



v o y a g e r s o u n d

**Voyager Sound GraphiMix™ System  
Shareware - 2007**

**GraphiMix™ Users Guide**

All references to Cryptkey™ have been deactivated in this shareware version of the software.

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## Introduction

Congratulations! You've just acquired the newest and most useful tool in audio production since the invention of the manual mix console.

The Voyager Sound GraphiMix system goes beyond mere manipulation of controls and empowers the audio engineer by providing a *unique method to visualize and control the sound*. This provides an alternative to 'glass console' controls and provides a 'Sound stage view' to better perceive and control multi-channel mixes. Easy to use templates are supplied to provide a 'quick start' graphic mix surface which can be modified and customized to almost any degree.



GraphiMix includes a graphic tool kit which gives the engineer the ability to create custom graphic mix surfaces to drive any MIDI-compatible hardware or software. The tool kit includes conventional as well as unique and innovative graphic controls which give the engineer an unprecedented level of control.

GraphiMix incorporates a very flexible system for data input and output. It can be used with almost any MIDI-compatible hardware ranging from PC sound cards to professional digital mix hardware and can be used with MIDI sequencers.

To use GraphiMix, you must first download and install it. If this hasn't already been done, see *Installation and Licensing for a Web Download.*, page 90.

For a quick demo and tutorial that only requires a PC sound card with MIDI synthesizer capabilities (which is most of them), click on the RunDemo icon in the GraphiMix Program Start Menu.

With GraphiMix running and attached to a supported target Mix Console, most controls available including effects, can be manipulated by using GraphiMix Mix Icons and Mix Forms, and any movement of controls on the Mix Console will be reflected in the change of position of the appropriate GraphiMix Mix Icons. For a complete description of the use of the keyboard and mouse with GraphiMix, see *Using the Keyboard and the Mouse*, page 57.

Additionally, users who have hardware mix surfaces or mix consoles can easily integrate these with GraphiMix and can easily link these together to create custom hardware Mix Surfaces for consoles and applications.

## **System Requirements**

A computer with a 500 Mhz or faster Pentium-class processor with system memory of 256 Megabytes minimum, is recommended. Windows™ 98, NT, ME, 2000, and XP are the supported operating systems.

Memory, resource usage, and responsiveness is a strong function of the number of graphic controls and Mix Forms that are on screen and accessible at any one time. To reduce the load on the system, the user can segregate less often used controls into a separate Scene or State which reduces resource requirements without impacting the utility of the session. Higher speed machines and more memory will permit faster system response times.

Microsoft operating systems currently have a serious limitation on the total number of MIDI devices (to 10). Only Windows™ ME and XP (currently) support more than this, so this may be a consideration if the user needs more than 10 devices. If you do attempt to install more than 10 MIDI devices on other Windows systems, MIDI may appear to work but will cause your system to be unstable. **Do not do this!**

To run the demonstrations provided with the release, the computer must be equipped with at least a sound card and stereo speakers. To work with external MIDI mixers and other hardware, the computer should be equipped with at least one external MIDI port (UART).

## **GraphiMix Overview**

The future of sound processing and mixing is in the digital box. Advanced performance is available using DSP technology at a very low price. The challenge is delivering this capability to the audio engineer.

The standard mix console has been around in its basic form since the 1930's. At that time, the control layout was dictated by the necessity of physically wiring the signals from control to control. The location of each control was determined by the electronic necessity of switching that signal there, and fading this signal here, between these two other signals over there, etc.

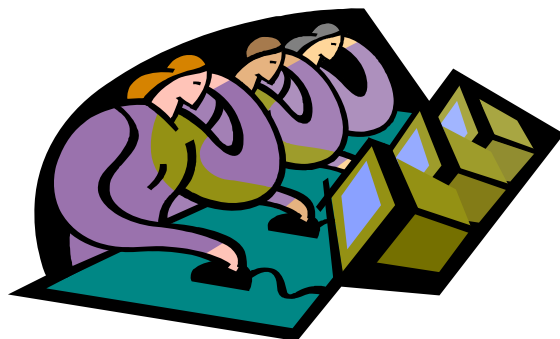


This method of control has persisted to this day. Until recently, the mix hardware still retained the necessity of routing and controlling physical audio signals. Although the size of the electronics got smaller and the number of features increased, this only resulted in more controls in as small a space as possible.

With the new DSP technology, the audio control layout and design is now entirely freed from any need to route the audio signal, yet the method of control invented years ago, still persists.

### ***Designing Audio vs. Just Moving Controls***

What is not accounted for was that a human engineer can only adjust 2 or 3 controls at a time. The need to simultaneously adjust a couple of channel levels, pan positions, reverb and effects parameters to effect a simple dynamic stereo mix could require two or more engineers.

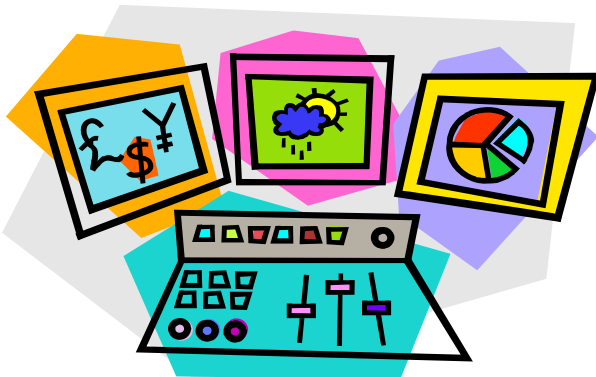


As hardware capabilities multiplied, the audio mix engineer's ability to control became more difficult. An increasingly sophisticated audience demanded better audio quality and more spectacular effects. Film, album production and multimedia all required more control than a single engineer could easily provide in real time.

Automated systems allow a sophisticated mix to be built, often a single ‘control layer’ at a time, but even relatively simple mixes in surround sound films can take hours to complete.



With the recent generation of audio mixer/effects-in-a-digital-box such as the Yamaha™ 01V™, 03D™, or 02R™ powerful capabilities are brought within the price range of the Music Instrument (MI) market. The audio quality is good enough to be useable by major studios. However, to keep the price low, these systems offer much less than full control of every feature separately. They have ‘assignable’ controls which must individually be attached to the audio parameter being controlled.



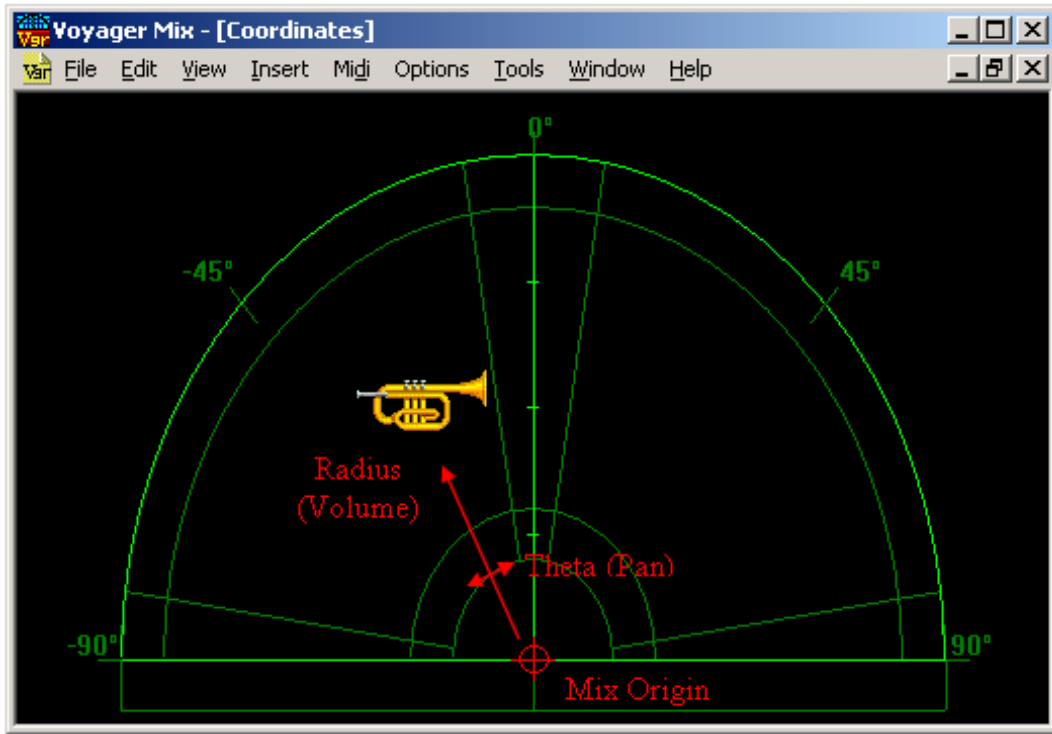
This recognizes that a single engineer can only adjust a few controls at a time, but does not address that engineer’s need to adjust many more parameters at the same time and in a coordinated fashion in order to produce high-quality, sophisticated sound mixes.

### ***The Visual Audio Environment***

Voyager Sound has developed and patented an entirely new and revolutionary approach to this problem. This intuitive, graphical system enables the audio engineer to visually perceive the control of mix and sound processing as input channel Mix Icons placed in output channel ‘space’.

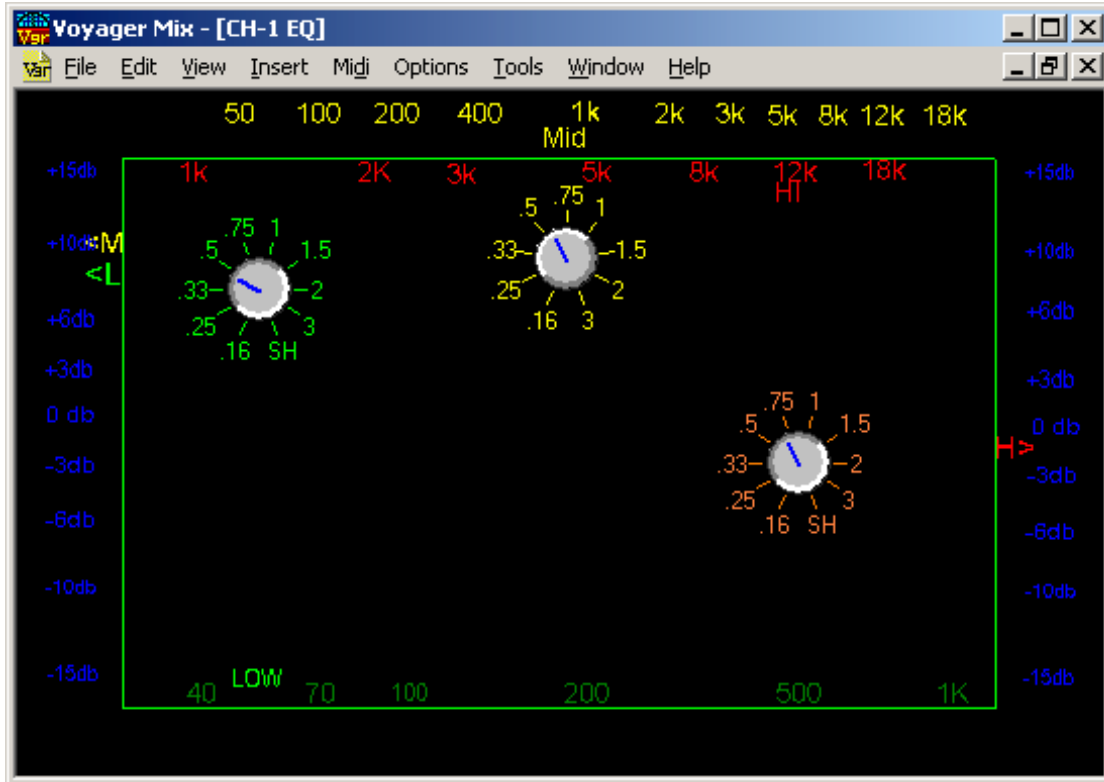
Since a human naturally processes visual information in terms of spatial relationships and appearances, this can be easily mapped to sound relationships and processing parameters.

## Basic Mix Form



The appearance of a Mix Icon can represent a source of sound. For example, an icon with the word SAX or a picture of a saxophone represents the sax channel. The color of that icon, or the position of a fader on a complex Mix Icon, could represent the tone control setting or filtering for that channel. The angular placement on a stereo screen could determine the setting of the pan position control. The icon's distance from a mix 'origin' could determine the overall channel level. And so on.

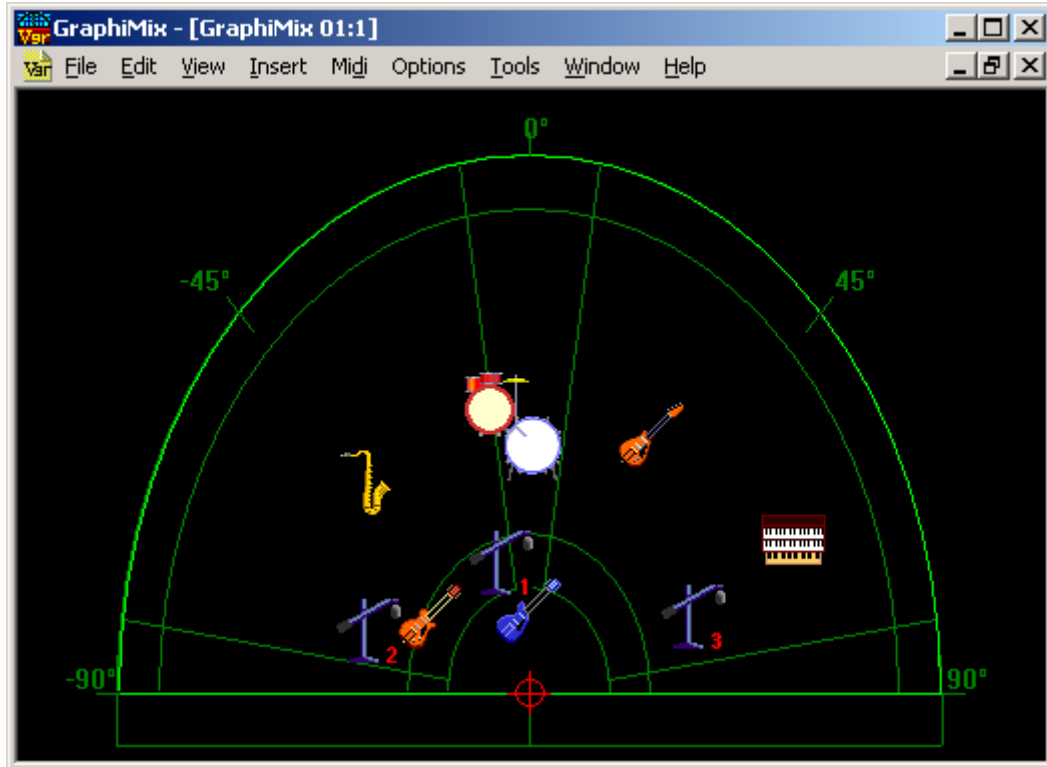
### 3 Band Parametric Equalizer



This concept can also be applied to the control of effects, where the output channel 'space' can be effects parameters. For example, the icon's distance from the origin can represent the amount or depth of reverb, or the amount of audio compression applied, or any other set of audio parameters. This mapping can be applied to any icon, so that the movement of a single Mix Icon represents the coordinated adjustment of many console 'knobs' and 'faders'.

This type of control is unavailable on any console available today and would require multiple engineers acting in a rehearsed and coordinated fashion.

## Stereo Mix Form Screen



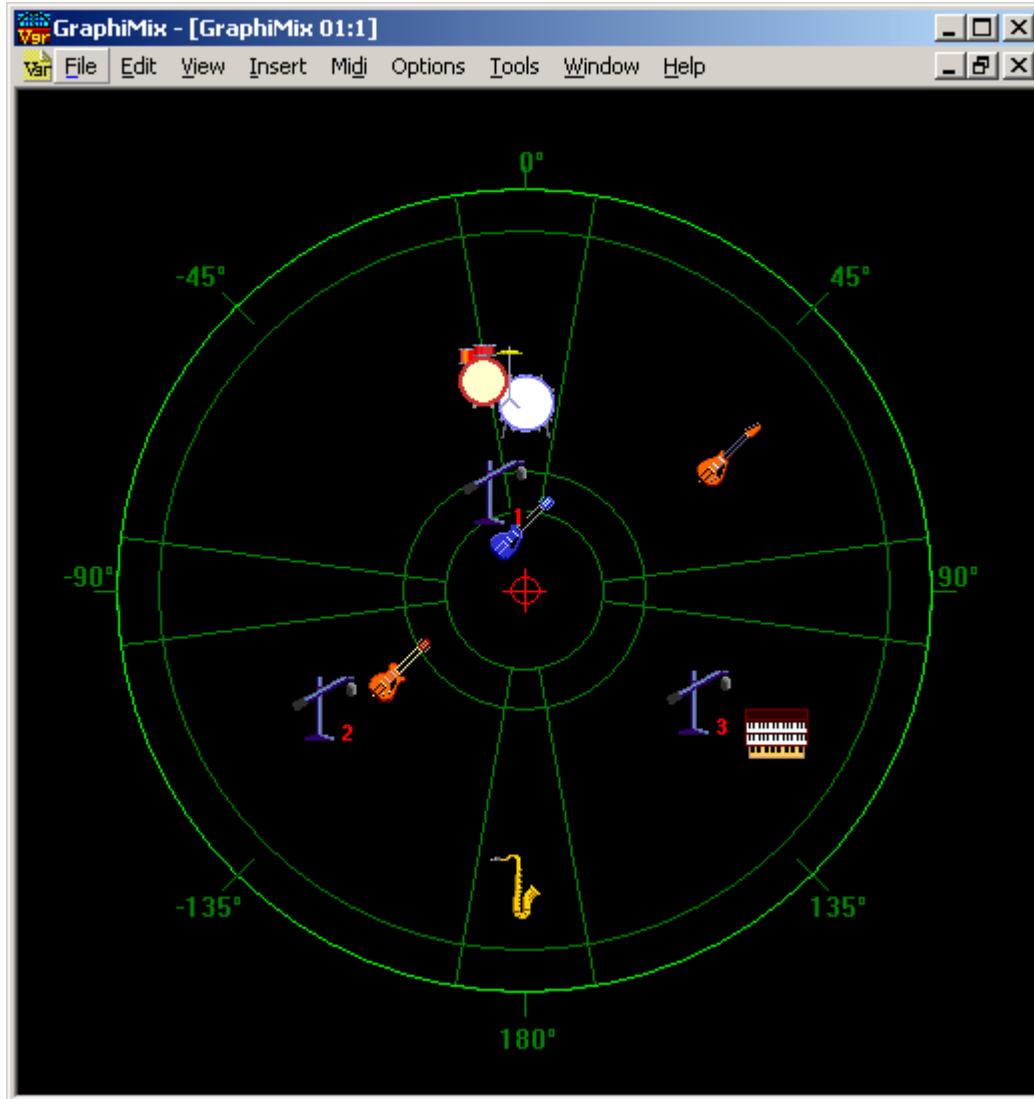
This representation is much more natural and easy to perceive and manipulate than an arbitrary array of faders, knobs and switches.

One or more channel icons can be placed on this screen, which could represent the full range of control of a stereo fader and pan-pot available on a normal console. Every position of the channel icon represents a unique setting for these two controls for that channel.

GraphiMix can also simulate the operation of a fader and pan-pot with two level controls, each from an input to a separate output bus. GraphiMix can also simulate faders and surround pan-pots using arrays of virtually any number of level controls and output channels

Multi-channel and surround sound will soon be the rule rather than the exception. Simulating realistic sounding effects and providing interactive control over 6 or 8 surround channels is impossible to do any other way. Single point 'physical fader' control is no longer sufficient. Conventional control of these channels would require a 'joystick' with four or more physically linked fader elements at each position. This quickly becomes expensive and impractical.

## Surround Sound Mix Form



This shows the Voyager Sound GraphiMix Surround Mix Form. Each Mix Icon placed on this Mix Form causes 4 or more channels to be automatically set appropriately to create a multi-channel mix. Additionally, the linking characteristic can be changed and modified in software to provide the ultimate in surround sound mix flexibility.

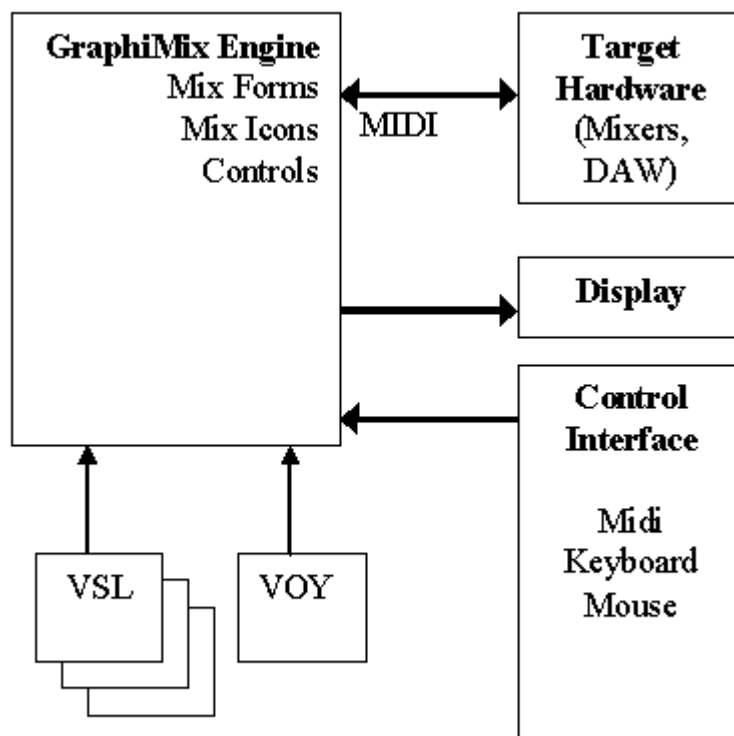
The Voyager Sound GraphiMix system makes it possible to really control the capability in the box. It can support large channel counts and still provide powerful creative and interactive control for the engineer. In film and multimedia mixing, the system is an enabling technology which will save time and money while simultaneously enabling much more sophisticated mix capabilities.

Voyager Sound has the only practical way to meet these requirements. Voyager Sound has a U.S. Device Patent (#5,212,733) and European Patent (#0 517 848), which grant Voyager Sound Inc. exclusive rights to this method of control.

## ***GraphiMix Input and Output***

The GraphiMix system allows coordinated operation of multiple controls on multiple hardware units with the movement of a single icon.

GraphiMix supports a complex interconnection of multiple hardware units and types. Surround Sound and multi-channel configurations can be easily created out of cascaded hardware units such as the Yamaha ProMix™ series of digital mixers as well as consoles from Tascam, Soundcraft, Behringer, and others. Additional mix hardware of any type integrates easily into the system.



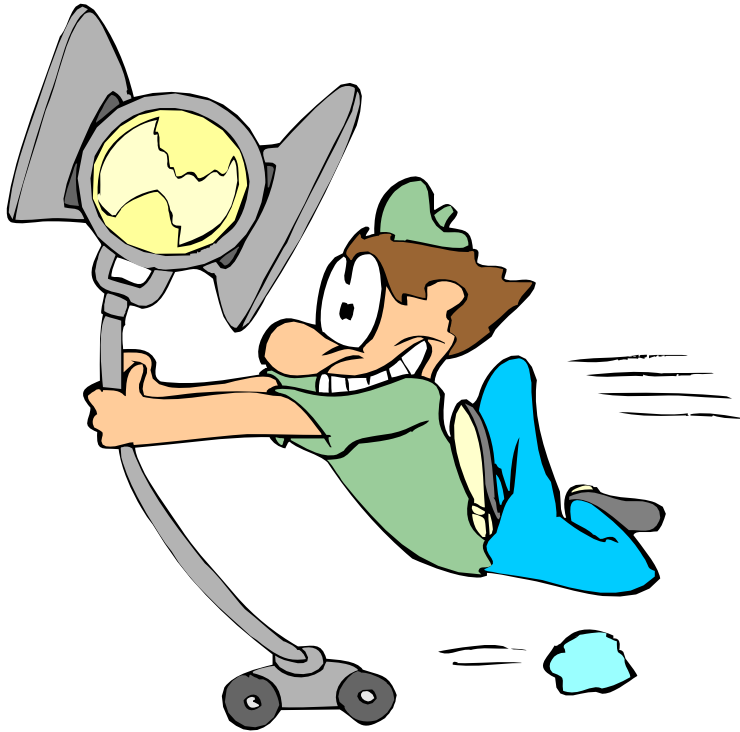
Multiple MIDI ports are easily supported to improve performance in large systems. The system can be easily adapted in the future for other protocols and mix control hardware.

