area displays either the bitmap image used for composition or the individual transforms of the Trace Pattern Generation Code (IFS Code) during editing.

Directory List

Select the active directory for the Trace Pattern generation codes or the Styles.
This area may be toggled on and off either by using Menu commands or by pressing
the SPACEBAR when the respective List Boxes are active.

Tempo

Adjusts the tempo of MIDI output.

Measure and Beat

Displays the current song position in Measures:Beats.   The beginning of a sequence is 1:1.

Song Position

This parameter controls where play begins and displays the current location of play, relative to the total length of the sequence.   The Measure and Beat is displayed above.

Add Transform

Adds a new transform to the current IFS Code and makes it active.

Delete Transform

Deletes the active transform from the IFS Code.

Test Pattern

Iterates the IFS Codes and displays the path to see the effects of an edit.

Auto Optimize

When on, each time the current IFS Code is edited or a new IFS Code is loaded the bounds of the attractor are calculated and mapped to the available display area. This ensures that the pattern stays within the confines of the image display.

Calculate View Limits for IFS Code

Clicking on this button forces re-calculation of the IFS Code Limits.   The limits are calculated such that the trace pattern is entirely within the limits of the Image.

Sensitivity

Sets the Edit sensitivity: 10,5,1.   The higher the sensitivity, the greater the change when using the Rotate, Size, or Move buttons

Transform Rotate

Rotates the currently selected transform around the X (horizontal) or Y (vertical) axes.

A true rotation will consist of equal rotations around the X and Y axes.

The transform can be skewed by unequal rotation around the X and Y axes.

Transform Size

Increases the size of the transform.

Transform Translate

Moves the selected transform in the X and Y direction.

You can also pick up the transform at its vertices with the mouse and drag it.

Transform Selection Probabilities

There are two mode of assigning probabilities to the individual transforms. Uniform (all transforms have the same selection probabilities) and determinant relative (probabilities are based on the size of the determinant).   The larger a transform appears in the edit display,   the larger its determinant.   Select the determinant relative probabilities when the transforms appear to vary greatly in size.

Transform Select

The number of transforms in the active IFS Code and the currently selected transform are located to the left of this button.   This spin button can be used to select a particular transform for editing.

A transform can also be selected by clicking within its area with the mouse.

Number of Transforms

The number of transforms in the Trace Pattern generation code (IFS Code).

Active Transform

The currently active transform.   This is the transform which receives the edits.

Starting Octave

Select the starting octave for the Keyboard MIDI pitches.

MIDI Channel

Sets the MIDI channel for the keyboard.

MIDI Patch

Sets the MIDI patch for the keyboard.

MIDI Volume

Sets the volume for the keyboard.

Keyboard

This two octave keyboard allows you to play over the default MIDI out device.
It can be used to check whether devices are functioning properly, or to determine
note generation ranges for particular instruments.

Instrument Display Toggle

Toggles the Style window to provide access to all the Style parameters.

Style Performance Parameters

This section of the Styles window contains the performance parameters for each part.

Mute
Toggling this button turns on/off the volume on the selected instruments MIDI channel.   Although there is no volume, MIDI sequence generation is not affected.

If multiple instruments share the same MIDI Channel, turning the volume off on one will turn the volume off for all that share that channel.

Volume
Sets the MIDI volume for each particular instrument track.

Pan
Sets the placement of the instrument in the stereo field.

Style Orchestration and Algorithmic Composition Parameters

This section of the Styles window contains the orchestration parameters that control the instrument sounds used for each part, and the algorithmic composition parameters that determine how the colors of the image are converted into MIDI data.

Select an instrument and parameter for editing by clicking within the grid cell.   You may move between cells using the **Arrow** or **Tab** keys.   Many cell values, such as MIDI Patch or Channel, can be edited both by using the spinbutton which appears or by directly entering a value from the keyboard.

Part Number
Each of the 10 parts has a unique identifier number.

You may **copy** the style parameters from one part to another by clicking on a **Part Number** and dragging it to another part number.   Only style parameter data is copied, not any existing MIDI note data.

You may clear MIDI events from a part by double-clicking on the **Part Number.**

On/Off
Click in this column of the parameters grid to toggle parts on and off for algorithmic composition.   New note data is only generated for parts that are on.   Turning a part off saves the current MIDI data from being overwritten during subsequent composition.
Please Note, however, this will not work if you change styles during composition; during Style changes parts are automatically turned on and off.

Use this option to add new parts to existing sequences or to build complex sequences using different scales for the different instrumental parts.

Name
You can add an optional name to the parts; this name is also saved in the MIDI file.

Channel
The MIDI channel can be set from 1 to 16.