What this all means is that audio hardware can be easily connected to a GraphiMix Mix Icon and manipulated in a way that is visually intuitive to the sound engineer. If an arbitrary control should work in an up-and-down manner, or a side-to-side manner, or in an angular manner, in the opinion of the individual sound engineer, it can be made to

work that way. GraphiMix can make the same hardware appear differently to the sound engineer for every session or every production. It can also make each session appear identical to the sound engineer even though the hardware may be completely different. It can be easily customized and allows creative freedom in the way that any particular mix is perceived and manipulated by the sound professional.

## Quick Topics

Here are some topics that might be of specific interest to the audio engineer. For more complete treatment of any of these topics, please see the GraphiMix Reference Manual.



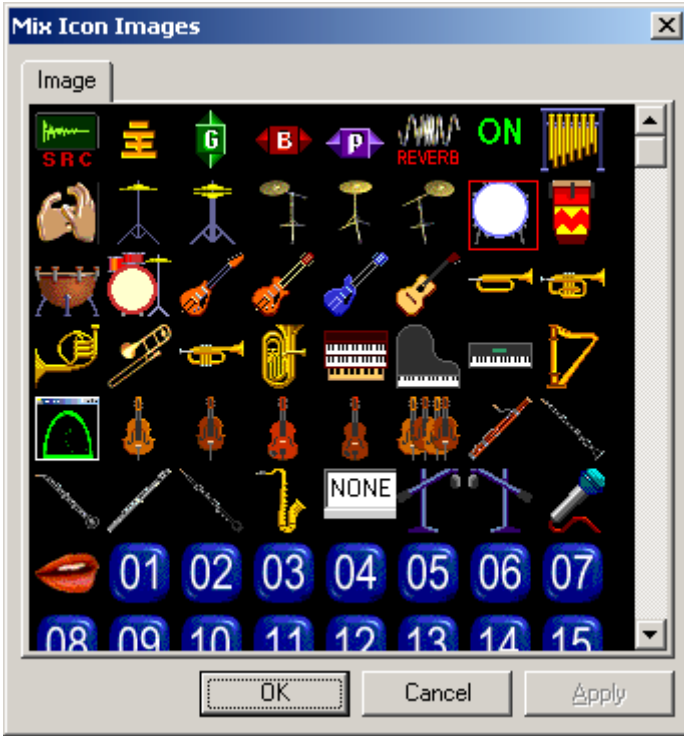
### **Selecting Icon Images**

To change the image displayed for a particular Mix Icon,

1. Bring up the context menu by right-clicking on the Mix Icon.




- Click “Select Image...” on this menu to bring up the Mix Icon Images dialog.



- Now, select the new image by left-clicking on it. Use the scroll bar at the right to bring the desired icon image into view. Click OK when selected.

### ***Changing the Track Number of a Mix Icon.***

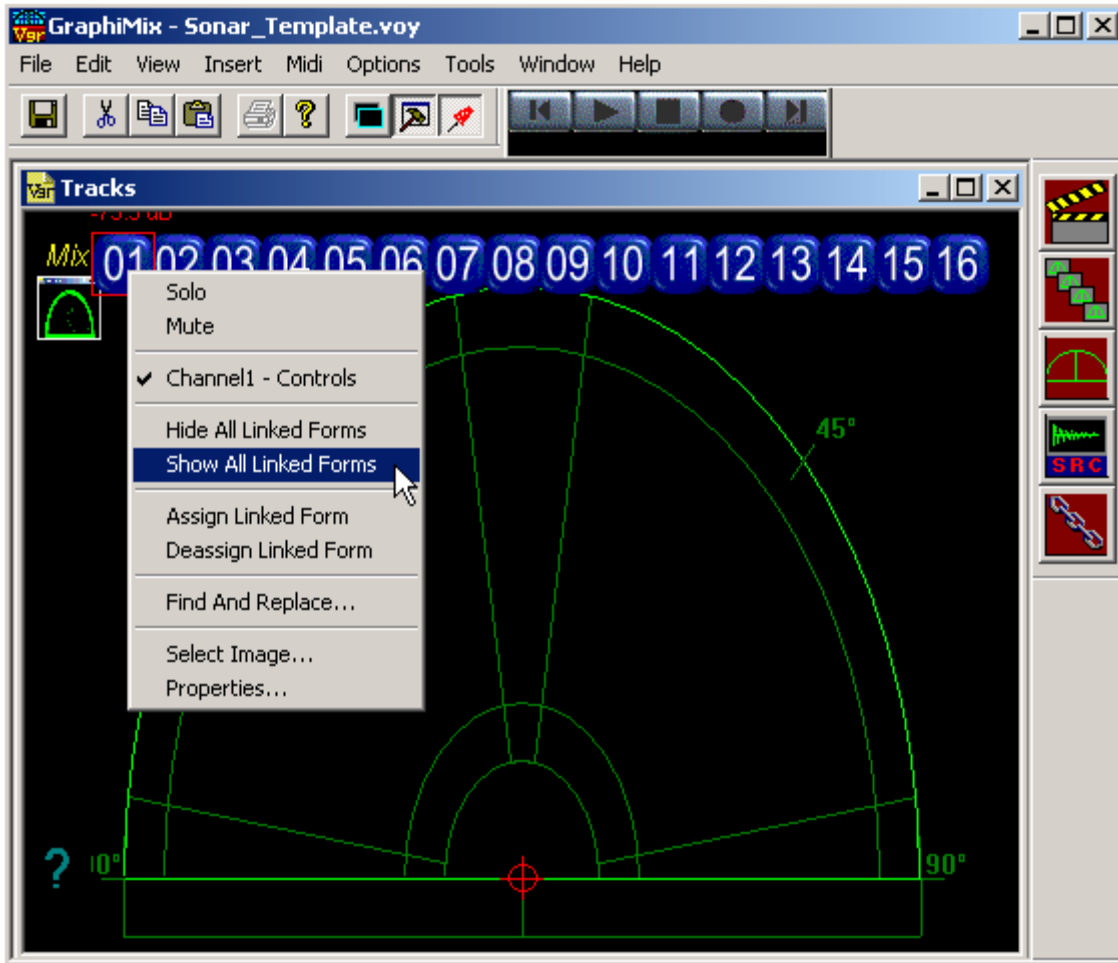
The user may want to change the actual channel of a particular Mix Icon and its attached Mix Forms. For example, the engineer may want to use just a few tracks but with track numbers that are greater than 16. To do this easily, we use GraphiMix’ Find and Replace feature.

- First, set GraphiMix to ‘Build’ mode  by clicking on the Run/Build Mode switch on the standard toolbar.

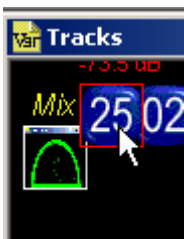


Standard Toolbar

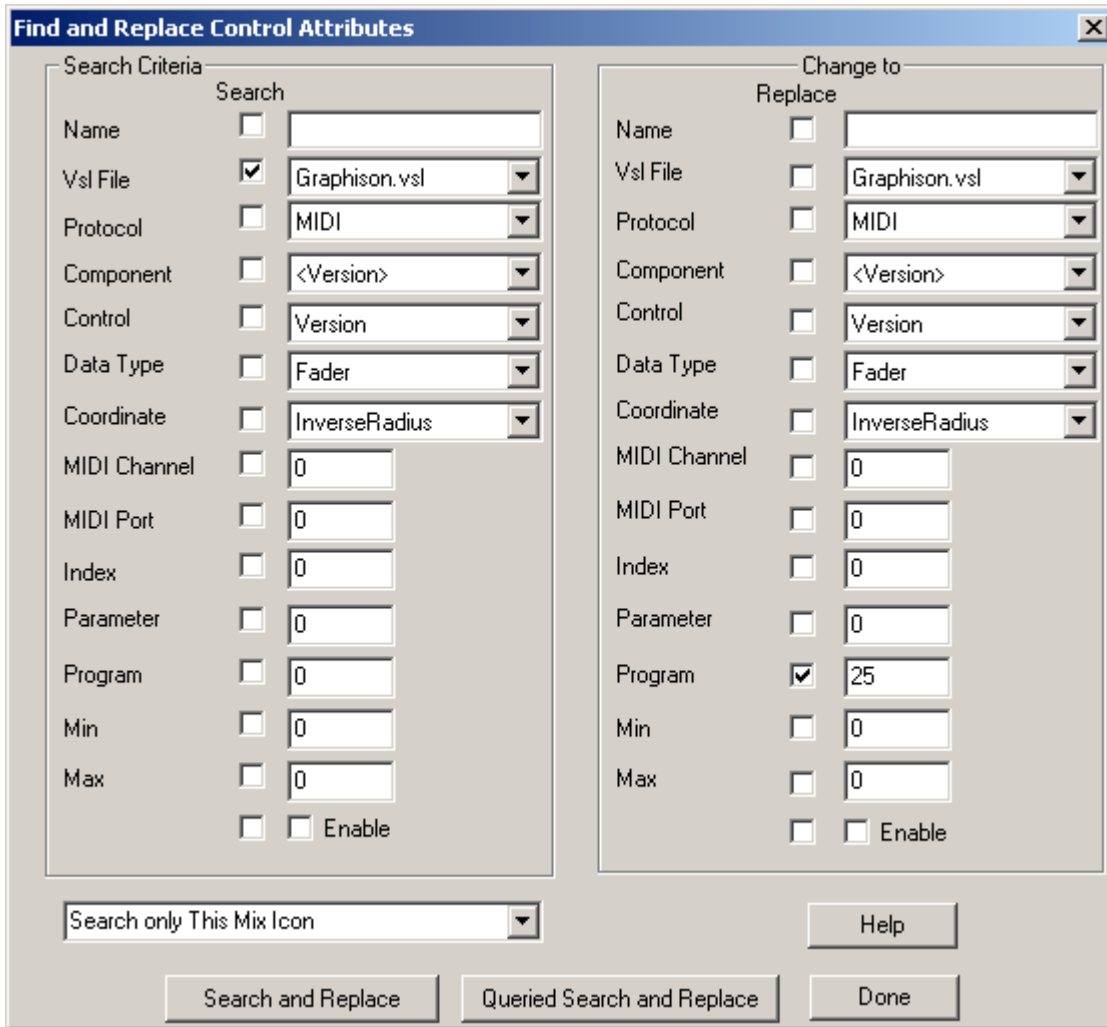
- Now select the Mix Icon (Track 1 in this example) that you want to change the track number for. Right-click on this icon and ‘Show All’ of the attached Mix Forms by checking them in the context menu.



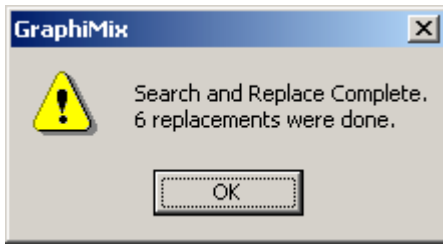
3. Now, you probably should change the image to the new track number. In the Mix Icon's context menu, click on 'Select Image...' and choose the button image that matches the new track number.



4. Again, in the Mix Icon's context menu, select "Find And Replace...". The following dialog will come up.



5. This may look a little daunting, but it's not that hard. In the 'Search Criteria' area, check the Vsl File field and select Graphison.vsl. This 'finds' every control that is a SONAR control. The SONAR midi driver file, Graphison.vsl, uses the convention that puts the actual channel number in the 'Program' field of the control. VSL driver files for other consoles may use other conventions such as the 'Parameter' field or the 'Component' name. To figure this out, look at the controls tab of the Mix Icon Properties dialog. The control description and control setup for each individual hardware device should indicate how to change the channel number.
6. In the 'Change to' field, check the Program checkbox and put the new channel number in the Program field (shown here as 25). All other unchecked entries are 'don't cares' and are ignored.
7. Set the scope field (bottom left) to 'Search only This Mix Icon'. This should be set by default.
8. Now click 'Search and Replace'. The following dialog will come up.

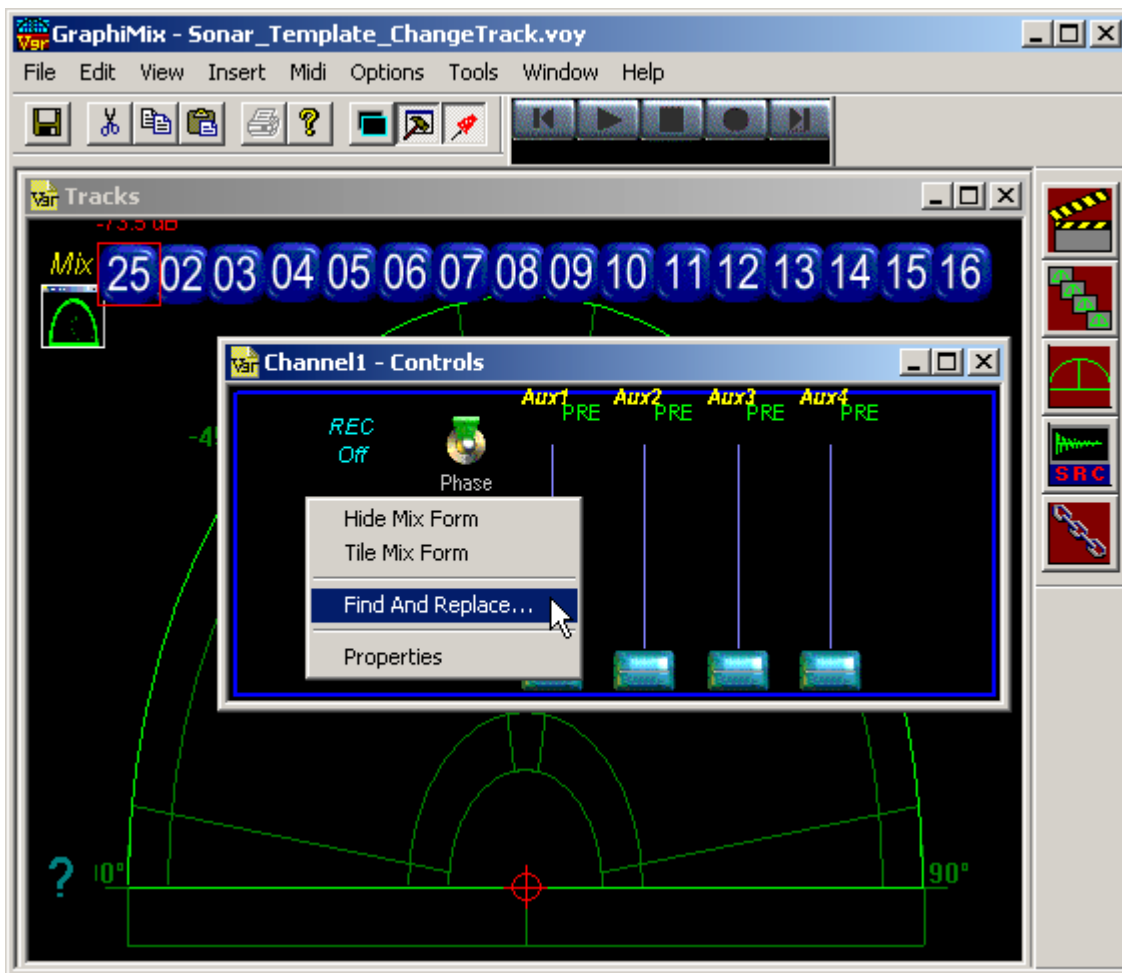


All 6 attached controls now are set to channel 25.

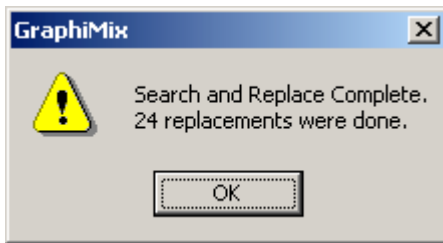
9. click 'Done'.


10. Click the 'Bring to Front' button  on the standard toolbar.

11. Now, right-click on the Linked Mix Form "Channel1 Controls" (in this example). Click on a part that is not an icon, i.e. on the background. Select "Find And Replace" again.



12. The Find and Replace dialog will already be set from the first find and replace. Set the Scope field to “Search All Icons on this Mix Form” which should be set by default,
13. and click on “Search and Replace”.
14. Now the following dialog should come up. Click OK and then click on “Done” in the Find and Replace Dialog.



15. Now this Mix Icon and its linked Controls Mix Form are set to Channel 25. Change the name of the Control Mix Form by selecting “Properties” on the Mix Form context menu
16. and typing in the new name, i.e. “Channel25 – Controls”. Click OK.
17. Hide the Controls Mix Form by selecting “Hide Mix Form” on the Mix Form context menu.
18. Repeat steps 10-17 for each linked Mix Form (if any).
19. Return GraphiMix to Run Mode  .

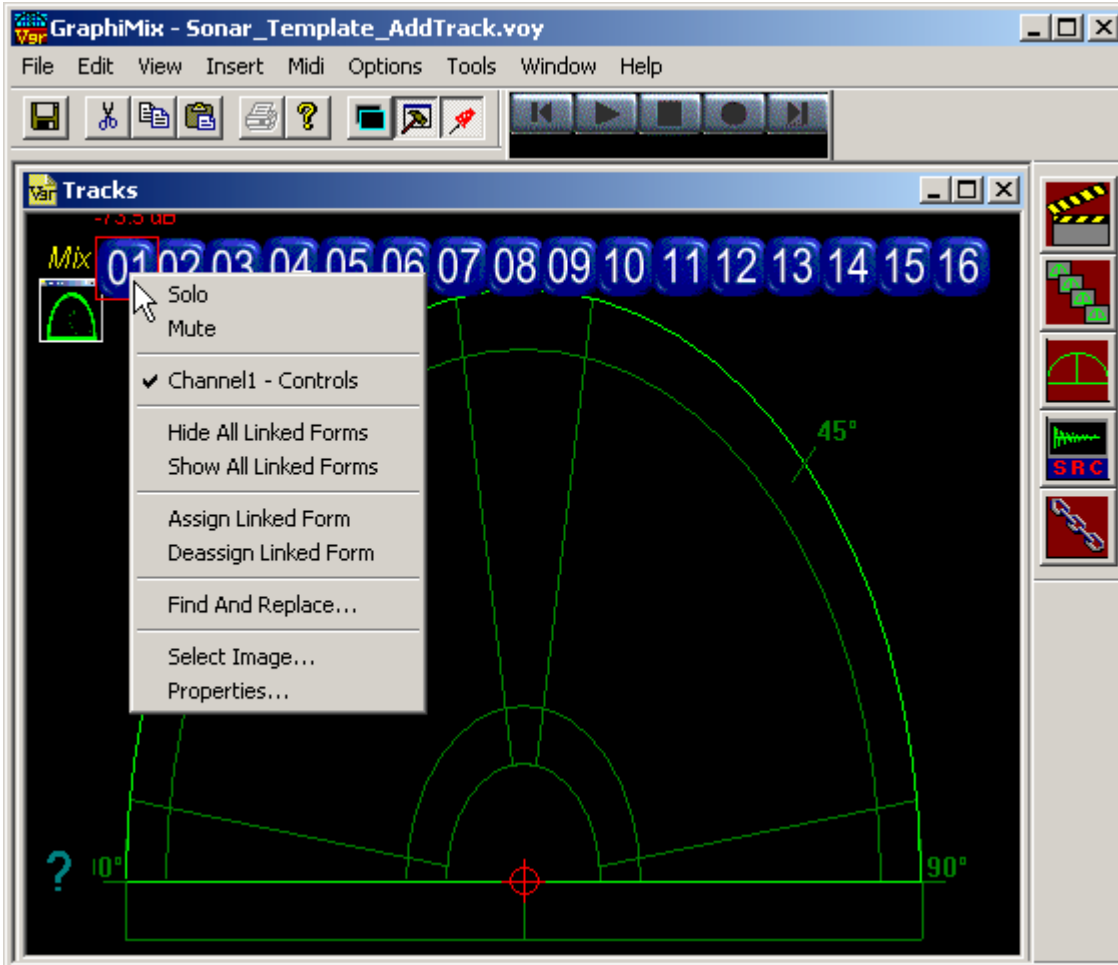
## ***Adding a Track***

1. First, set GraphiMix to ‘Build’ mode  by clicking on the Run/Build Mode switch on the standard toolbar.

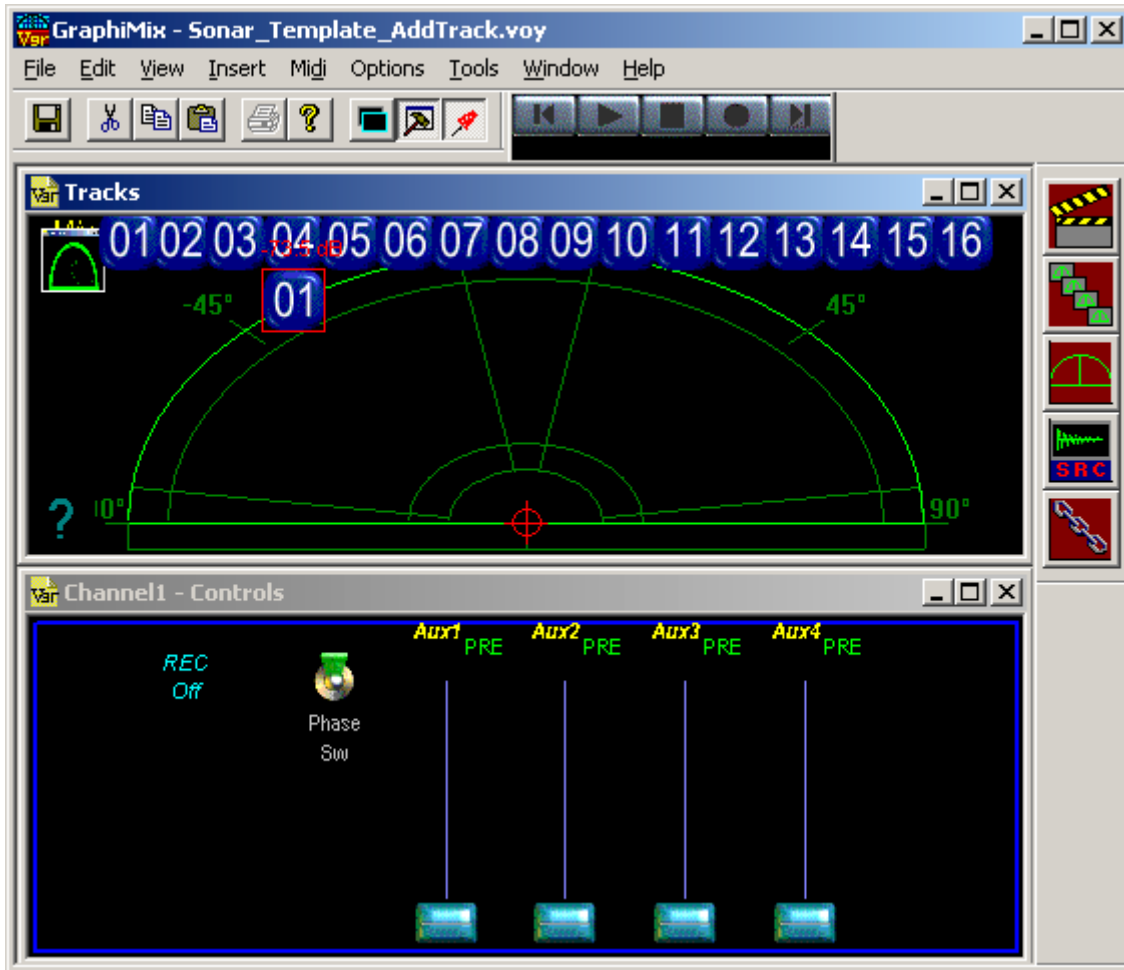


Standard Toolbar

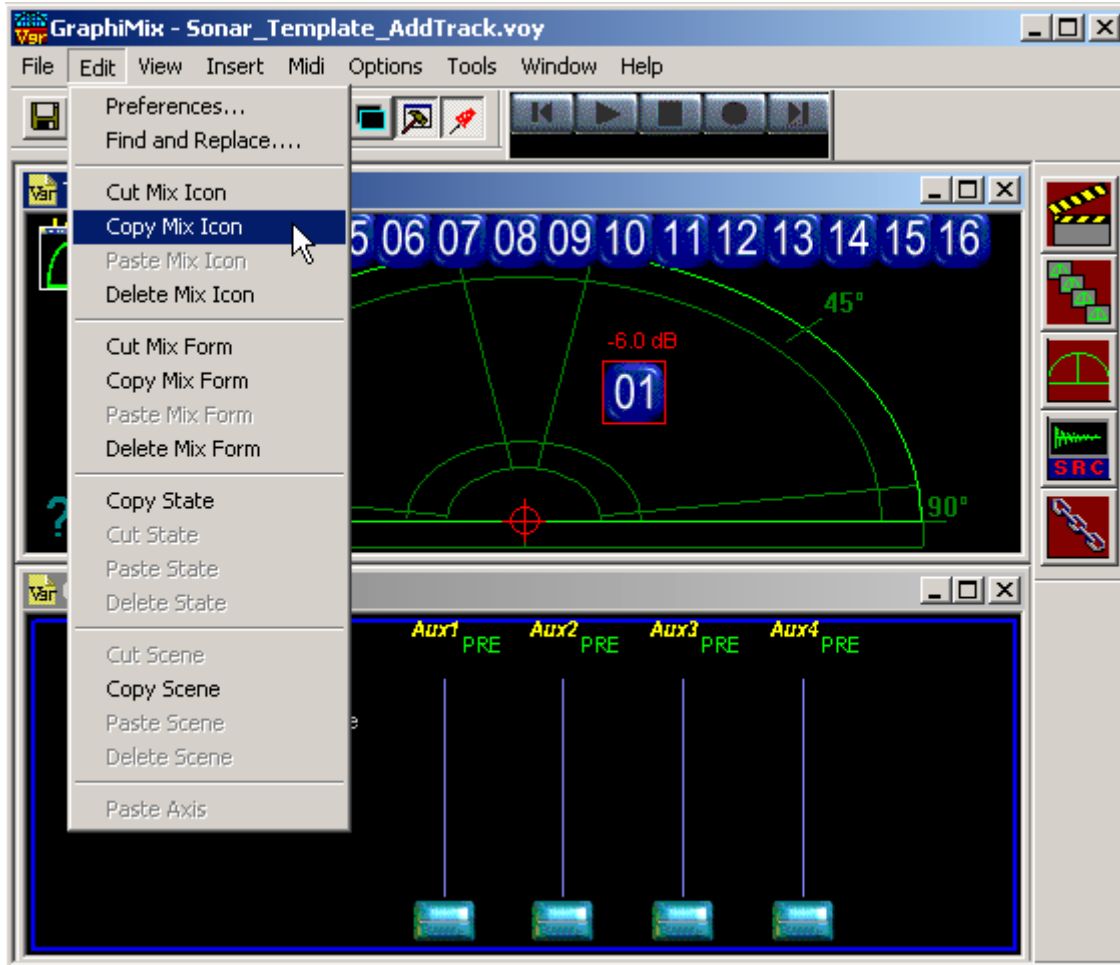
2. Now select a Mix Icon that represents a channel that is similar to the new one to add (for example, MIDI or Wave).
3. Show all of its linked Mix Forms by using the Mix Icon’s context menu (right-click).



4. On the GraphiMix Window Menu, click on "Tile". This forces the linked Mix Form(s) to 'share' the GraphiMix window and remain visible.



5. Now, make sure that the Mix Icon to be 'cloned' is selected with a red box around it (left click on Mix Icon). The title bar of the selected Mix Icon's Mix Form should be highlighted in blue.
6. Click on the Edit menu and select "Copy Mix Icon". This copies the Mix Icon into the Windows Clipboard buffer. Typing a <control-C> also performs this command.



- Now, click on the Edit menu again and select “Paste Mix Icon” (or type <control-V>). An identical copy will appear on the same Mix Form.

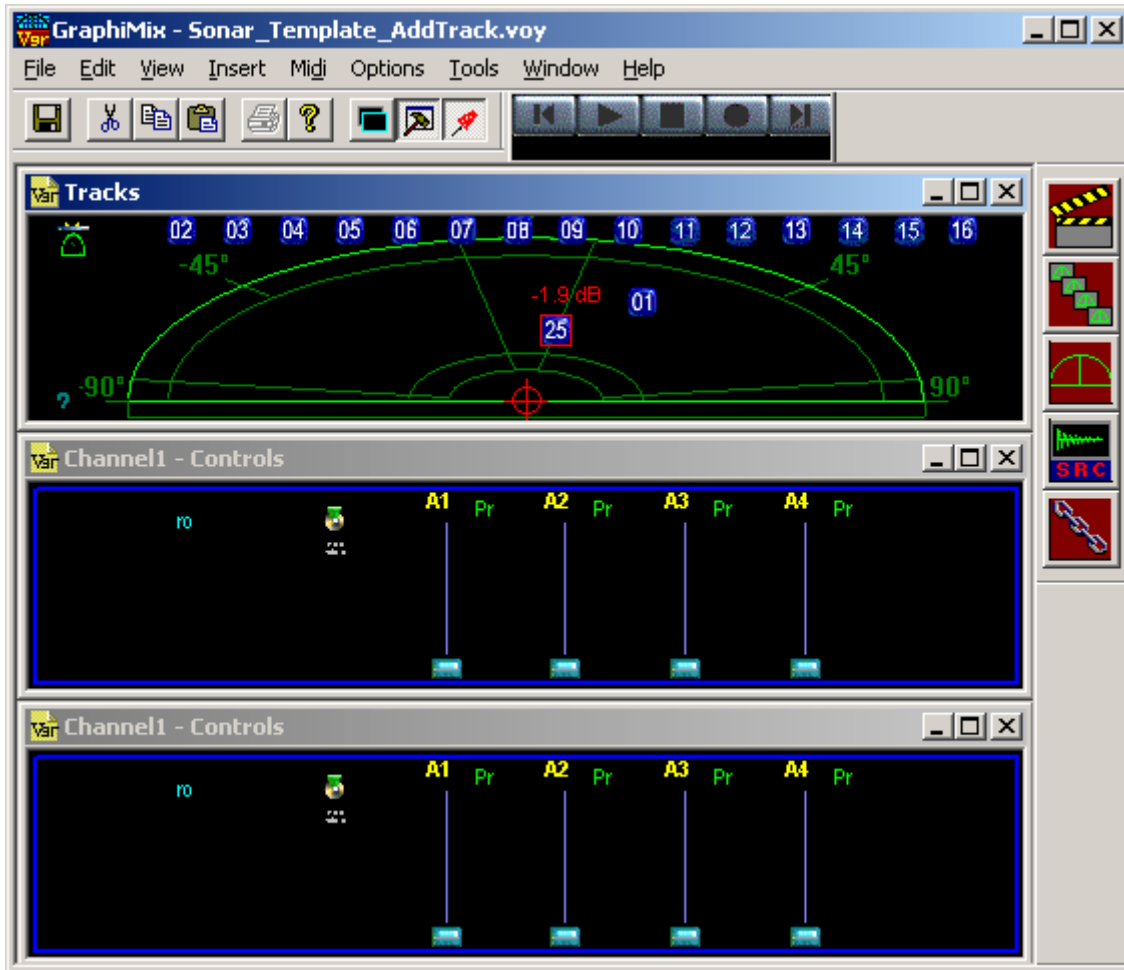
Now there will be two Mix Icons with the same image and all the same properties. The pasted Mix Icon will show up on top of the original icon. Drag it to a different position.



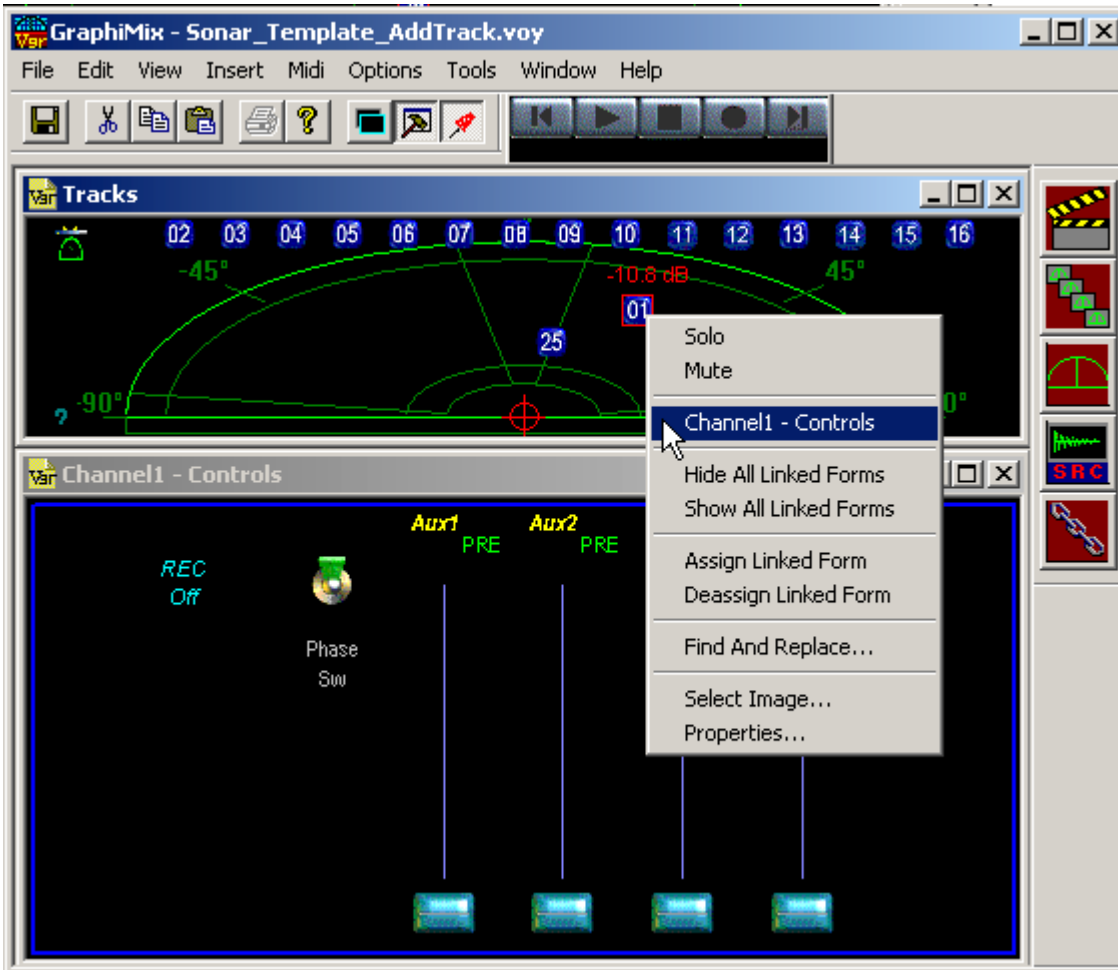
- Right-click on the new icon and bring up the context menu. First, change the image by clicking on “Select Image...”.
- Select the new image and click OK.

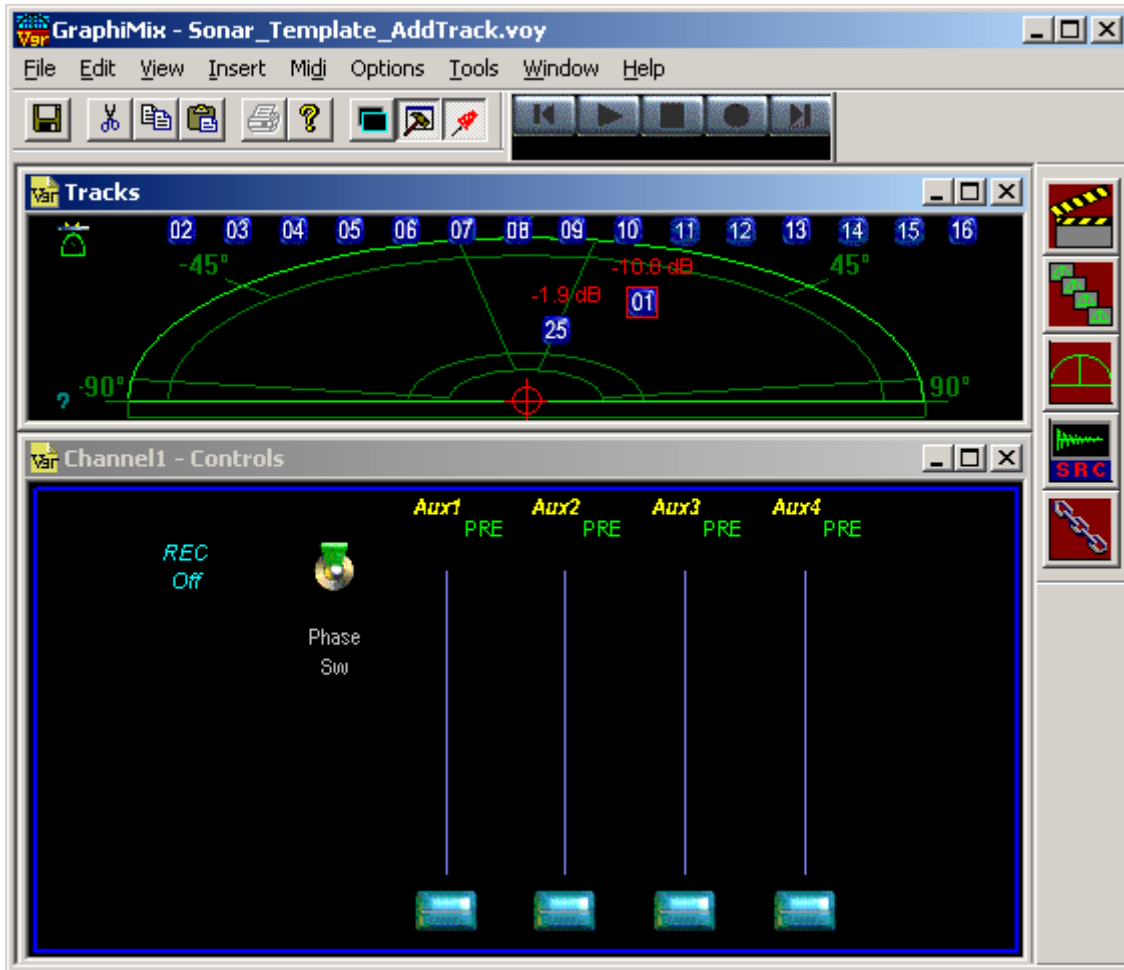


10. Right-click on the new icon and bring up the context menu again. Now select “Deassign Linked Form”. The cursor will change to a Deassign Linked Form cursor.
11. Click on the original linked Mix Form.
12. Repeat steps 10-11 for all linked Mix Forms for this icon (if any).
13. Now click on the original linked Mix Form (which is still linked to the original Mix Icon).
14. From the Edit menu, select “Copy Mix Form”.
15. Again, from the Edit menu, select “Paste Mix Form”. An identical copy of the original Linked Mix Form should appear. <Control-C> and <Control-V> will work as long as no Mix Icon is selected (surrounded by a red box) on this Mix Form.



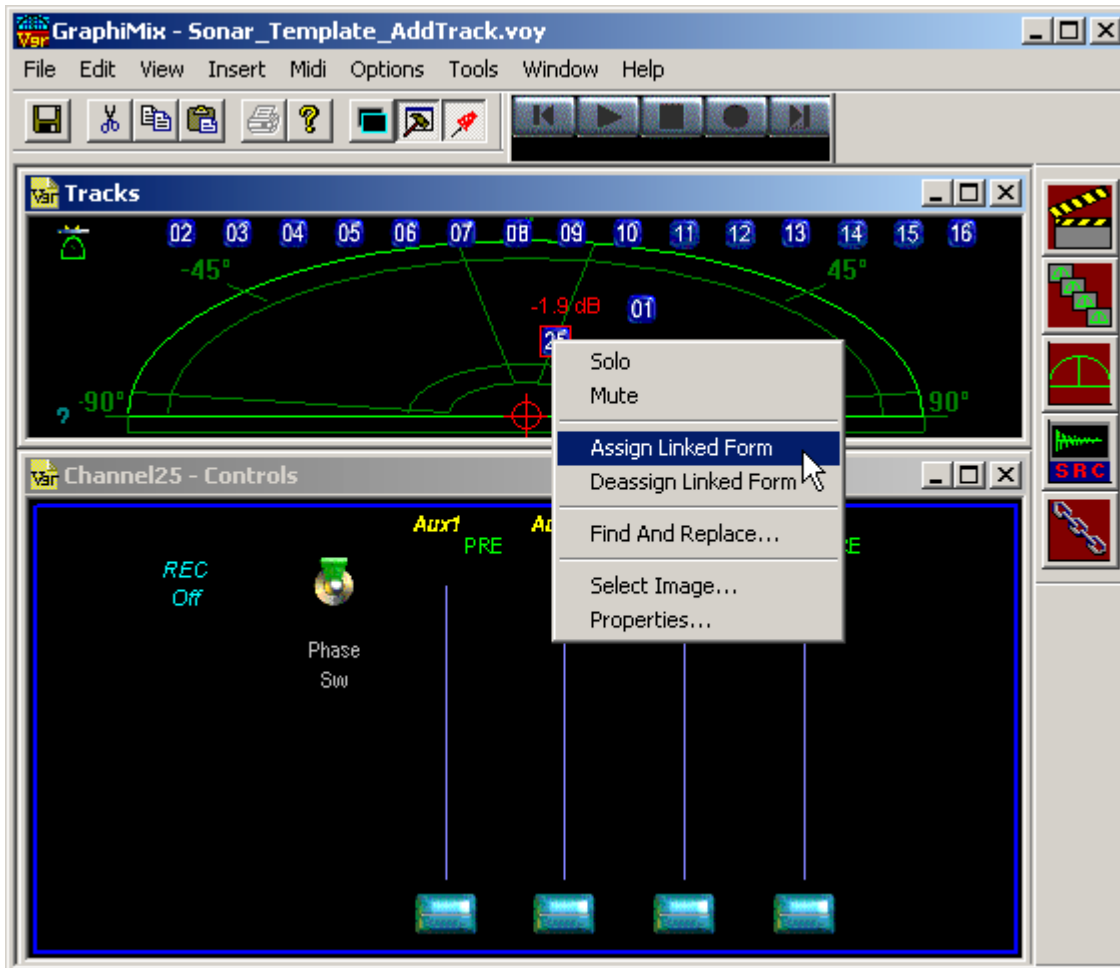
16. 'Put away' the original Mix Form by deselecting it from the original Mix Icon's context menu.





The remaining linked Mix Form is the 'new' one.

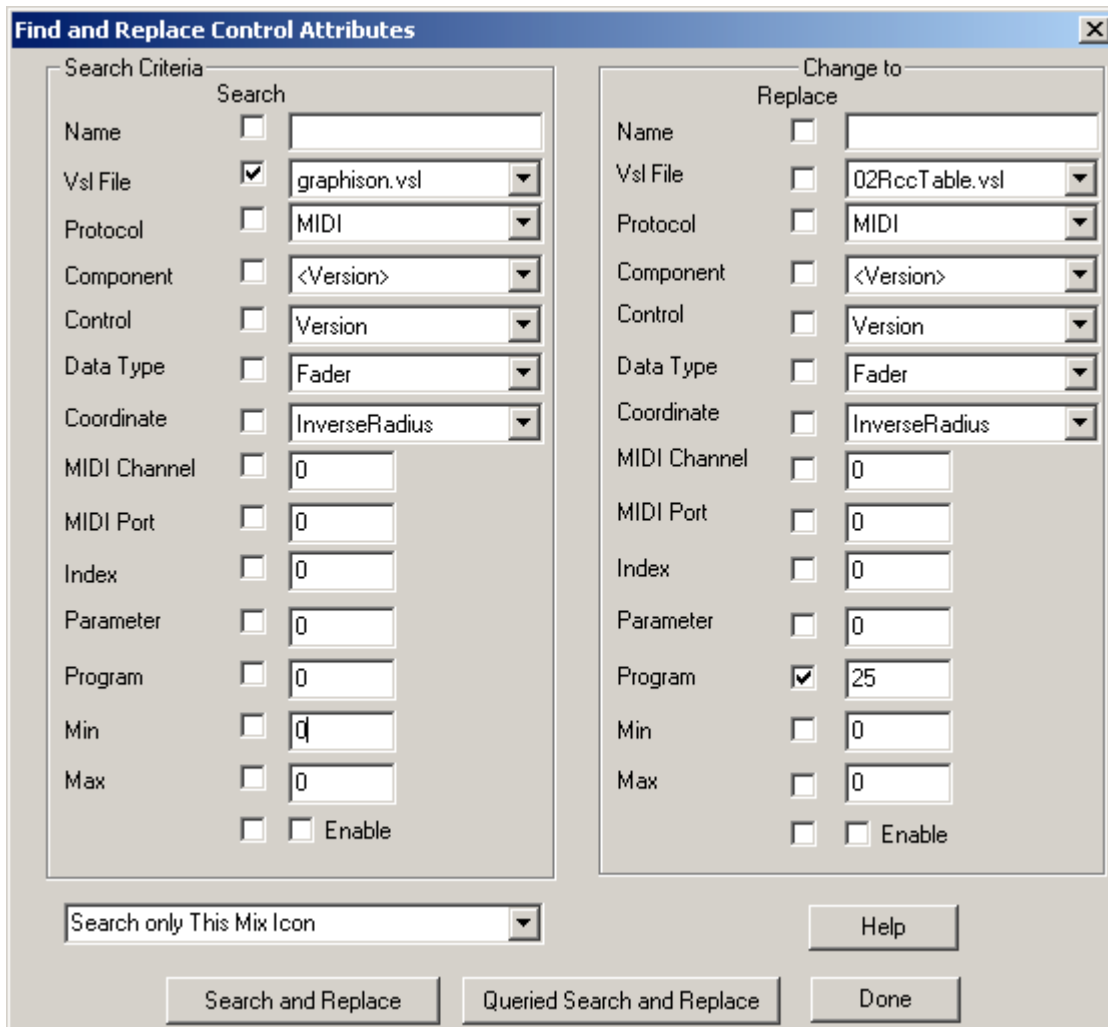
17. Change the name of this new Mix Form by selecting "Properties" from the Mix Form's context menu (right-click) and typing in the new name. Click OK.
18. Now, link this Mix Form to the new icon by 'pulling up' the new Mix Icon's context menu and selecting "Assign Linked Form". The cursor will change to the "Assign Linked Form" cursor.
19. Click on the new linked Mix Form.



The new icon's context menu will now show the new linked Mix Form.

Finally, we need to change the channel parameters of the new Mix Icon and the new linked Mix Form.

20. Again, in the Mix Icon's context menu, select "Find And Replace...". The following dialog will come up.




21. This may look a little daunting, but it's not that hard. In the 'Search Criteria' area, check the Vsl File field and select GraphiSon.vsl. This 'finds' every control that is a SONAR control.
22. In the 'Change to' field, check the Program checkbox and put the new channel number in the Program field (shown here as 25). All other unchecked entries are 'don't cares' and are ignored.
23. Set the scope field (bottom left) to 'Search only This Mix Icon'. This should be set by default.
24. Now click 'Search and Replace' and then click 'Done'. The following dialog will come up.



All 6 attached controls now are set to channel 25.

25. Now, right-click on the new Linked Mix Form "Channel25 Controls".
26. Select "Find And Replace" again. The Find and Replace dialog will already be set from the first find and replace.
27. Set the Scope field to "Search All Icons on this Mix Form" which should be set by default, and click on "Search and Replace". Now the following dialog should come up.



28. Click OK and then click on "Done" in the Find and Replace Dialog.
29. Now this Mix Icon and its linked Controls Mix Form are set to Channel 25. Hide the Controls Mix Form by selecting "Hide Mix Form" on the Mix Form context menu.
30. Set the Run/Build mode switch back to Run mode .


## ***Deleting a Track***

1. First, set GraphiMix to 'Build' mode  by clicking on the Run/Build Mode switch on the standard toolbar.



Standard Toolbar

2. Now, unhide all Linked Mix Forms by pulling up the context menu (right-click) and selecting "Unhide all Linked Mix Forms".
3. Delete each Mix Form by clicking on its Background and typing <Delete>.

4. Finally, delete the Mix Icon by selecting it and then pressing the <Delete> key or by clicking on the Edit Menu and selecting “Delete Mix Icon”.
5. Set the Run/Build mode switch back to Run mode .

## ***Moving a Track***

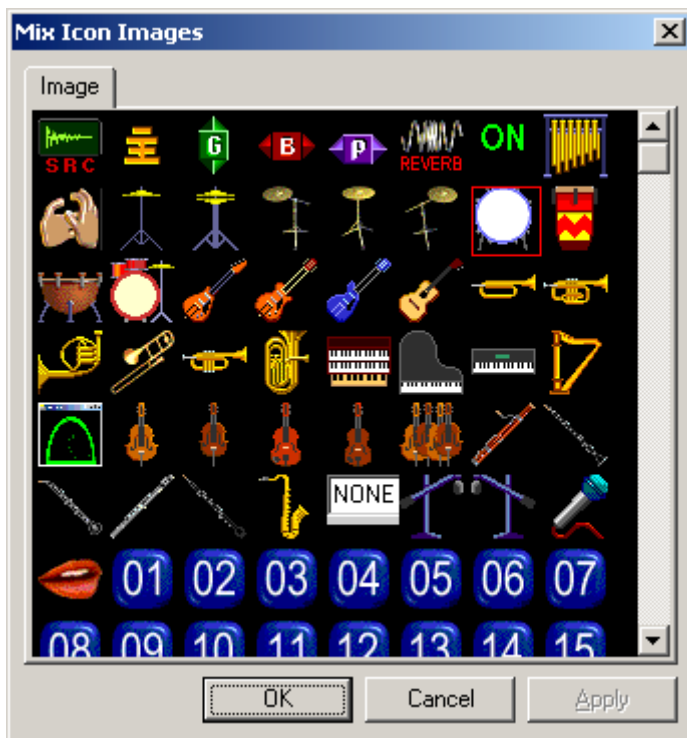
For each Mix Icon,

1. Select it by left-clicking on it..
2. Click on the Edit Menu and select “Cut Mix Icon” or type <Control-X>.
3. Now click on the destination Mix Form.
4. Click on the Edit Menu and select “Paste Mix Icon” or type <control-V>.