When MIDI data exists on several different channels in the same part, no channel is displayed.   Setting a specific channel will force all the MIDI data to be sent to that channel.   A specific MIDI channel must be set in order to use the Patch, Pan, and Volume Options.

Patch
The MIDI patch can be set from 0 to 127.   Patch names conform to the General MIDI standard.

MIDI Port
When more than one MIDI output device is open use this parameter to assign the part to a particular device.

First Note
This is the first note for the composed part.   When a specific pitch is indicated, the first note in a composed sequence will be the closest actual pitch in the currently

selected scale.   If a pitch is not specifically indicated,i.e. First Note = 0, then the first note is randomly selected from the available pitch range.

A change in pitch range during composition does not take effect until the scale or root are also changed.

High Limit
The sets the upper limit for the MIDI pitch range. Values can range from the Low Limit to 127.

Low Limit
The sets the lower   limit for the MIDI pitch range.   Values can range from 0 to the High Limit.

Voices
This value can be set from 1 to 4 and reflects the number of simultaneous notes will be generated for this part.   Using this option allows you to create chordal parts.

Chord Type
The Voices parameter is set to a value greater than 1, this parameter determines how the individual pitches are arranged:
closed   =   1 3 5 7,   open 1   = 1 5 7 3, open 2 = 1 5 3 7

Base Unit
This sets the minimum note duration for the part.

Rhythm
If a string value is present and greater than 0, **Art Song** interprets the string as a set of integer duration coefficients to be applied to the base unit.   All non-numeric or zero-valued characters are ignored.

When set to a value of 1, all note durations will equal the base unit value.

This string must be set to 0 or null to use the Duration Mapping option below.

Tie
When toggled to yes, like pitched notes are tied.

Note Probability
This parameter reflects the probability of a note actually being generated.   This parameter can be used to reduce the note density of a part.

Pitch Map
Select RGB color component to map to MIDI note pitch.

Duration Map
Select RGB color component to map to MIDI note duration.   This option is disabled if the above rhythm string has a non-zero value.

Volume Map
Select RGB color component to map to MIDI note volume.

Dynamic Range
This value can range from 10 to 80 and determines the range of volume that can be generated for a particular part.   The higher the value for this parameter the greater

the possible contrasts in note volumes.

Articulation Map
Select RGB color component to map to MIDI note articulation. Articulation reflects that portion of the total note duration that the note actually sounds.

Phase
Each part generated follows its own trace pattern.   The Phase value determines the number of iterations between the starting x-y values for the different parts.   A phase of zero means that the consecutive parts start with the same initial x-y values for iteration.

Events
This is the number of actual MIDI events in a part. Currently the maximum number of events is about 8100 per part.   With a single voice, a note probability of 100%, and a Base Unit duration of a sixteenth note this corresponds to approximately 250 measures.

Scale Definition Keyboard

Define the pitches in a new scale or edit the pitches in an existing scale by toggling on the keyboard keys.

Pitch scales should be defined relative to a C root.   This scale will be transposed to other keys when a different root is selected on the main screen during composition.

Scale Name

Enter the name of a new scale or edit the name of an existing scale in this box.

Scale List

The various scales in the current scale list are defined here.

Done

Closes the Scales Definition Window.

New Scale

Creates an empty new scale in the scale list.   Use the keyboard to enter the scale pitches.   Enter a new name in the text box.

Delete Scale

Removes the selected scale from the list.

Clear Scale List

Clears all the current scales from the list.   You will be asked to verify that you want to erase all the scales.

Load Scale List

Allows you to load a previously saved list of scales.

At startup a default set of common scales (default.sca) is loaded.

Save Scale List

Allows you to save the current list of defined scales.

Art Song allows you to define and save custom scales for composition.   These user defined scale lists can be reloaded during future **Art Song** composition sessions.

Move Scale

Use these buttons to move the selected scale within the list.

Trace Display

The path created during iteration of the selected Trace Pattern (IFS Code) is displayed in this window.

IFS Coefficients

When editing the Trace Pattern, the actual numerical coefficients for the underlying affine transform are displaying in the bottom left-hand side of the image display area.

Affine Transform

The Trace Patterns are generated from an Iterated Function System. Editing a trace pattern essentially consists of editing the individual affine transforms that comprise the IFS Code. In Trace Pattern Edit mode, each of the displayed rectangles represents an affine transform in the underlying IFS Code.

Selected Transform

In Trace Pattern edit mode, all the individual affine transforms of the IFS Code are represented by rectangles.   The selected transform is represented by a filled rectangle.   All editing operations apply to this transform.

A transform may be selected either by clicking within its boundaries or by using the spinbutton in the IFS Tools Window.