## ***Adding a Mix Icon***

To add a Mix Icon to a Mix Form,

1. Click on the ‘Insert’ menu and select ‘Insert New Mix Icon’. The mouse pointer will change to an ‘Insert Mix Icon’ pointer.
2. Click on a Mix Form to insert a default Mix Icon on the selected form.
3. To change the image and icon type, <right-click> on the icon and click on ‘Select Image...’.




4. Click on the new image and then click on the OK button.

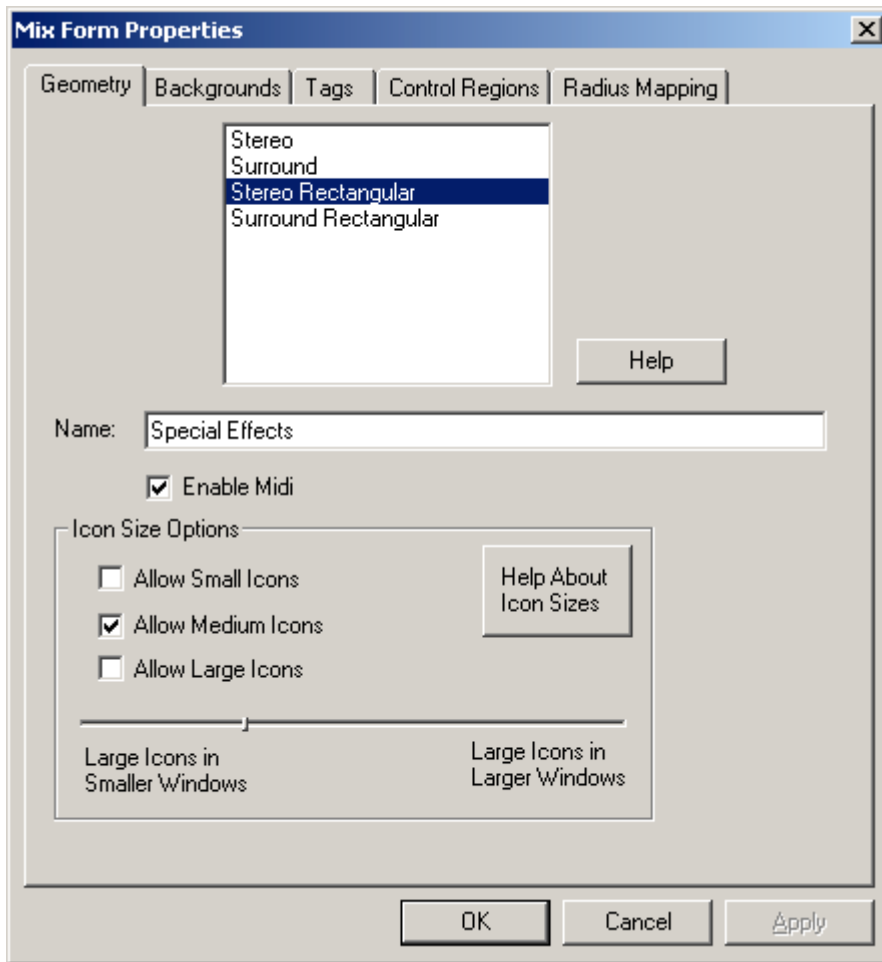
## ***Adding a Mix Form***

To add a Mix Form to a session,

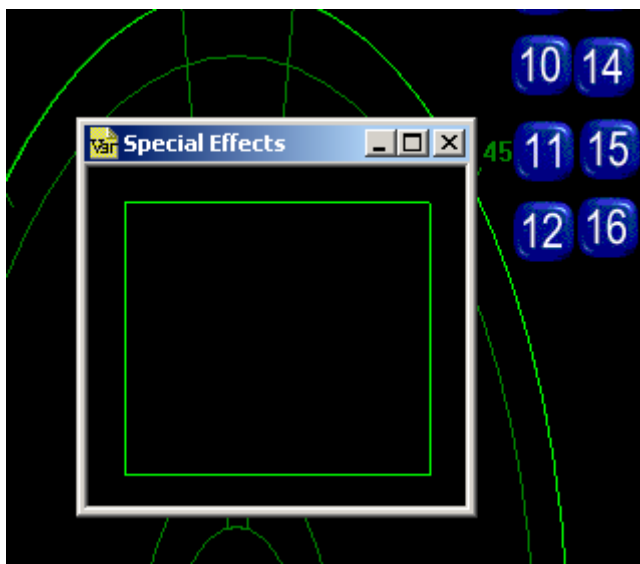
1. Click on the 'Insert' menu and select 'Insert New Mix Form'. Alternatively, you can use the 'View' menu to select 'Mix Form Tool Bar'. Click on the middle button to insert a new Mix Form.




2. To change the name and the appearance of a Mix Form, first set GraphiMix to 'Build' mode .
3. <Right-click> on the Mix Form background and select 'Properties'.



4. Type in the name and set the Mix Form geometry attribute.



5. Click OK when done.
6. Set the Run/Build mode switch back to Run mode .


### ***Creating a Sub Mix***

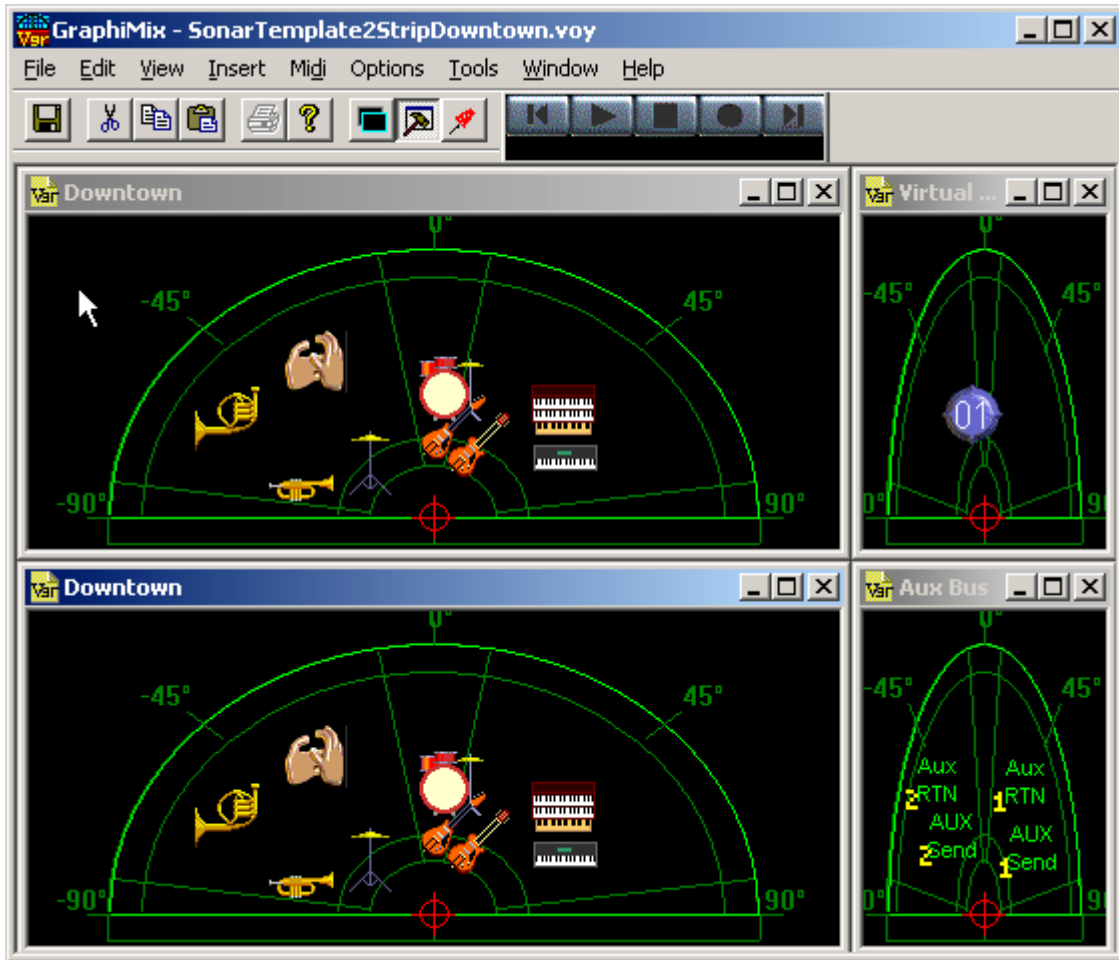
A Sub Mix is essentially a separate Mix Form with related channel Mix Icons placed on it. These channels may or may not be linked to ‘Master’ icons on the same or another Mix Form.

To create a Sub Mix, add a new Mix Form and then ‘Cut and Paste’ Mix Icons from the Main Stereo Mix Form to the new Mix Form.

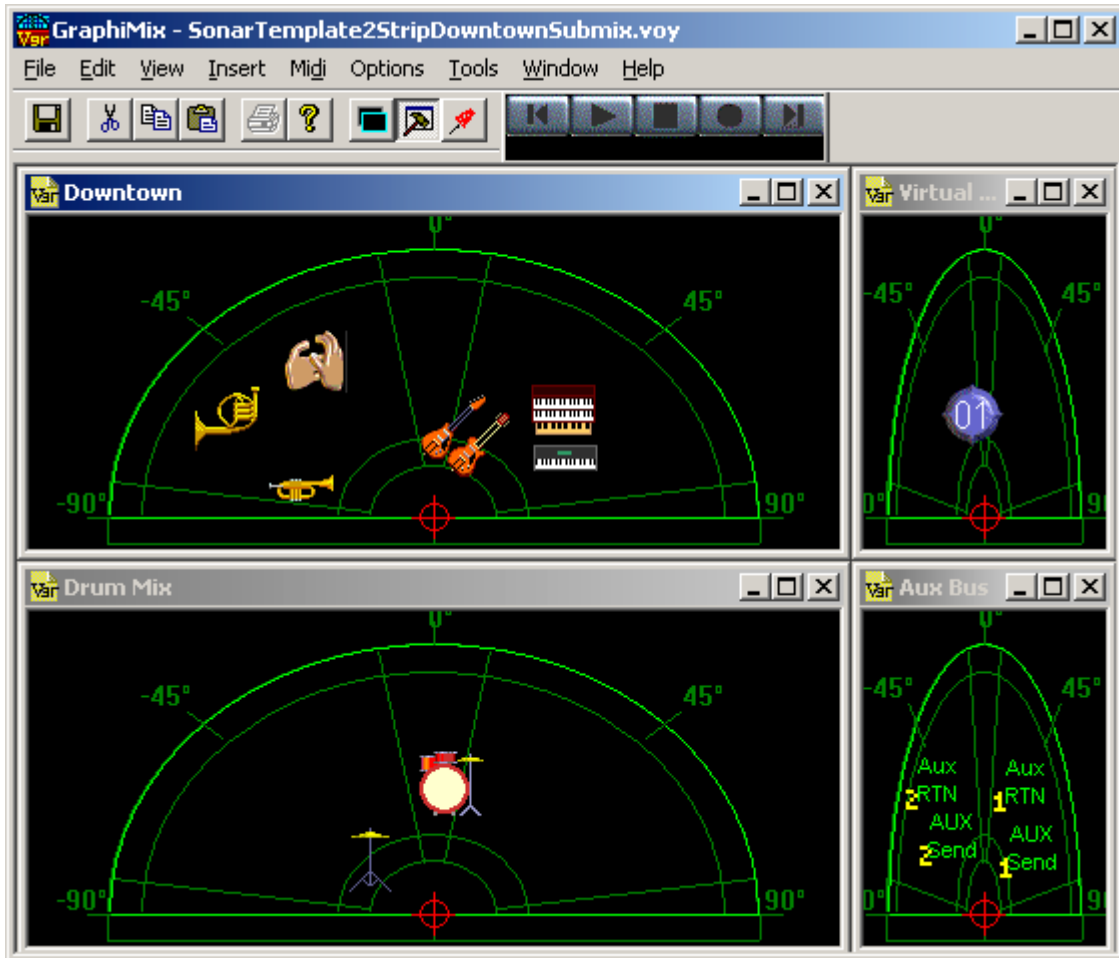
If a lot of Mix Icons are to be moved to another Mix Form, it may be quicker to copy the entire Mix Form and then delete the Mix Icons that don’t belong.


To create a sub-mix by copying a Mix Form,

1. First, put GraphiMix in ‘Build’ mode by depressing the Run/Build mode switch  on the standard toolbar.
2. Then, select the Mix Form to be sub-divided by clicking on it.
3. Click on the Edit Menu and select “Copy Mix Form”.
4. Click on the Edit Menu again and select “Paste Mix Form”. Now there will be two identical Mix Forms with complete sets of Mix Icons.



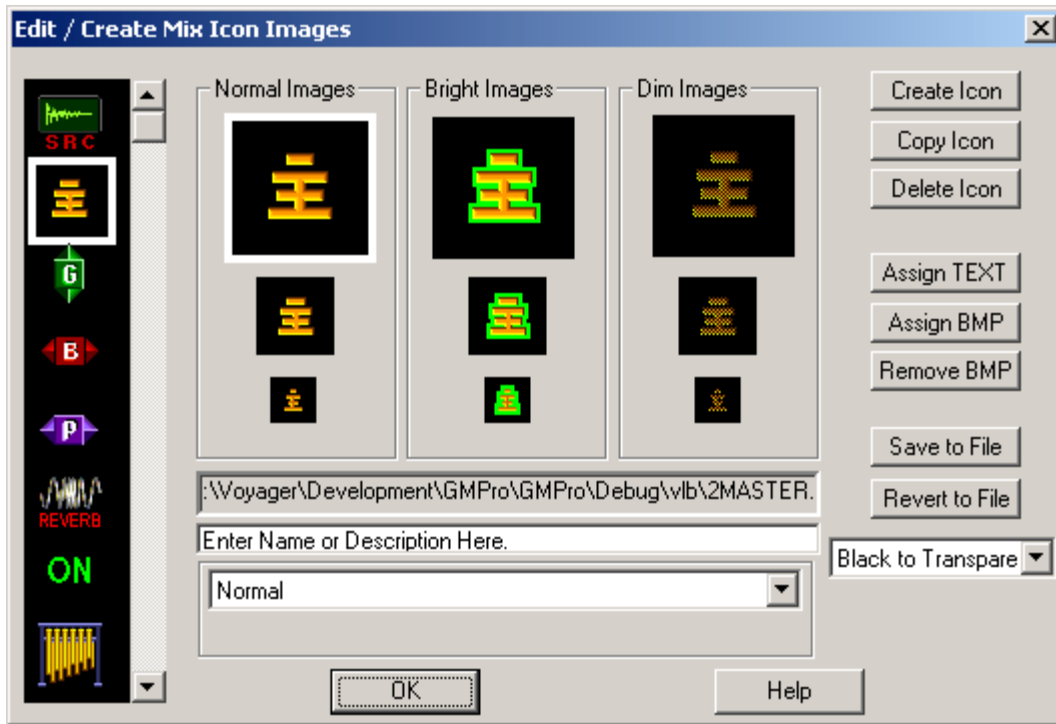
5. Rename the new Mix Form by using the context menu and selecting "Properties".
6. Type in a new name and click OK.
7. Now delete the Mix Icons that don't belong in each Mix Form by <left-clicking> on each one in turn and pressing the <delete> key.



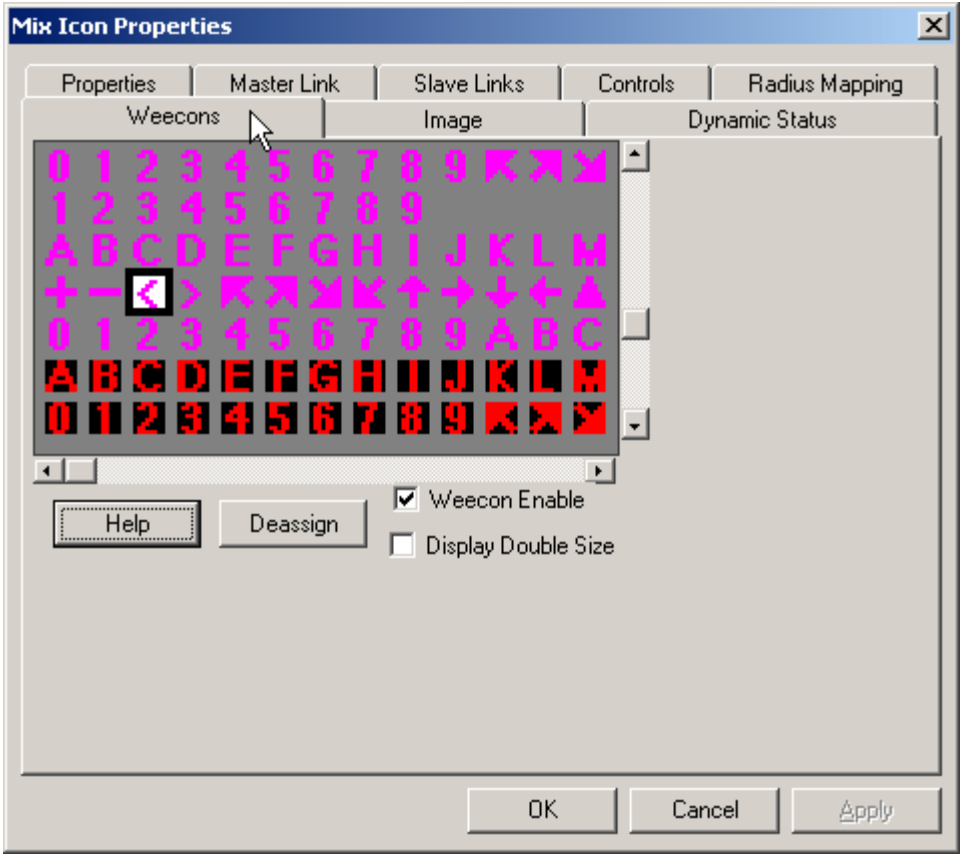
8. You may want to link this Mix Form to a particular Mix Icon on the Main Stereo Mix Form. <Right-Click> to access the Mix Icon's context menu and select "Assign Linked Mix Form". Click on the new Mix Form to link it to the selected Mix Icon. Now, you can 'Hide' the Sub Mix and 'Recall' it from the selected Mix Icon's context menu.
9. Return GraphiMix to 'Run' mode .
10. Save the session.

### ***Creating and/or customizing Icon Images***

Icon images can be created and customized using the Edit/Create Mix Icon Images selection on the GraphiMix Tools menu. Normal icons, both momentary and toggle switch icons, drop-down index list icons, faders and knobs, can all be created, copied, and modified here. The user can also import windows bitmap files (BMP's) to use as icon images. Each Mix Icon has 9 images states (3 sizes (times) normal, solo, mute) and all can be custom-selected by the user. A switch Mix Icon has 18 states, (9 for On and 9 for Off). Icons can be also created out of text with full choice of colors and fonts.



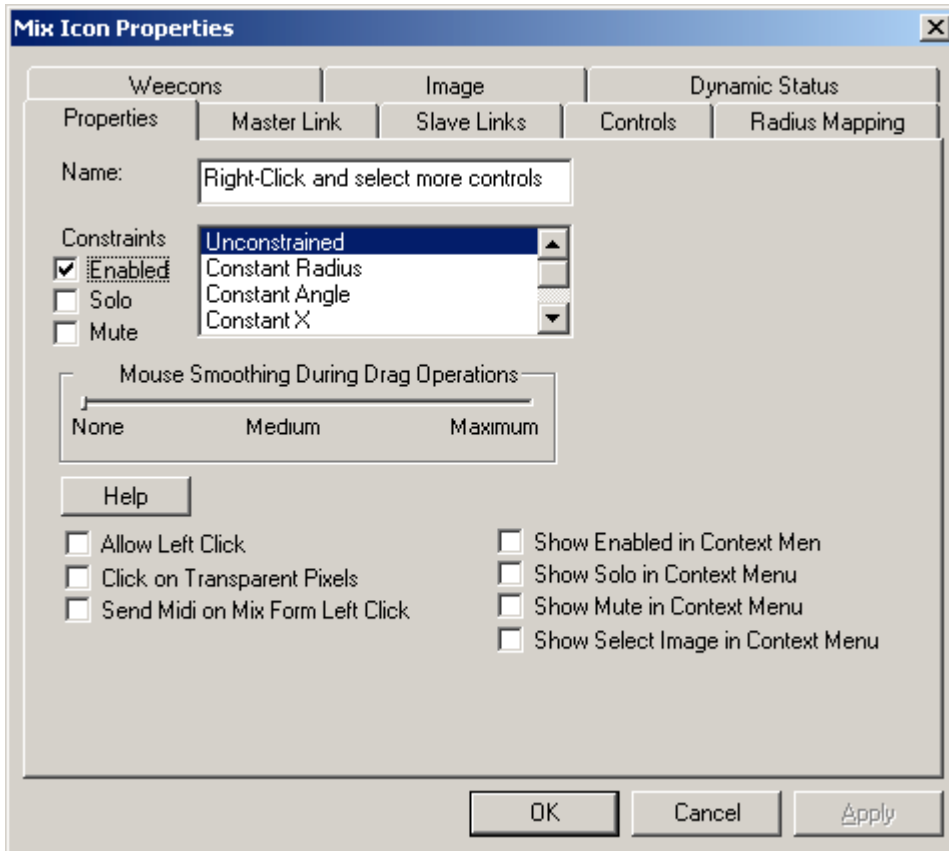
Wecons can be added to visually add channel or track numbers, or microphone number, or other distinguishing letters or numbers to the Mix Icons. To access “Weecons”, right-click on the Mix Icon and select “Properties”. Then click on the “Weecons” tab at the top of the dialog.



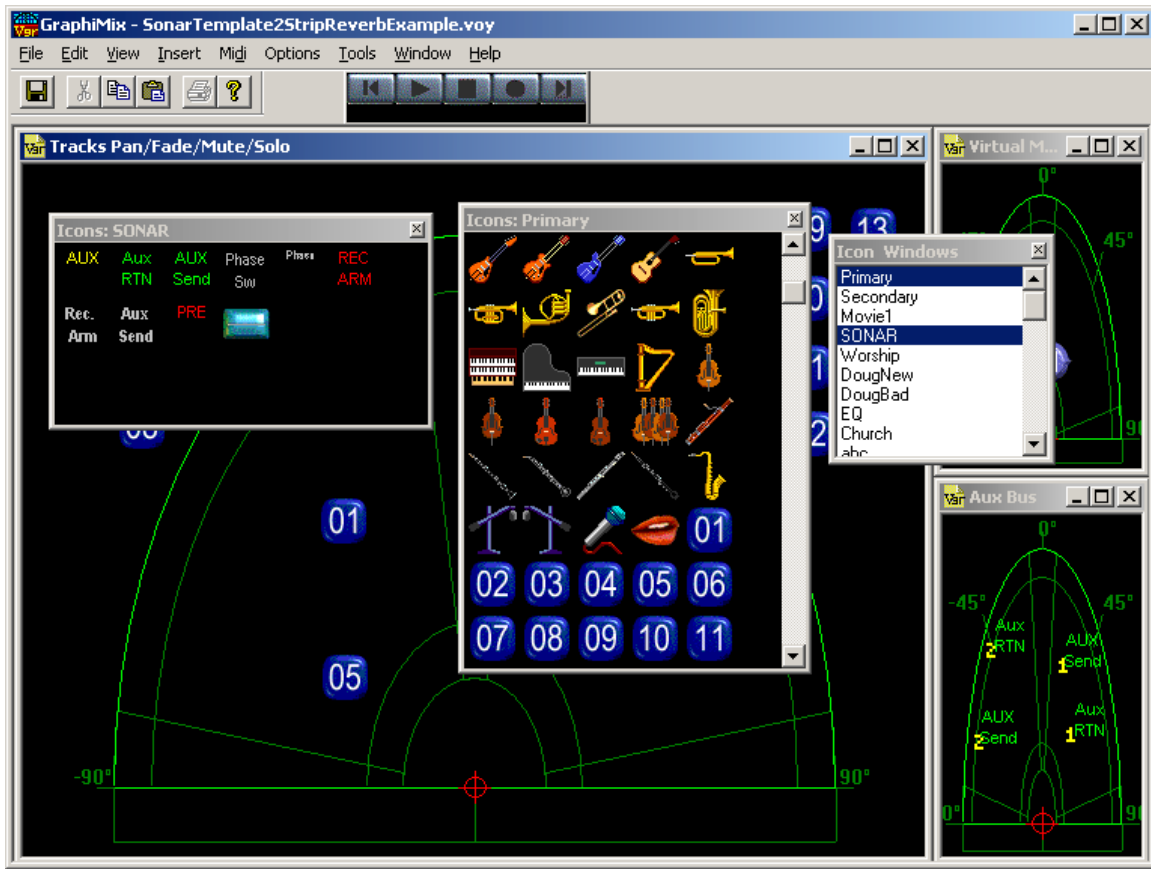
The resulting Mix Icon image looks like this.



Icons can also be used as labels on the Mix Form. These icons can be placed with the 'Allow Left Click' checkbox unchecked in the Mix Icon Properties dialog. You will also want all context menu items to be removed. Uncheck all the 'Show ...' checkboxes in this dialog for this.



Mix Icons are files with the extension 'VLB' and are contained either in the VLB subdirectory of GraphiMix (the 'primary' set) or one of any number of user created subdirectories in this directory. To view these directories, select the View menu-View Icon Windows ... entry. This brings up a window of VLB directories. Highlight one or more VLB directories in this window to see the icon windows that correspond.



For more information on creating Icon Images, see the GraphiMix Help or the GraphiMix Reference Manual.

### ***Adding Equalization and Effects***

As an example of adding Linked Mix Forms for controls such as equalization and effects, we will load the 'SONAR Audio and MIDI DEMO2' project in the Cakewalk Sample Content directory. This project uses the Cakewalk FXReverb in the Guitar Track channel and we will add some controls for this unit on a new Mix Form linked to the Mix Icon on track 3 (Guitar).



By double-clicking on the 'FxRev' text, the following panel comes up.

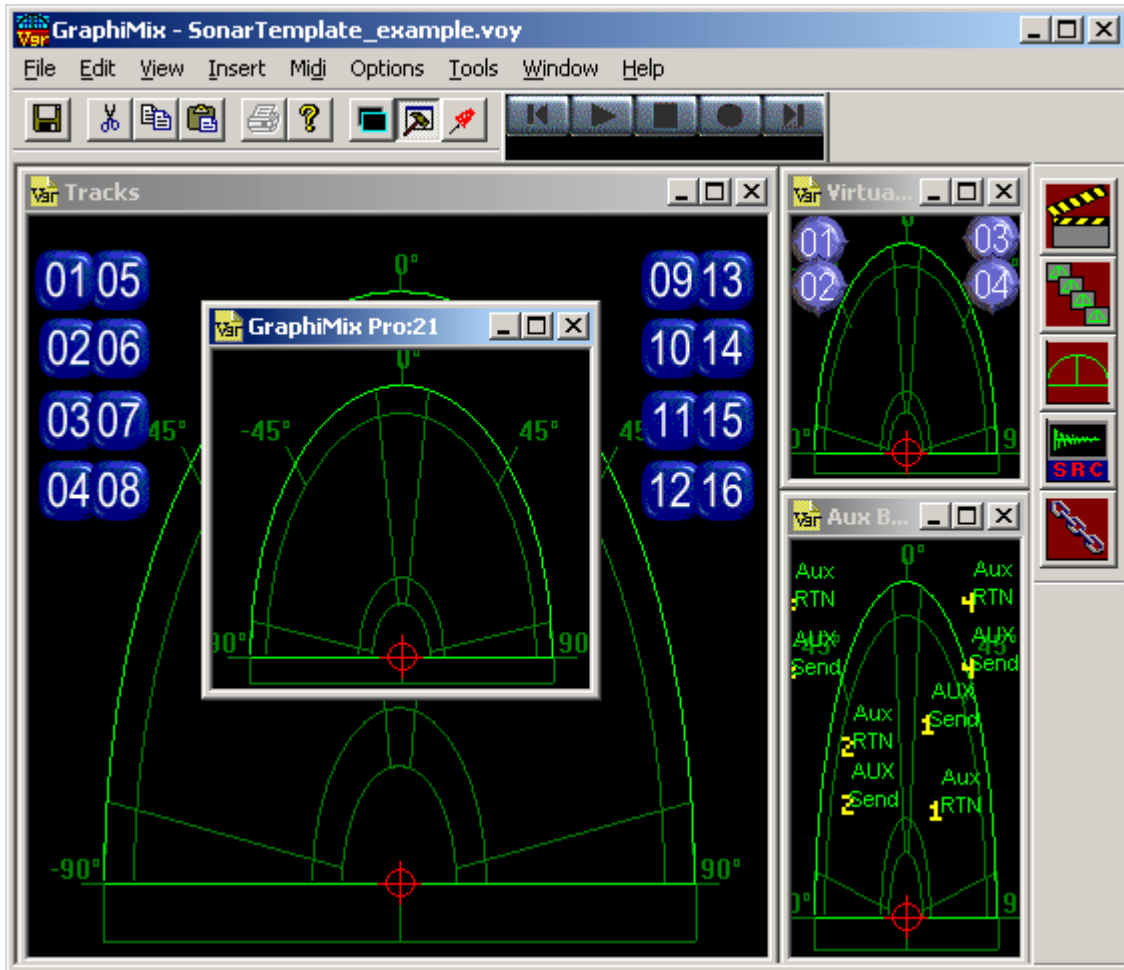


1. To create a new Mix Form, select the View menu in GraphiMix and click on Mix Form Tool Bar. A tool bar will appear at the upper right corner of GraphiMix.



2. Click on the middle button. This will create a new Mix Form.
3. You can select the View menu again and unclick the Mix Form toolbar entry to 'put it away'.

You can also use the Insert menu to Insert a New Mix Form instead of using the toolbar.

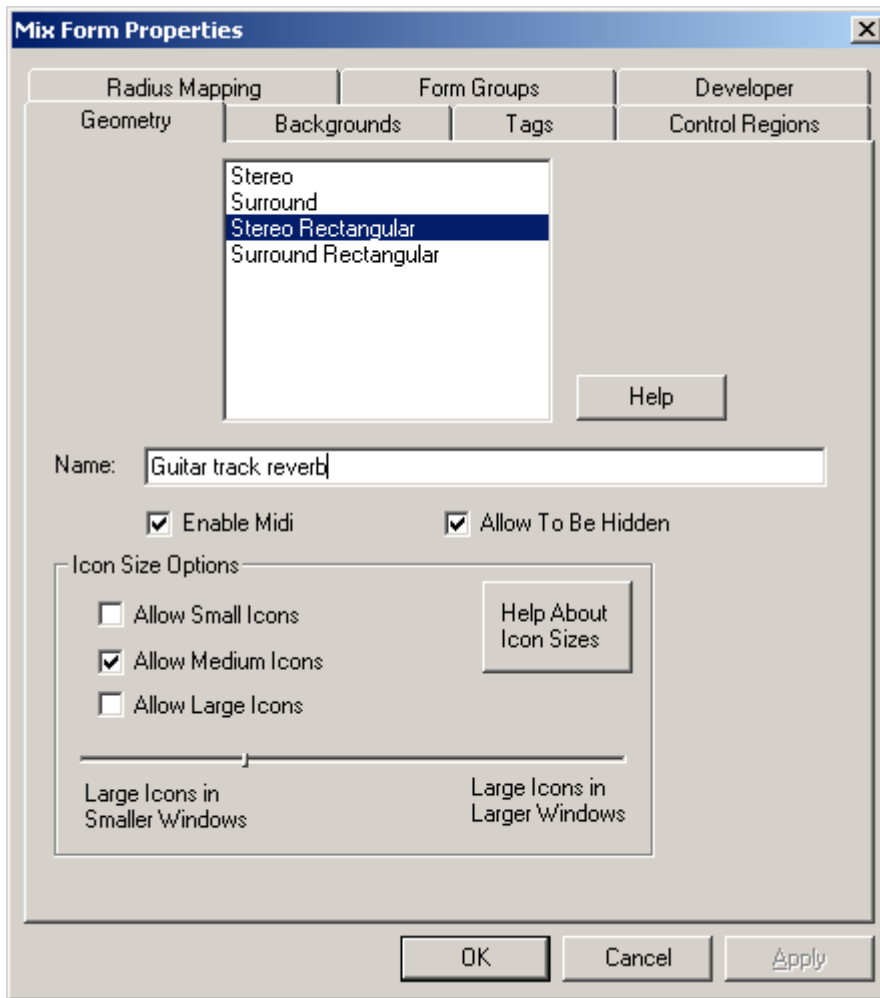


4. Set GraphiMix to 'Build' mode  by clicking on the Run/Build Mode switch on the standard toolbar.

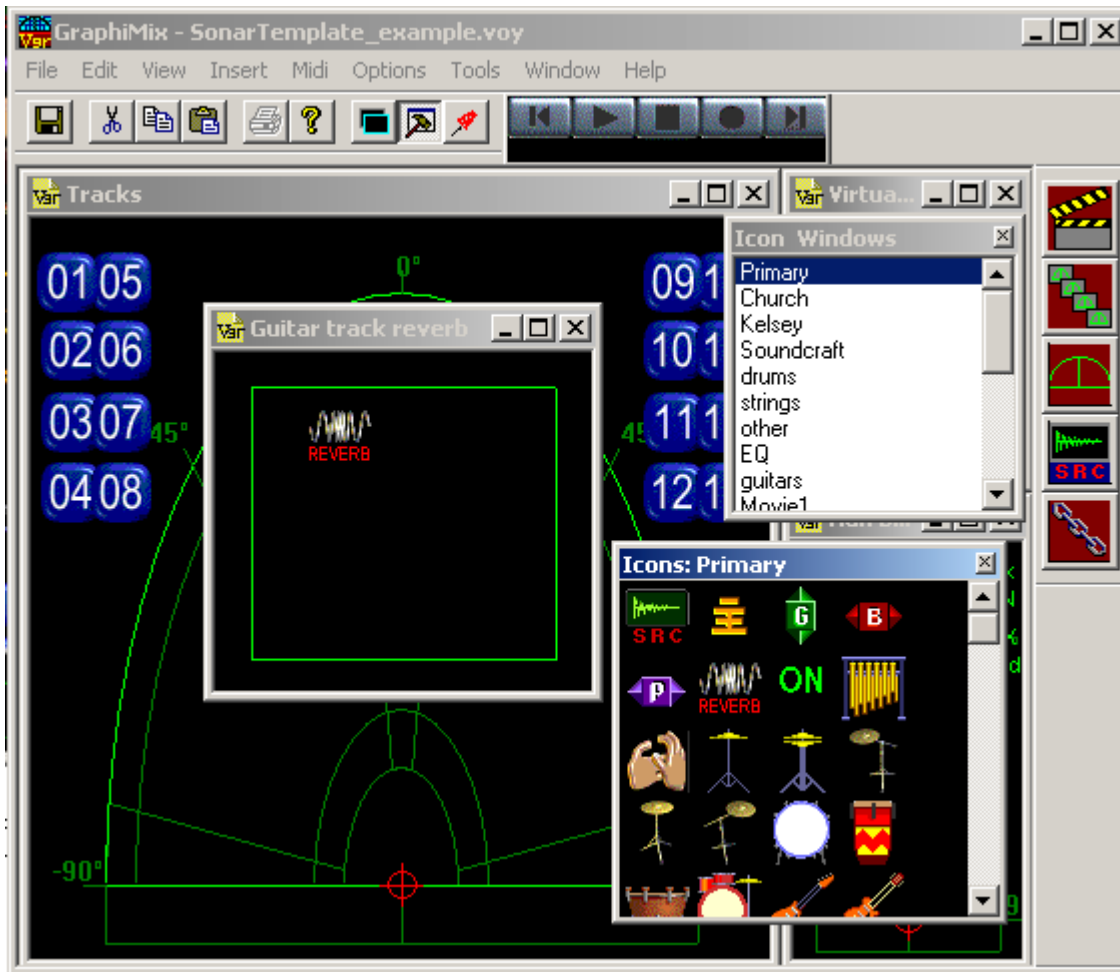


Standard Toolbar

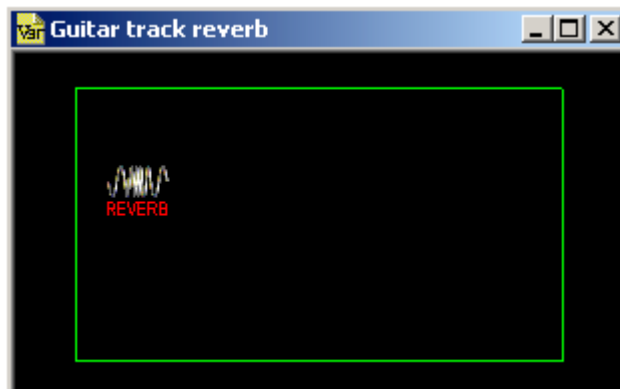
5. Now <right-click> on the new Mix Form and select Properties.



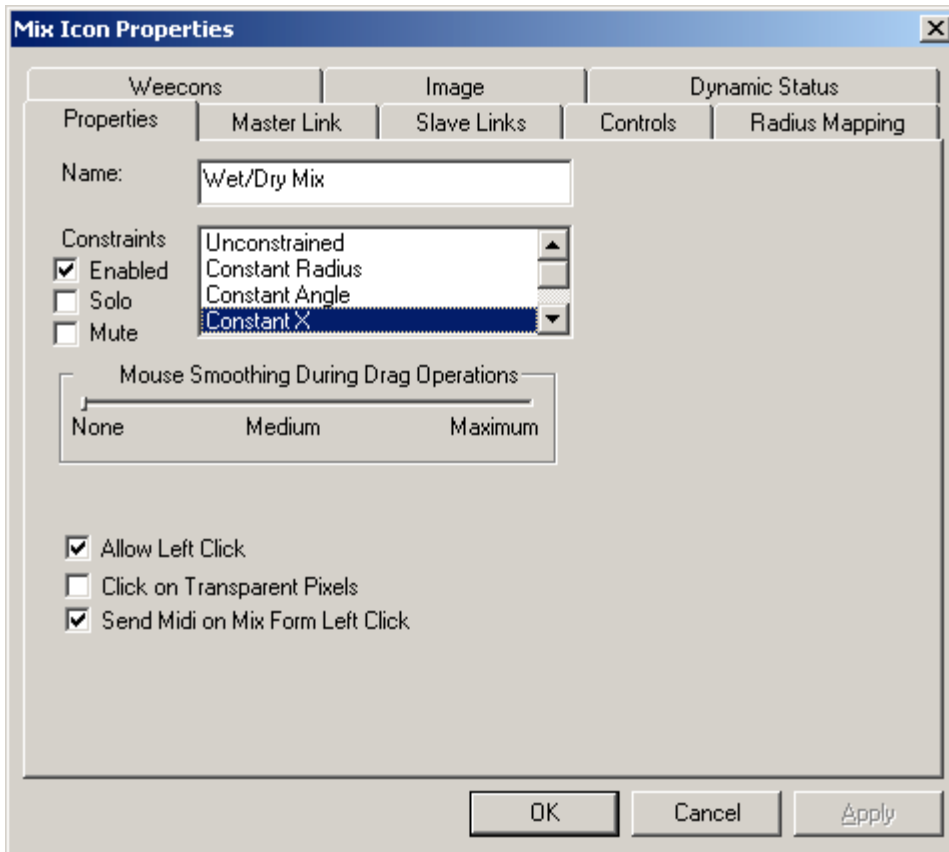
6. Set the name of the new Mix Form and set its type to 'Stereo Rectangular'. Click OK



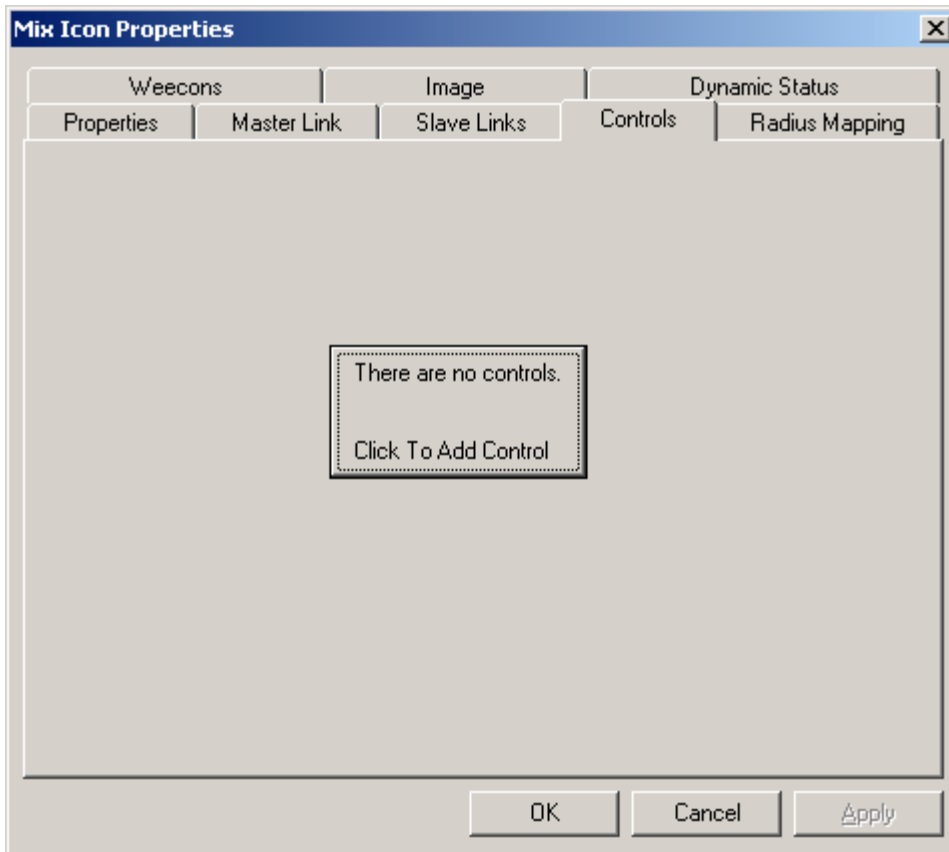
7. Now, click on the View Menu and select “View Icon Windows...” .
8. Click on the Primary VLB window to get the primary icon selection window.
9. Now, select a Mix Icon (it can be changed later) and drag it to the new Mix Form.



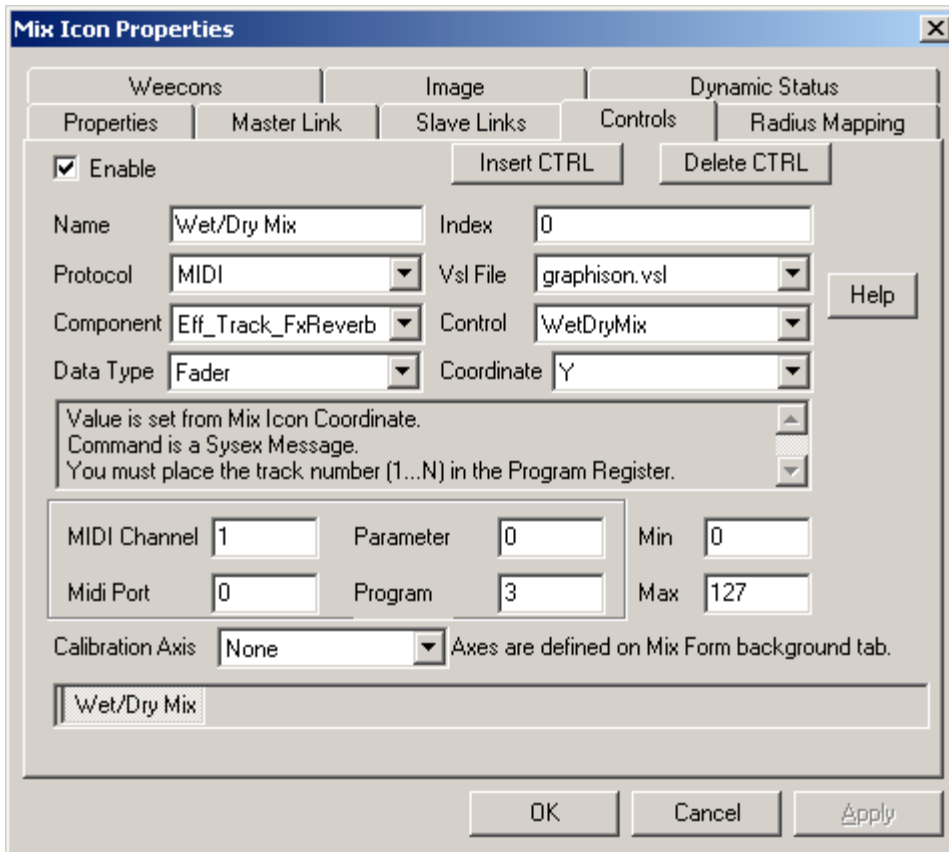
10. <Right-click> on the new Mix Icon and select Properties.



11. Type in the icon's name. Set the icon's movement constraint to 'ConstantX' (up and down only).
12. Now select the Controls tab.



13. Click to add a control. Now fill in the name and select the VSL file to be graphison.vsl. The component is 'Eff\_Track\_FxReverb' and the control is 'WetDryMix', select these from the drop down lists.
14. Set the Coordinate to be 'Y' (up and down) and, finally,
15. set the Program register number to 3 (since this reverb control is on track 3).
16. Click OK.

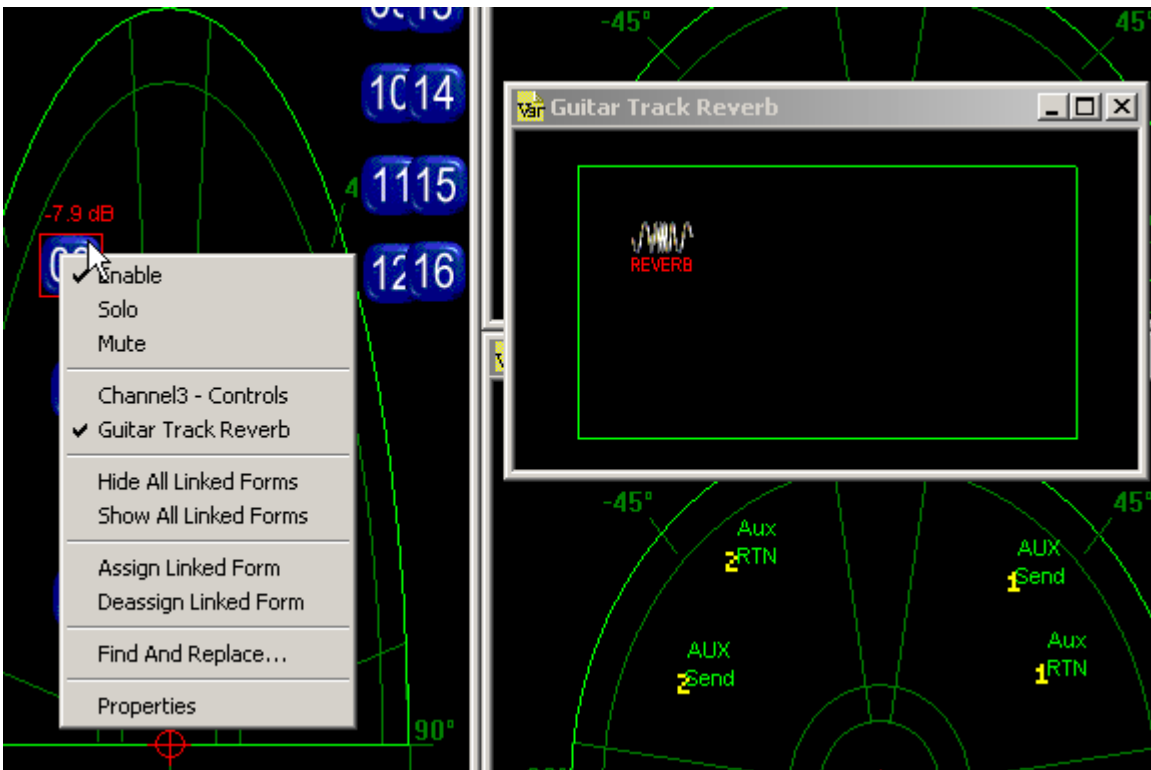


If you bring up the SONAR FxReverb panel you should be able to see the control move as you move the GraphiMix Mix Icon up and down. If you move the control on the SONAR panel, the GraphiMix Mix Icon should respond in kind.

17. Now attach the new Mix Form to the Track 3 Mix Icon as a 'Linked Mix Form'.
18. First, pull down the window menu and click 'Tile'. This forces the new Mix Form to remain visible.
19. <Right-click> on the track 3 Mix Icon (make sure GraphiMix is in 'Build' mode) and
20. select 'Assign Linked Form'. The cursor will turn to the 'Assign Linked Form' cursor.
21. Click on the new Mix Form.




22. Now the Guitar track reverb form can be hidden. To hide it, <right-click> on the Mix Form and select 'Hide Mix Form'. To recall it, <right-click> on the track 3 Mix Icon and select 'Guitar Track Reverb'.



Note that now the new Mix Form appears on the Mix Icon's context menu. Multiple Linked Mix Forms can be linked to any Mix Icon. More controls can be easily added to the new Mix Form and calibration axes can be created and attached, dynamic displays can be turned on and whatever else the user wants can be added.

To add controls for the Aux bus effects, select the “Eff\_Aux\_ ...” components. For the virtual mains use “Eff\_Main\_ ...” components. Be sure to set the Program register according to the Aux bus number or Main bus number in those controls.

23. Return GraphiMix to ‘Run’ mode .
24. Save the session.

## Adding a Switch

1. First, set GraphiMix to ‘Build’ mode  by clicking on the Run/Build Mode switch on the standard toolbar.



Standard Toolbar

2. To add the FxReverb ‘bypass’ switch to the reverb Mix Icon we just added, <right-click> on the new Mix Icon.
3. Select Properties, then select the Controls tab.
4. Now click on ‘Insert CTRL’. Fill it in as shown.

**Mix Icon Properties**

Weecons | Image | Dynamic Status

Properties | Master Link | Slave Links | Controls | Radius Mapping

Enable Insert CTRL Delete CTRL

Name  Index

Protocol  Vsl File  Help

Component  Control

Data Type  Coordinate

Value is set from Mix Icon Coordinate.  
Command is a Sysex Message.  
You must place the track number (1...N) in the Program Register.

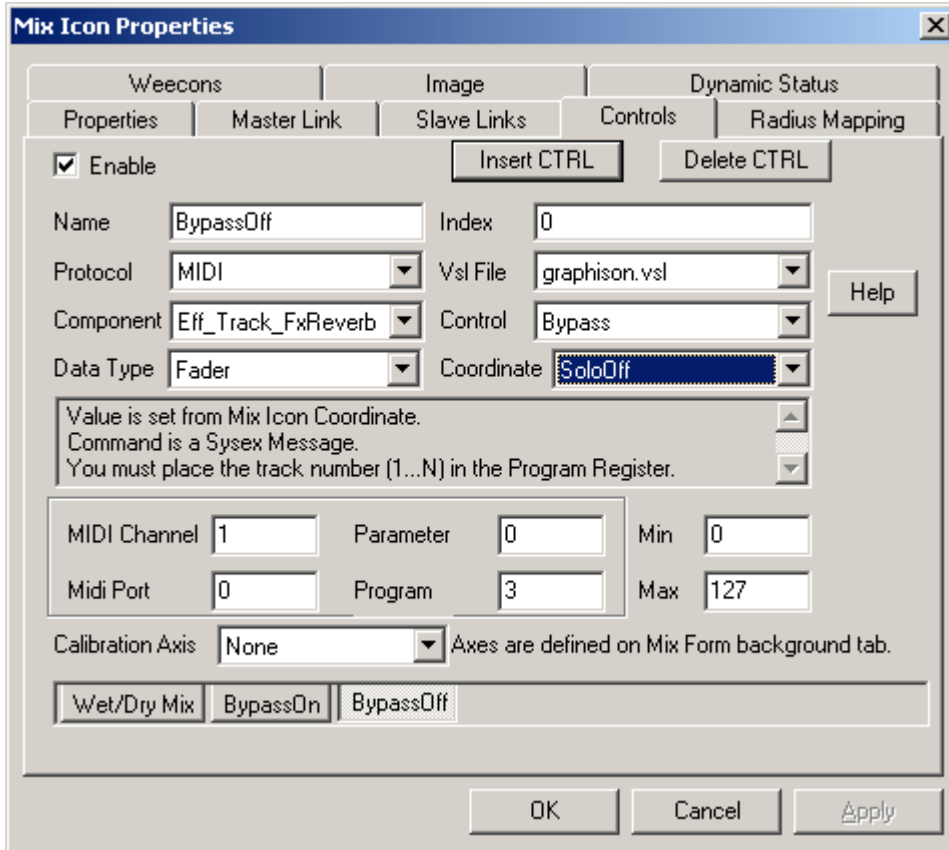
MIDI Channel  Parameter  Min

Midi Port  Program  Max

Calibration Axis  Axes are defined on Mix Form background tab.

OK Cancel Apply

- Then add the 'Off' state control by clicking the 'Insert CTRL' button again.



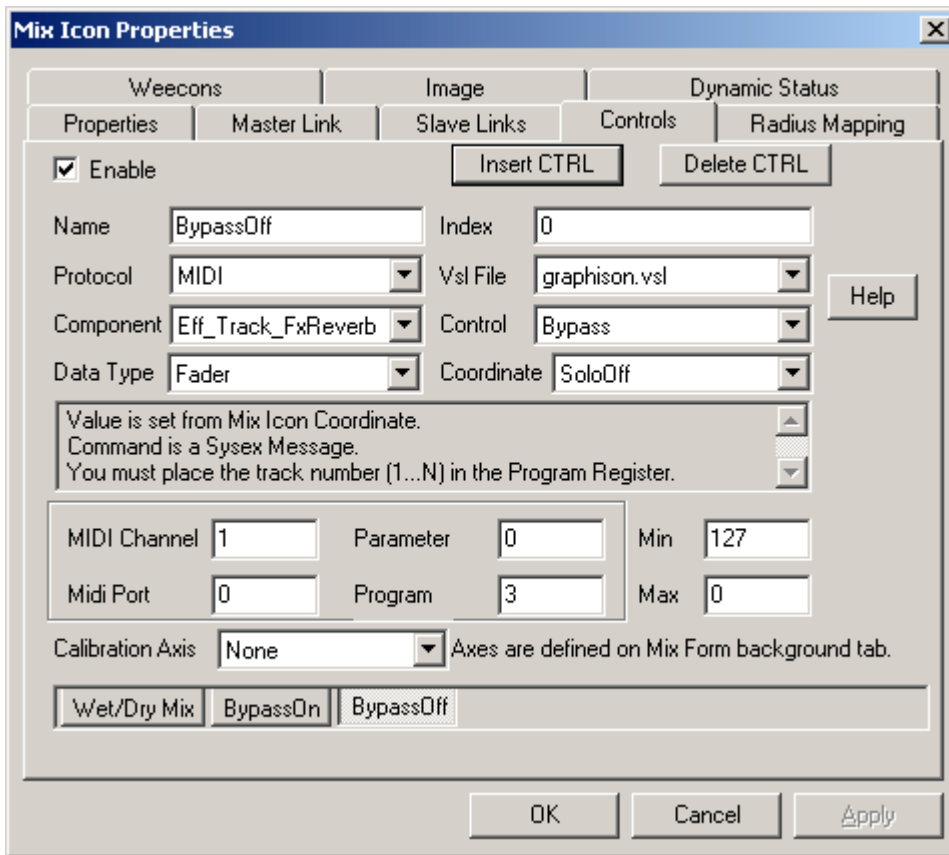
- Set the Coordinate to 'SoloOff'.
- Click OK and try it. <Shift-left click> on the Mix Icon to toggle its solo state.



Now, when the Mix Icon is in normal state, the reverb bypass switch is on, and conversely, when the Mix Icon is in Solo state, the bypass switch is off. This is probably exactly opposite to what is desired.



8. To change this, <right-click> on the Mix Icon, and go to the Controls tab.




9. For both the BypassOn and BypassOff controls, invert the settings of the Min and Max registers.

10. Now click OK and try again.





Now, the switches display the correct states.

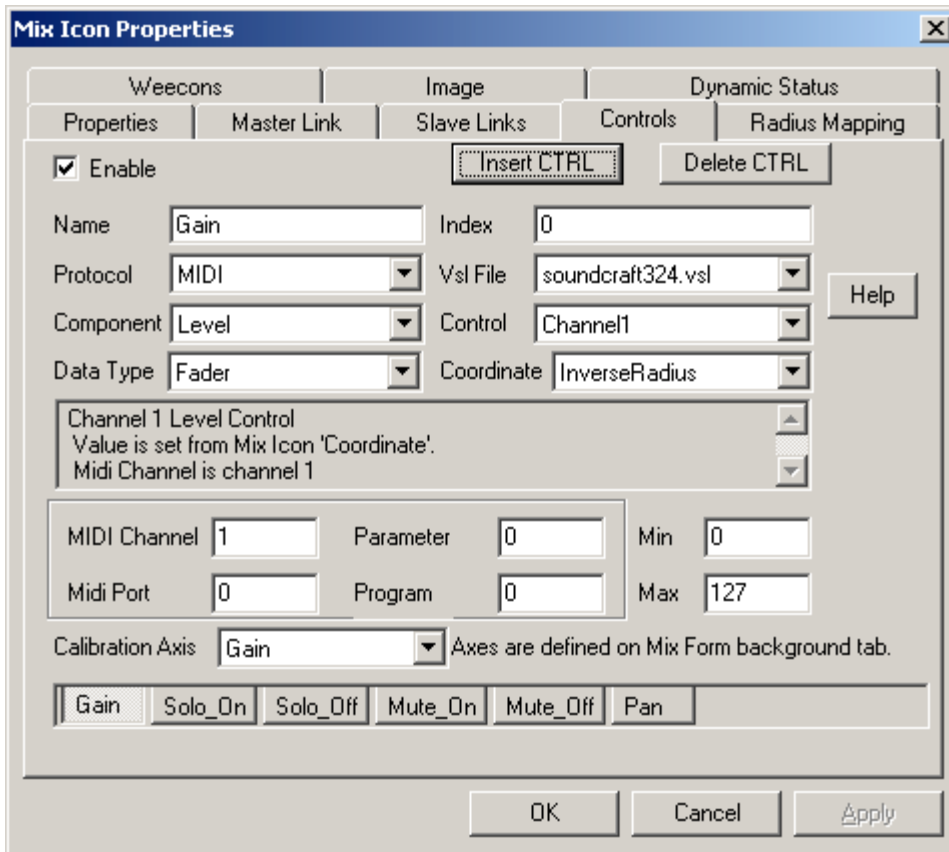
11. Return GraphiMix to 'Run' mode .
12. Save the session.

### ***Adding A Control to a Mix Icon***

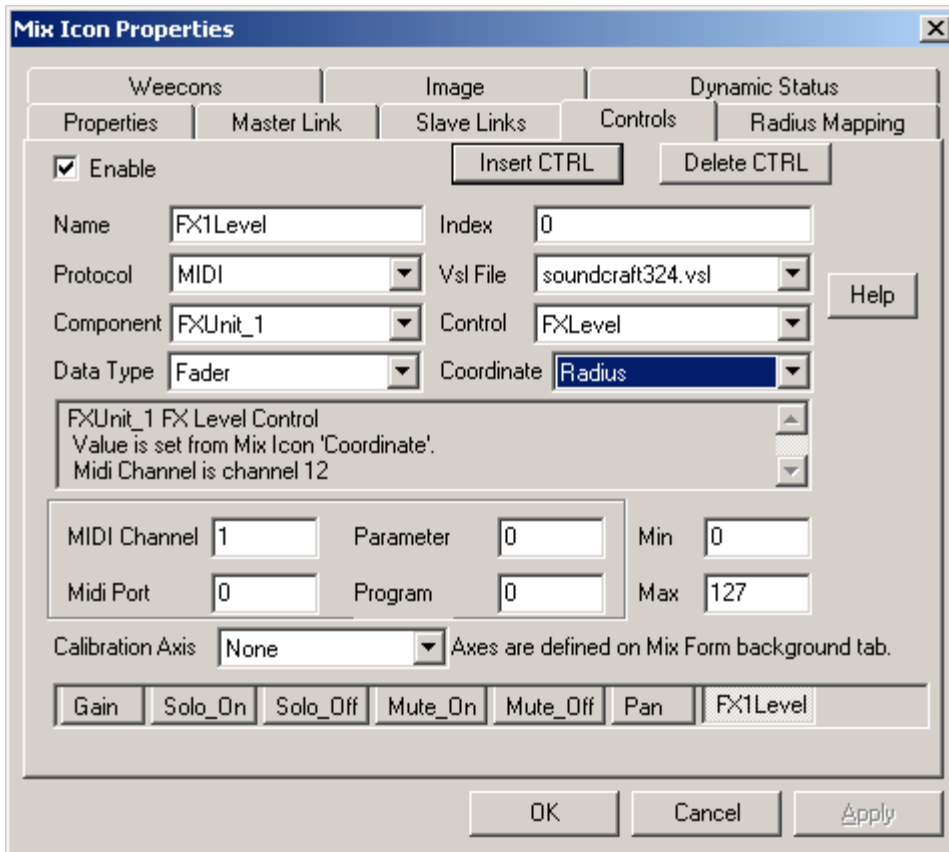
You may want to add a control to a Mix Icon to automatically add effects which change relative to the position of the icon. Using the Soundcraft 324 as an example, we will add the effects 'FXLevel' control to the position of the guitar icon so that as the volume of the channel is faded out, the sound becomes 'wetter' (more reverberant), and as the channel volume is increased, the sound becomes 'drier'.

To do this,

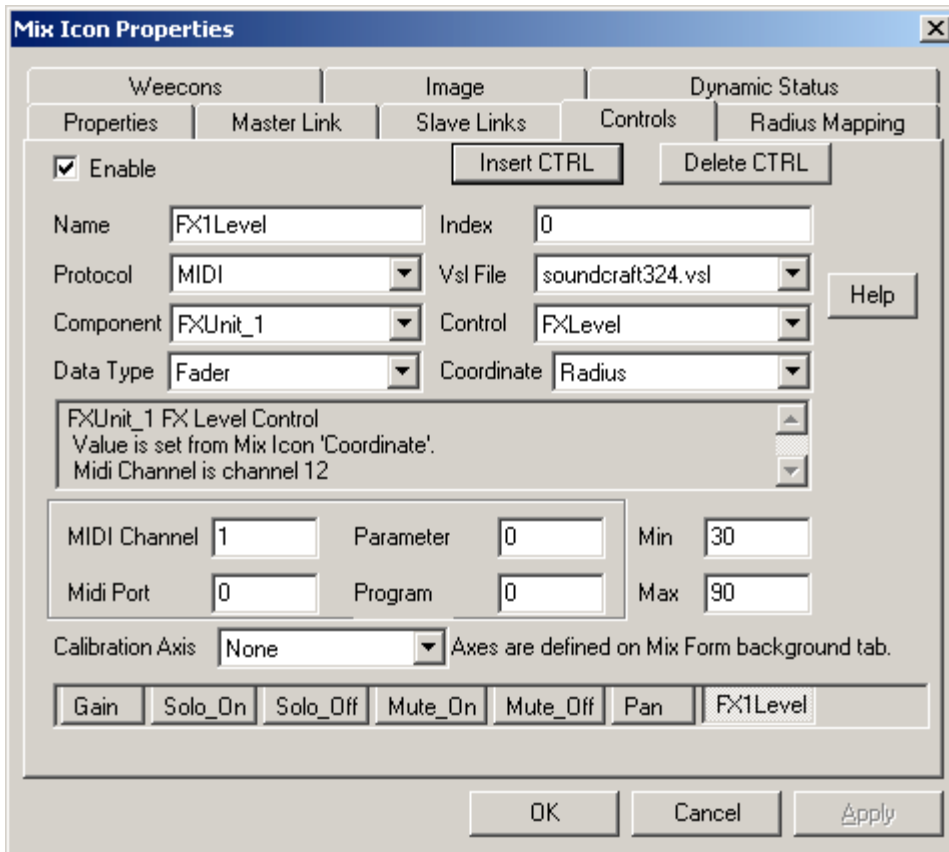
1. First put GraphiMix into 'Build' mode.
2. Now, select the Mix Icon and <right-click> on it to bring up the context menu.
3. Select the 'Properties' entry.
4. Click on the 'Controls' tab.



5. Now, click on the 'Insert CTRL' button. Enter the settings as shown. You will have selected the 'FXLevel' control in the 'FXUnit\_1' component. Make sure the Data Type field is set to 'Fader' and the Coordinate set to 'Radius'. This sets the level control to be 'wetter' at the outer edge of the Mix Form.



6. You may wish to modify the minimum and maximum settings relative to position to get the right ‘feel’ and sound. Type in the appropriate numbers in the Min and Max fields in the Mix Icon Properties – Controls tab for the Reverb control.



7. Click OK when done.

## A Short Tour of GraphiMix Features

Here are some highlights of the most often used GraphiMix features.



### Using the Keyboard and the Mouse

To move Mix Icons around the Mix Forms, use a **<left click, drag, and release>** on the icon to be moved. A single **<left click>** on an icon causes it to be selected. A selected Mix Icon is drawn with a red square surrounding it.

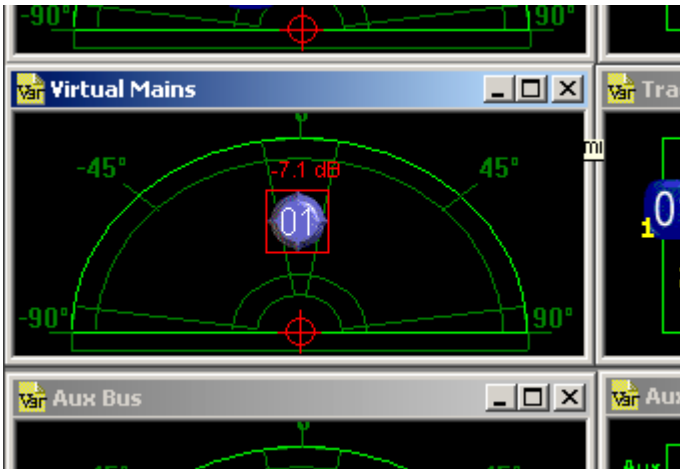


If the **<space bar>** on the keyboard is typed when a Mix Icon is selected, 'Mouse Lock' Mode is entered. The Mix Icon will be attached to any movement of the mouse without having to hold down the left mouse button. Another **<space bar>** toggles this mode off.

The keyboard cursor keys, **up**, **left**, **right**, and **down**, will move the selected Mix Icon in the appropriate direction. If the Mix Icon is on a rectangular Mix Form, then the icon moves up, down, left and right. If the Mix Icon is on a radial Mix Form, then the icon moves in and out in radius, and left and right in angular position. If the **<control>** key is held down when the arrow keys are pressed, the Mix Icon moves in larger increments.

A **<control-C>** typed on the keyboard (or if *copy* is selected from the Edit menu) copies the selected Mix Icon to the Windows clipboard. If no icon is selected then the selected Mix Form is copied to the clipboard. A **<control-X>** 'cuts' the selected icon or Mix Form and a **<control-V>** 'pastes' the contents of the Windows clipboard to the selected Mix Form or Mix Frame. These actions can also be selected from the Edit menu.

A selected Mix Form has the title bar drawn in blue. Any click on or within the Mix Form boundary will select that Mix Form (provided some other Mix Form isn't in the way).



To move a Mix Form, <left click and drag> on the Mix Form's title bar. To resize a Mix Form, <left click and drag> on a corner or a side of the Mix Form. The cursor will change to a double-arringed symbol when it is over a 'resize' point.

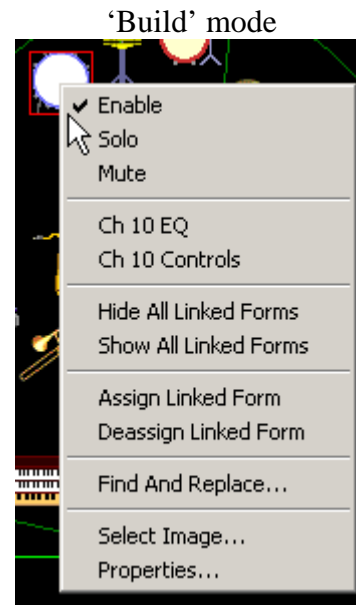
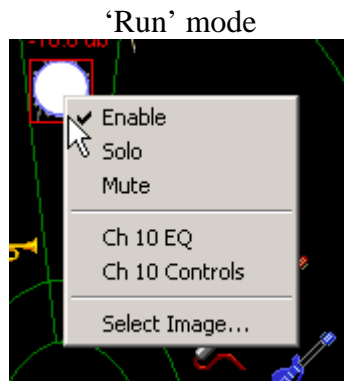
A <right-click> on Mix Forms or Mix Icons brings up the appropriate context menus. If GraphiMix is set to Build Mode, extra entries appear in these context menus. GraphiMix is toggled between Run Mode and Build Mode by toggling the Run/Build Mode button on the standard toolbar.



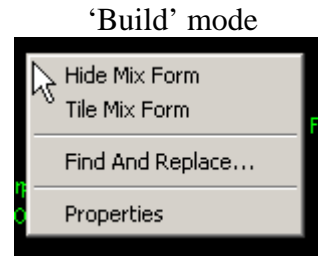
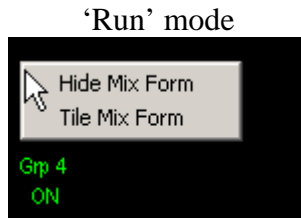
Standard Toolbar



This is a Mix Icon context menu.

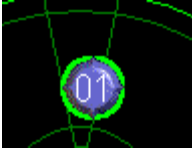


This is a Mix Form context menu.



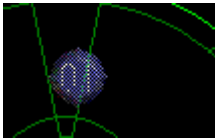
Mix Form and Mix Icon properties are displayed and modified by the selection of the Properties entry.

The <shift> and <control> keys modify the operation of the Mouse buttons.



A **<shift-left click>** toggles the Mix Icon in and out of ‘Solo’ mode. A Mix Icon in Solo Mode is drawn with a bright green halo. MIDI messages can be sent when the icon enters or leaves solo mode.

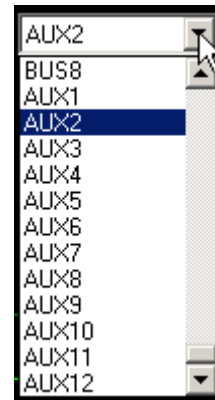
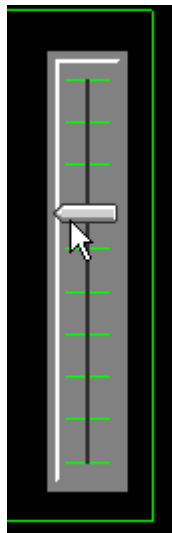
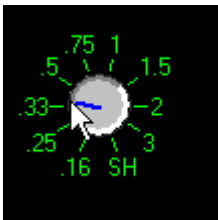
Solo mode typically ‘solos’ the track or bus so that it can be heard by itself, temporarily removing all other ‘non-soloed’ tracks from the mix.

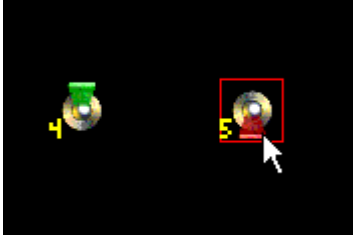


A **<shift-right click>** toggles the Mix Icon in and out of ‘Mute’ mode. A Mix Icon in Mute Mode is drawn semi-transparently and dim. MIDI messages can be sent when the icon enters or leaves mute mode.

Mute mode typically ‘mutes’ the track or bus, temporarily removing its contribution to the mix or monitors.

A **<control-left click>** is used to adjust the setting of a knob, fader or list control. If the **<control>** key is not held down, the control’s position on the Mix Form is moved (via a normal **<left click and drag>** operation). However, if the **<control>** key is held down, the **<left click and drag>** operation is applied instead to the rotation of the knob or the movement of the slider or the list entry selection.

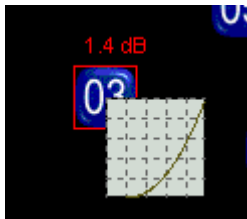




A **<control-left click>** on a switch toggles the state of the switch.

Knobs, faders, and switch Mix Icons can be optionally set so that their position is fixed. In this mode, the **<control>** key **is not needed** to adjust their fader, knob, or switch positions when dragging. **All switches used in the templates are set this way so that the user can simply <left-click> on the switch or icon to change its state.**

The **<mouse wheel>** is also used in GraphiMix. If a Mix Icon is selected, the **<mouse wheel>** moves the icon according to the Mix Icon movement constraints (set in its properties dialog) and what kind of Mix Form it is placed on. If the Mix Icon is placed on a stereo Mix Form (semi-circle), then the **<mouse wheel>** moves the selected icon in a radial direction. On a normal Mix Icon with pan and volume controls, this would equate to moving just the volume control with the wheel. A **<Shift-mouse wheel>** would move the icon in an angular direction, i.e. adjust only the Pan control. If the control is placed on a rectangular Mix Form, then the **<mouse wheel>** moves the icon in the Y direction (up and down) and the **<shift-mouse wheel>** moves the icon in the X direction (side to side). This provides a vernier-type of control which is useful in making small precise adjustments.



A **<control-mouse wheel>** adjusts the Radius Mapping settings for the selected Mix Icon. The Radius mapping setting allows the user to provide more adjustment resolution near the high end or the low end of the adjustment range as opposed to a strictly linear mapping which provides constant resolution throughout the Mix Icon range.

The **<Delete>** key will delete the selected object such as Mix Icons, Mix Forms, and Links only if GraphiMix is in 'Build' mode.

## Keyboard and Mouse Summary

Keyboard:

UP, DOWN, LEFT, RIGHT      Move selected Mix Icon accordingly.

UP, DOWN, LEFT, RIGHT      Move selected Mix Icon

+<Control>	accordingly with larger steps
<Control-C>	Copy the selected Mix Icon or the selected Mix Form to the clipboard.
<Control-X>	Cut the selected Mix Icon or the selected Mix Form to the clipboard.
<Control-V>	Paste from the clipboard.
SPACE	Toggle 'Mouse Lock Mode' for the selected Mix Icon.
DELETE	Delete the selected object. Build mode must be enabled in order to use this key.
+,-	Zoom in/out selected Mix Form.

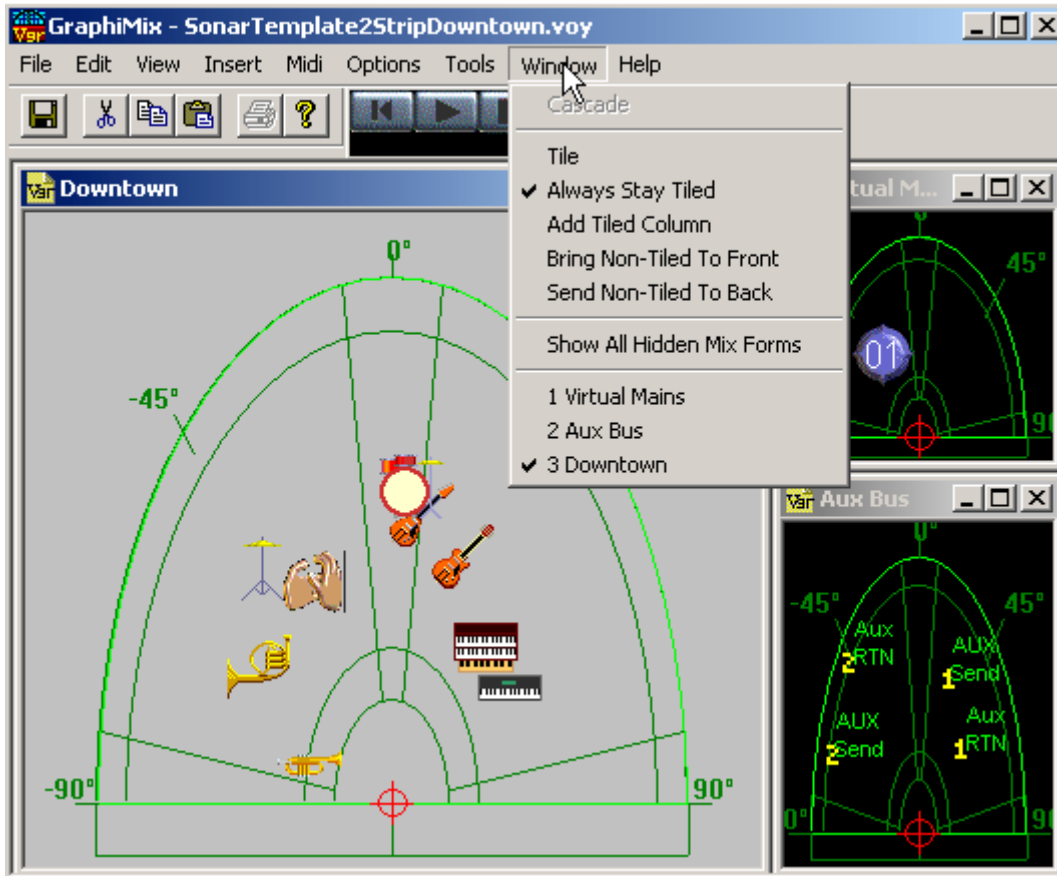
Mouse:

Keyboard	<Left Click>	<Mouse Wheel>	<Right Click>
-none-	Select Mix Icon or Mix Form. Drag Mix Icon or Mix Form.	Adjust Radius on Stereo/Quad Mix Form. Adjust Y on Rectangular Mix Forms.	Context Menu for Mix Icon or Mix Form.
<Shift>	Toggle Mix Icon in Solo Mode.	Adjust Angle on Stereo/Quad Mix Form. Adjust X on Rectangular Mix Forms.	Toggle Mix Icon in Mute Mode.
<Control>	Toggle Switch Mix Icon. Drag Knob and Fader settings.	Adjust Radius Mapping for Mix Icon.	Context Menu for Mix Icon or Mix Form.

## Tiled Mix Form Display Mode

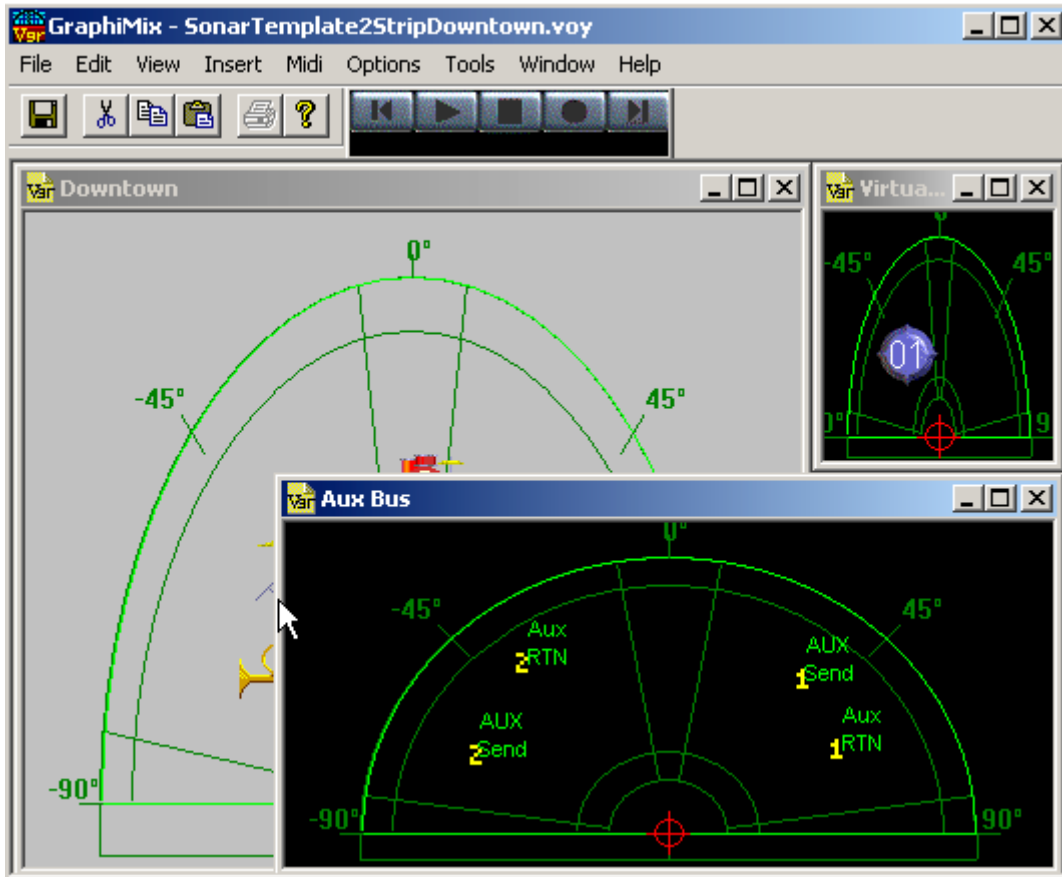
This is a useful feature that allows the user to most efficiently use and access the GraphiMix mix surface. Most templates uses this mode for the most frequently accessed Mix Forms.

This mode is accessed from the Window menu in GraphiMix.

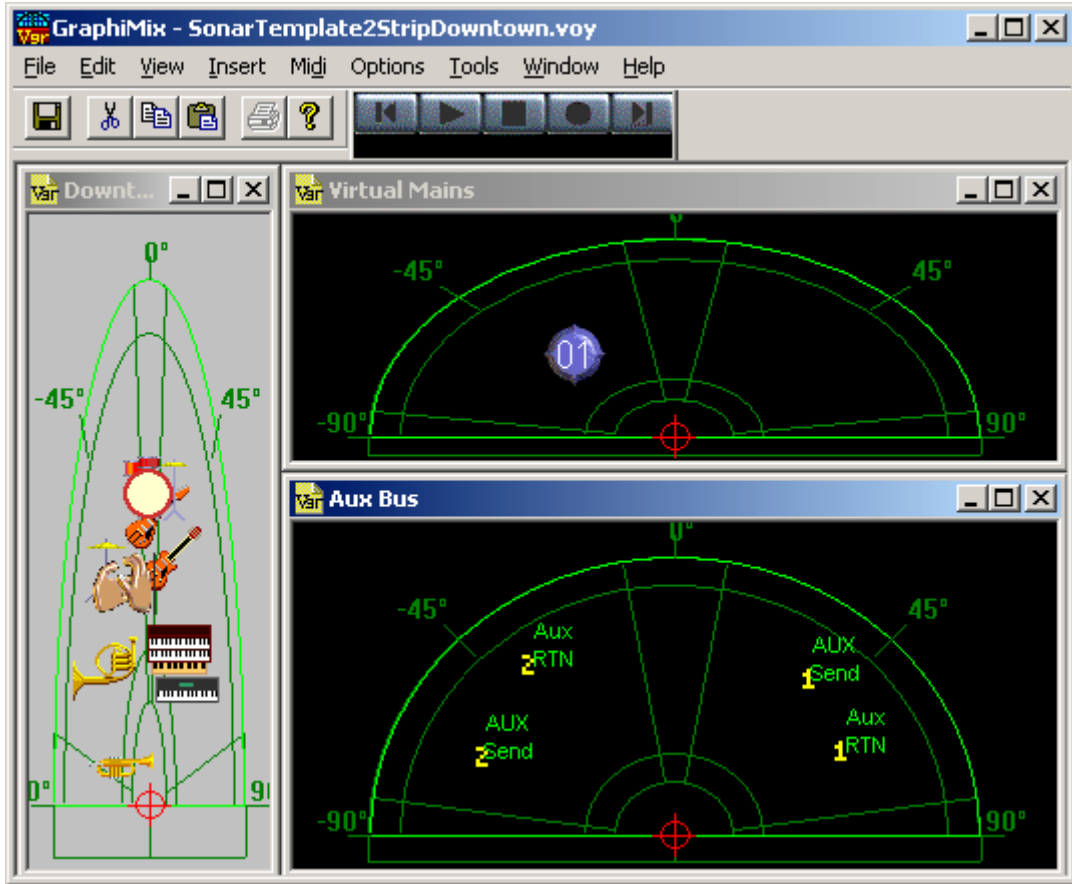


A Mix Form can be a free-floating window of any size (inside the GraphiMix mainframe), or it can be hidden, or it can be minimized, or it can be tiled. A tiled Mix Form shares and fully occupies the GraphiMix application window frame with all other tiled Mix Forms.

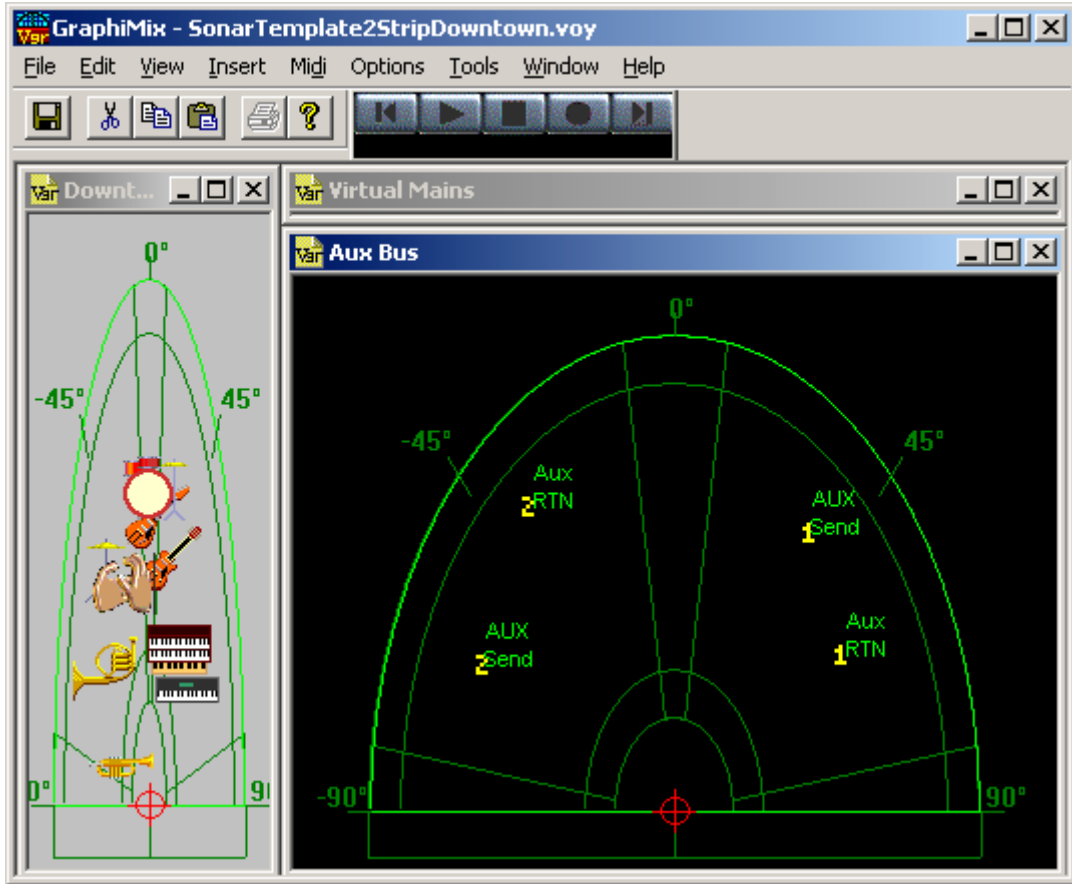
By clicking and dragging on a side or top or bottom of a mix form that is tiled, the user can change the size of the selected mix form and all other tiled mix forms will then re-adjust their edges to fit the new size.



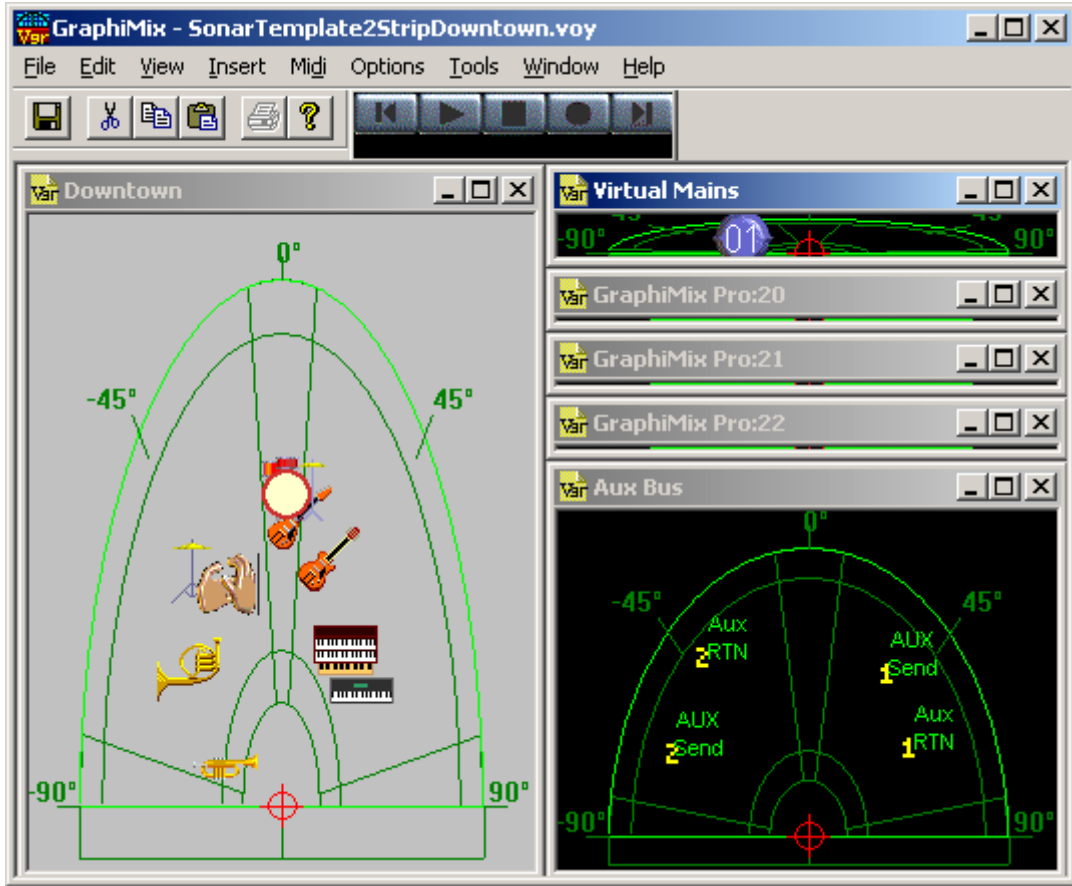
When the mix form is released, the columns will readjust to accommodate the new size.



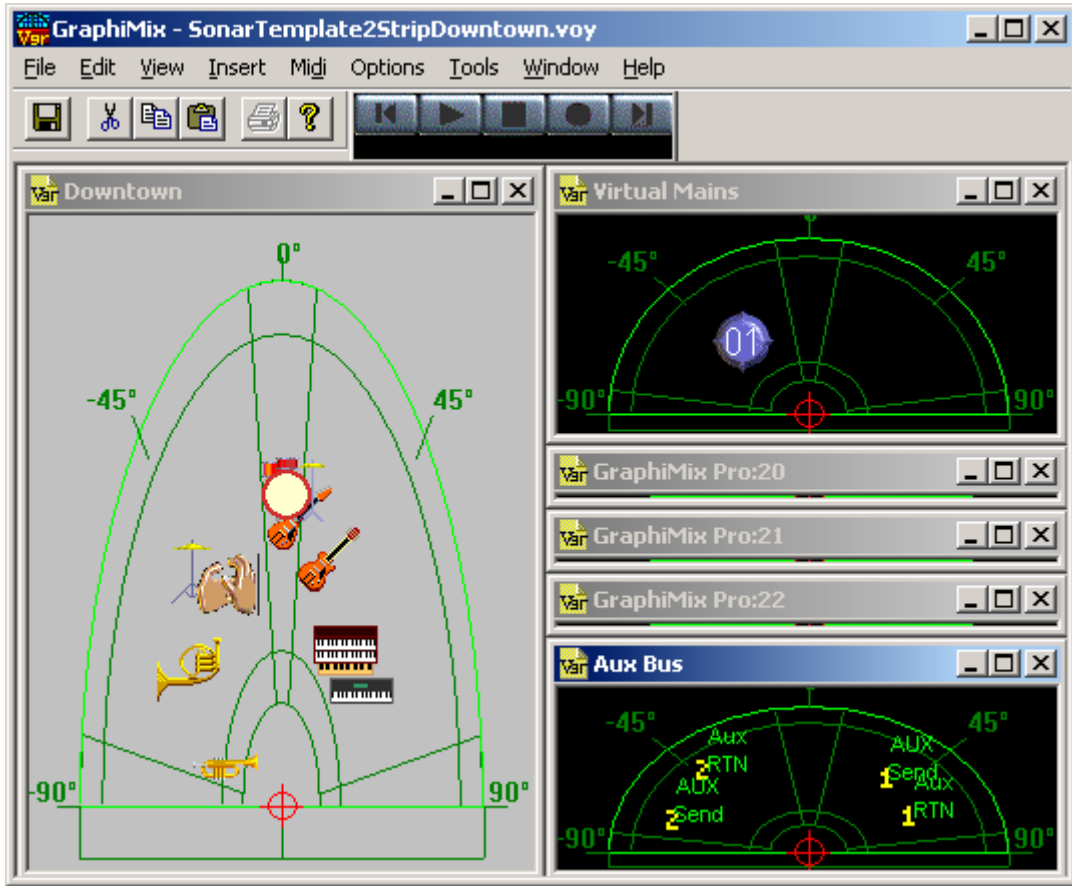
There is a minimum column width and a minimum Mix Form height within a column.



A Mix Form that is 'rolled up' to its minimum height or its minimum width is 'sticky' in the sense that it will tend to stay minimized when the tiling is adjusted. For example, in the following image, there is a stack of mix forms in the rightmost column with only two mix forms 'open' and the rest 'rolled-up' to their minimum height.



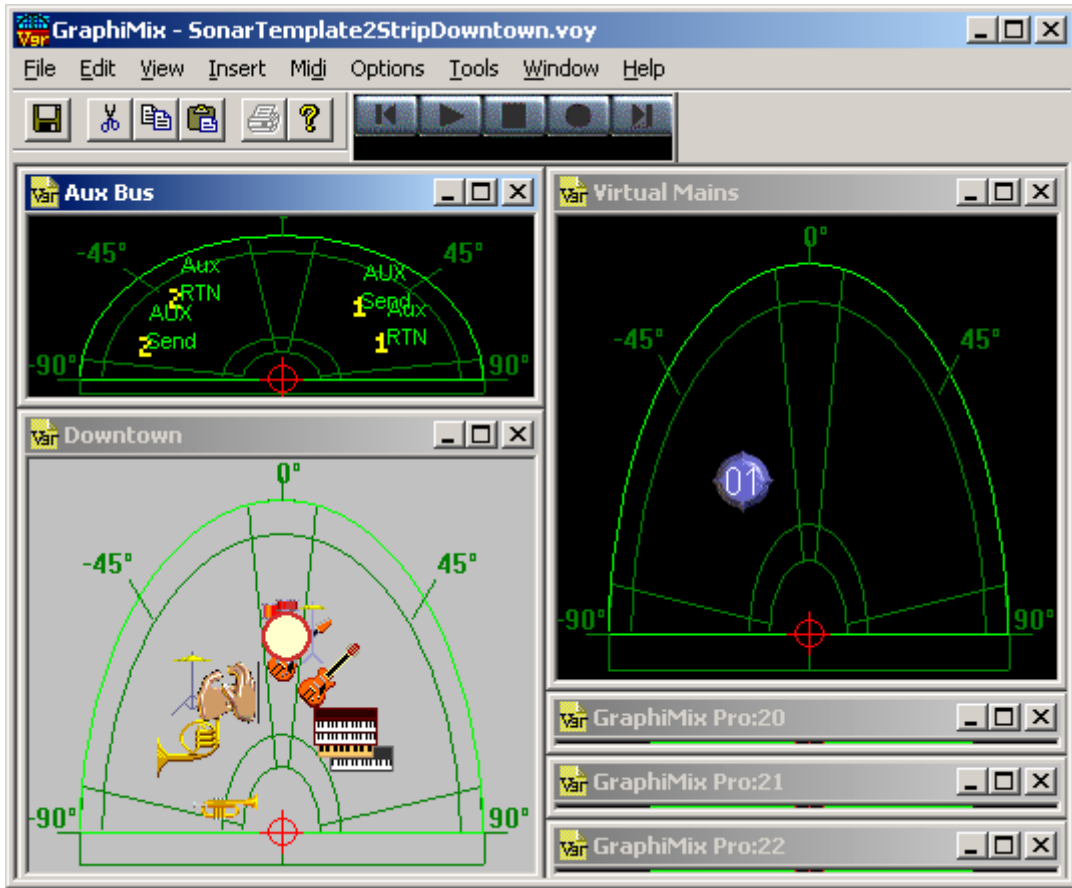
If the 'Aux Bus' Mix Form height is resized, the 'Virtual Mains' Mix Form will change its height in return. All of the other Mix Forms in that column will remain 'rolled-up'.



The same behavior will occur when the widths are adjusted.

To move Mix Forms from column to column or to a different place in the same column, simply drag the selected Mix Form to the new position and release it. It will automatically retile into the appropriate place.





## Icon Controls

In order for GraphiMix to communicate with Midi hardware or software, the midi protocols and control names must be contained in a VSL file that exists in the GraphiMix VSL subdirectory.

Any control for any connected and supported hardware can be added to any Mix Icon on any GraphiMix session. GraphiMix could easily control other external hardware while connected and communicating with SONAR for example. The user can also link Mix Icons together, so that an external piece of hardware can become a 'controller' for SONAR or for a completely different external MIDI device.

This can allow for very powerful studio setups incorporating a variety of external hardware mixers and/or software MIDI applications in a single GraphiMix session.

Small VSL files can be created by the user with a simple text editor to support any piece of Midi equipment where the messages are documented (usually in the back of the hardware manual). System exclusive (SYSEX) and Control change protocols are fully supported.

For more information on the VSL language and format, see the GraphiMix Help or the GraphiMix Reference Manual.

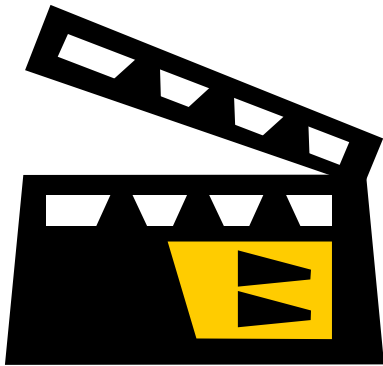
## ***Icon Properties***

Icon properties are selected by performing a <right-click> on a Mix Icon and clicking on “Properties” when in ‘Build’ mode. All of the properties that can be set on a per-icon basis are set in this tabbed dialog. For more information see the GraphiMix Help or the GraphiMix Reference Manual.

## ***Mix Form Properties***

Mix Form properties are selected by performing a <right-click> on a Mix Form and clicking on “Properties” when in ‘Build’ mode. All of the properties that can be set on a per-mix form basis are set in this tabbed dialog. For more information see the GraphiMix Help or the GraphiMix Reference Manual.

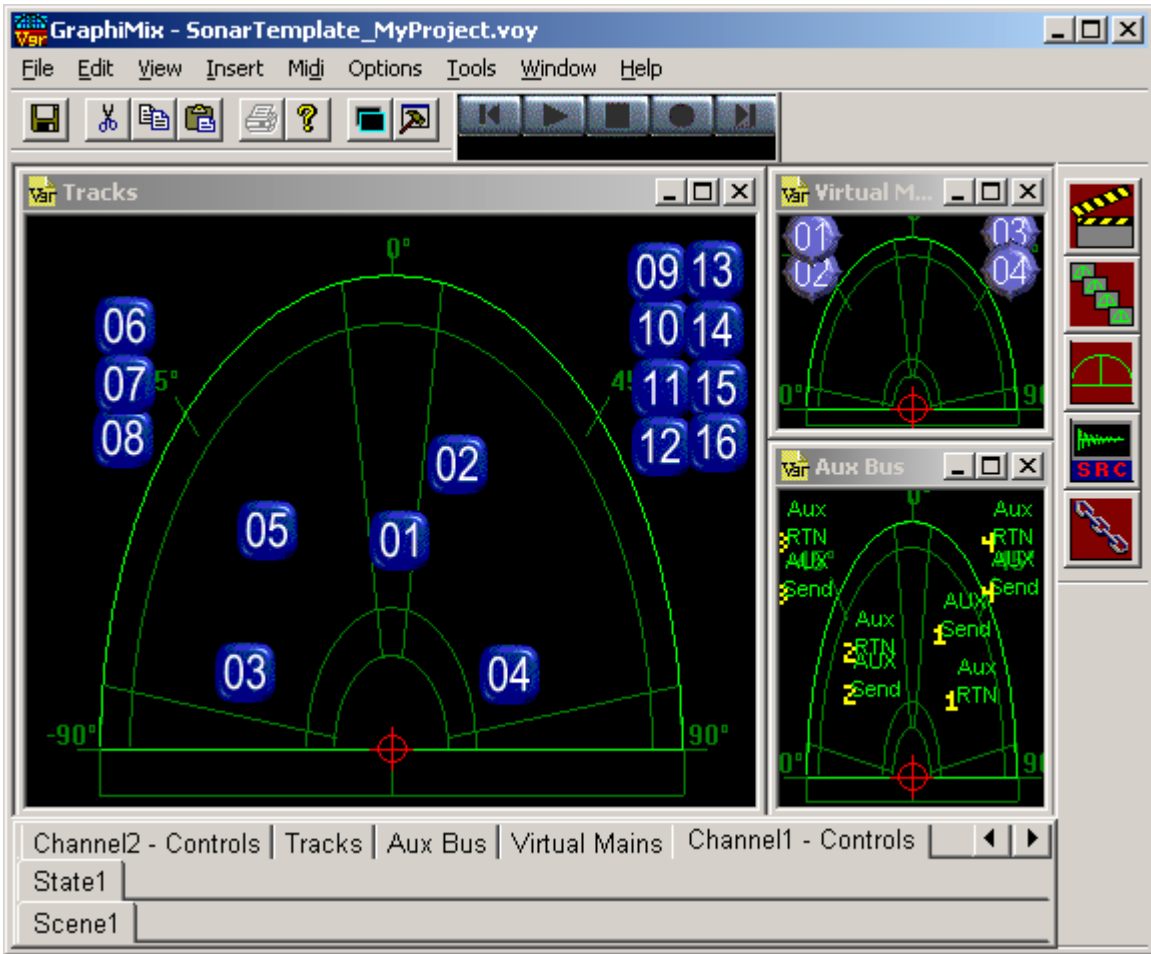
## ***Scenes and States***



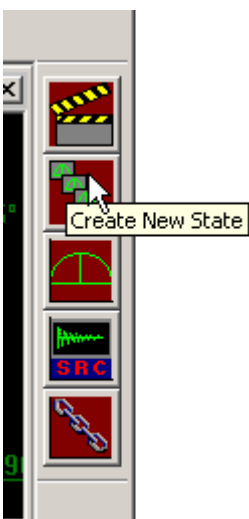
GraphiMix incorporates a very powerful feature known as Scenes and States. Essentially, the entire session can be ‘snapshot saved’ and cloned as a new state. Now controls can be set in that state to different positions. By selecting the first state, all controls will be reset to their original positions. By selecting the new state all controls will be set to their new settings. Any number of states can be created. Scenes are essentially folders of States and provide another grouping of related presets.

To use this feature,

1. First enable the Mix Form Tool bar and the Scenes and States Tab bar by using the GraphiMix View menu.



2. Now, click on the Create New State button on the Mix Form Toolbar.



Note that the new state is an exact copy of the current state. Now, icons can be moved around, Mix Forms added or deleted, or any other modification can be performed in this new state. This state is essentially a 'preset' for GraphiMix.



The Scenes and States Tab bar displays 3 rows of tabs. The top row is the Mix Form tab bar and shows all Mix Forms in the current state, even hidden ones. The appropriate Mix Form will be 'brought to the front' and un-hidden if you click on the corresponding Mix Form tab.

The second row of tabs is the State tab bar. Clicking on the appropriate tab will instantiate the selected state, issuing MIDI for all active controls in this state. The states can be renamed on this tab bar.

The third row of tabs at the bottom show the scene that is currently in effect. A scene is essentially a container of states.

For more information on Scenes and States, see the GraphiMix Help or the GraphiMix Reference Manual.

### ***How to link Mix Icons***

Mix Icons can be linked so that the movement of one 'master' Mix Icon controls the position of one or more linked 'slave' icons. These links can be of various types such as horizontal mirror, vertical mirror, same as (ganged), cross-fade, and many others.

To create a link,

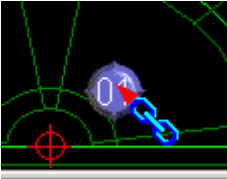
1. First use the View menu to bring up the Mix Form Toolbar.



2. The Link button has a picture of a chain link on it. Click on this button to create a link. The cursor changes to a 'Link Master' cursor.



3. After selecting the 'Master' icon of the link, the cursor changes to a 'Link Slave' icon.

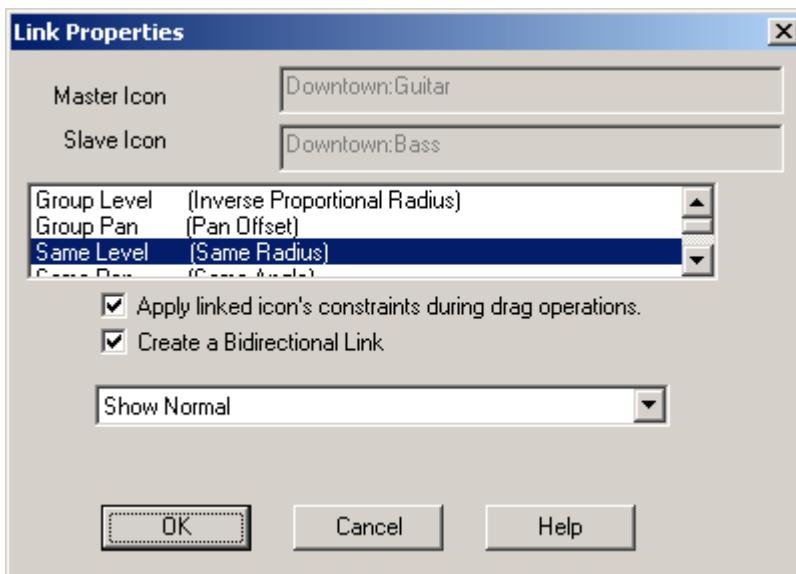


4. Click on the slave icon.

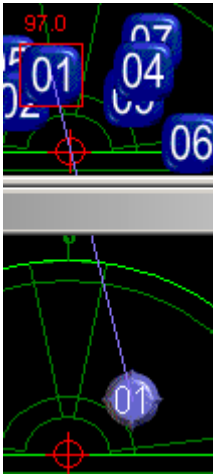
The Master and Slave Icons can be on different Mix Forms.

When the slave icon is selected, the Link Properties dialog automatically comes up to determine which kind of link is desired.

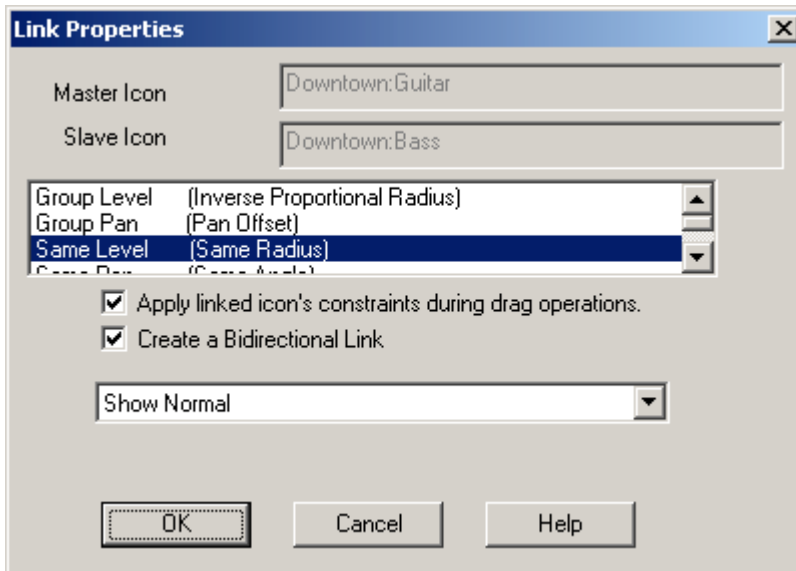
A link can also be circular in the sense that the master icon can be a slave to its own slave. This allows the movement of either icon to control the position of both. However, an icon cannot have more than one master. To create a circular link (essentially two, reverse-connected unidirectional links), check the 'Create a BiDirectional Link' box in the Link Properties Dialog.



To view links, click on the View menu and select 'View Links'.

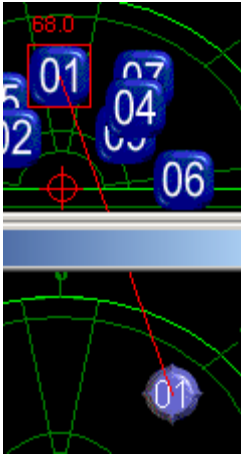


To view the Link properties, <right-click> on the link line.



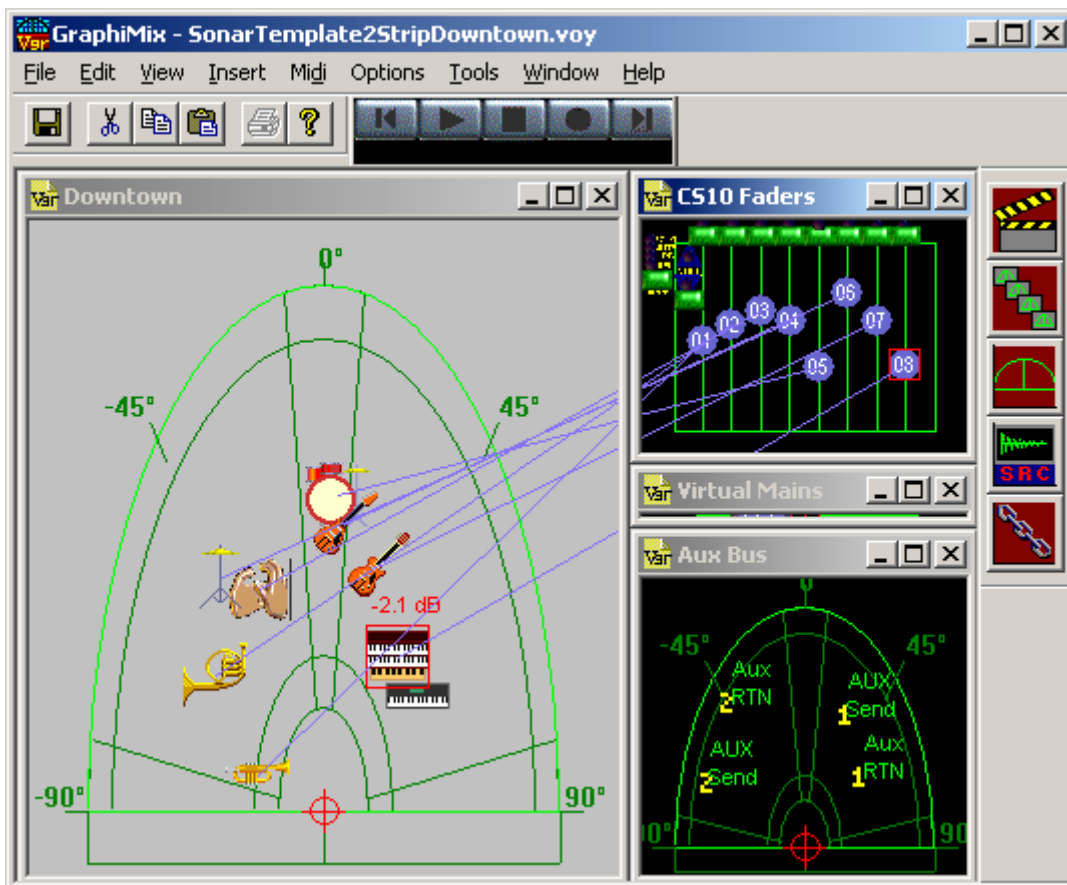
To delete a link, <left-click> on it. It should turn red. Then type the <delete> key. .

GraphiMix must be in 'Build' mode  before any object can be deleted.

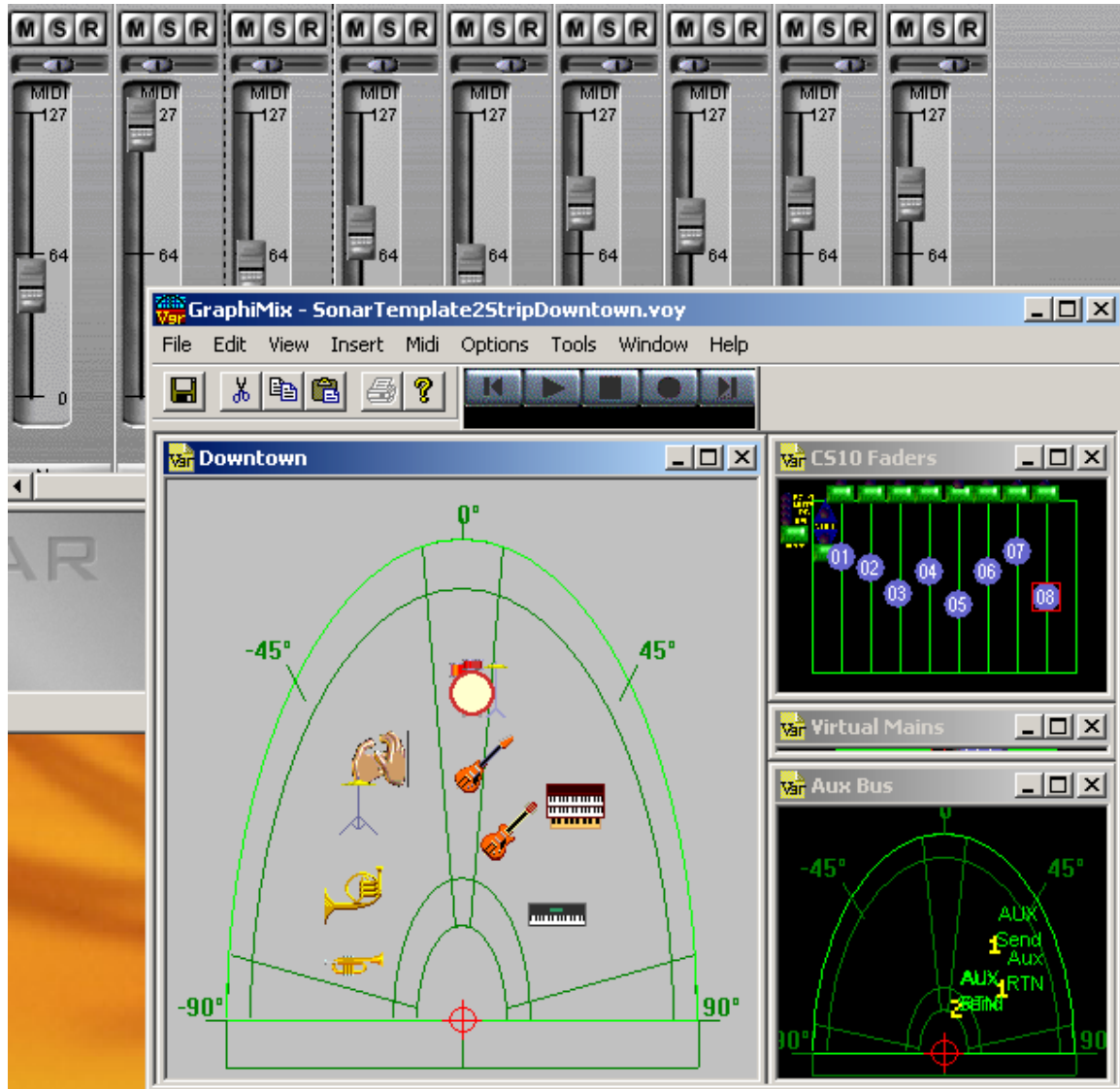


## An example of connecting a hardware mix surface to GraphiMix using links

Here is an example of cutting and pasting a Mix Form from a JLCooper CS10 session into a SONAR session template. Each CS10 fader mix icon is linked to an appropriate track Mix Icon using GraphiMix links. Adjusting the position of the CS10 faders will similarly adjust the radius coordinate of each linked Mix Icon.



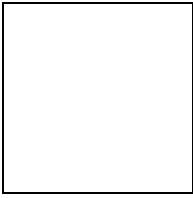
Now, moving the physical faders on the JLCooper CS10 mix surface moves the GraphiMix track mix icons and also moves the corresponding faders on the SONAR console.



For more information on links, see the GraphiMix Help or the GraphiMix Reference Manual.

### ***Edit Preferences***

To access the Edit Preferences dialog, click on the Edit menu and select 'Preferences'. This dialog provides global settings to tailor timing behaviors, CPU loading, whether to load the last project, and others. In general, if GraphiMix is 'sharing' the CPU with other software, e.g. SONAR or other MIDI applications, the 'Responsiveness' setting may have to be decreased to 89 or below to give other processes a chance to run.



For more information, see the GraphiMix Help or the GraphiMix Reference Manual.

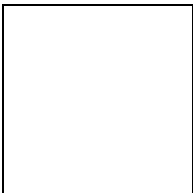
## ***Cut and Paste***

Mix Icons can be ‘Cut’, ‘Copied’, and ‘Pasted’ to new Mix Forms or old. Often the best way to create a new mix session is to create one icon that contains all the desired controls. When this Mix Icon is completed, it can be ‘copied’ and ‘pasted’ to replicate it for many tracks or channels. Find and Replace (see below) can be used to change certain fields (like the channel or program register) for all controls attached to an icon. This saves a lot of clicking, deleting, and typing when doing initial setups.

Mix Forms can also be ‘Cut’, ‘Copied’, and ‘Pasted’. To cut or paste a mix form using the keyboard commands, make sure that no icon on the selected form has been selected (red box around it), otherwise the selected icon, not the Mix Form, will be the target.

A <**control-C**> typed on the keyboard (or if *copy* is selected from the Edit menu) copies the selected Mix Icon to the Windows clipboard. If no icon is selected then the selected Mix Form is copied to the clipboard. A <**control-X**> ‘cuts’ the selected icon or Mix Form and a <**control-V**> ‘pastes’ the contents of the Windows clipboard to the selected Mix Form or Mix Frame. These actions can also be selected from the Edit menu.

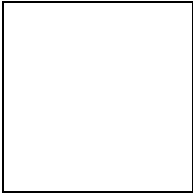
To prevent confusing the attached hardware and yourself, disable MIDI when cutting and pasting icons and mix forms. For example, if MIDI is not disabled (and is attached to an application or a hardware mixer) and a Mix Icon is copied and pasted, the new icon will show up on top of the old. Not only that, but any attempt to move one of the icons will move the other identically because they are connected via MIDI to the same controls. To separate the icons so that the controls on one can be edited to use a new track or channel, disable the MIDI connection temporarily.



## ***Find and Replace***

The Find and Replace utility is designed to automate some of the work required to create Mix Forms with arrays of (almost) identical Mix Icons with (almost) identical controls

attached. To access Find and Replace, click on the Edit menu and select ‘Find and Replace’.



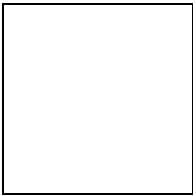
Often, all the Mix Icons on a Mix Form will have an identical setup for attached controls except that the Channel (or bus, or aux) number will change. Find and Replace allows identical changes to be made to all controls on a given icon, all icons on a given Mix Form, or on all Mix Forms in this state, or on all Mix Forms in this Scene. The search can be automatic, or can be done as a ‘Query Replace’ where each eligible control is displayed before the change is made.

For examples of using Find and Replace, see *Quick Topics, Changing the Track Number of a Mix Icon.*, page 15.

For more information, see the GraphiMix Help or the GraphiMix Reference Manual.

### ***Radius Mapping***

Radius Mapping is a feature that allows the user to customize how the position of the icons maps into the actual setting of the attached controls.



The Flat Radius setting sets the radius where the icon’s controls (attached to the Radius or Inverse Radius coordinates) goes to the minimum (or maximum) value. This is useful to prevent ‘crowding’ when a lot of Mix Icons are set to the minimum (or maximum) values. Now the icons will reach their minimum value before the radius goes to 0.

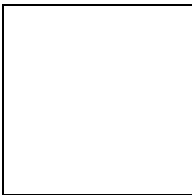
The Radius Mapping value changes the ‘shape’ of the position-to-value mapping from a straight line (linear interpolation) to a family of curves. These curves give more resolution to certain areas of the control’s range. For instance, the user may want better fine adjustment over the loud part of a volume control’s range and coarser control when the volume is set lower. Or he may want just the opposite. The Radius Mapping parameter allows the user to choose, on a per-icon basis, where he wants finer control.

The Radius Mapping and Flat Radius parameters can be set on the Edit Preferences menu, on each Mix Form, or on each Mix Icon.

The Edit Preferences dialog sets the default settings for these two parameters for each new Mix Form.

The Radius Mapping tab in the Mix Form Properties dialog allows the user to set the Flat Radius for the Mix Form (and all icons placed on that Mix Form), but only sets the default setting of the Radius Mapping values for new Mix Icons added to this form.

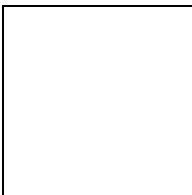
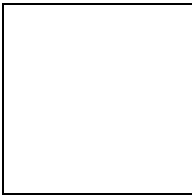
The Radius Mapping tab in the Mix Icon Properties dialog allows the user to set the Flat Radius for all icons on this Mix Form, and to set the Radius Mapping value for this Mix Icon only. The Mix Icon's Radius Mapping value can also be changed by selecting the Mix Icon and then doing a <control-Mouse wheel> action.



For more information, see the GraphiMix Reference Manual.

### ***Axes and Grids***

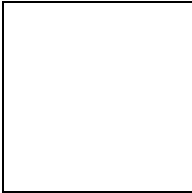
GraphiMix provides a full-featured ability to create axis and grids on the Mix Forms which provide a visual reference for the settings of the controls attached to the Mix Icons. These axes can be logarithmic or linear in radius, angles, X, or Y, and can be drawn in any color with arbitrary offsets and labeling. This feature is enabled in the Mix Form Properties-Backgrounds dialog.



### ***Calibrated Axes and Dynamic Status Displays***

Axes are also used as calibration objects that can be used to finely calibrate the position of a Mix Icon to a control setting on the attached hardware or software. Dynamic status displays can be enabled for each icon which provide a small, dynamic, readout attached

to the appropriate Mix Icon. Up to two calibrated controls' values can be displayed dynamically on each icon at various, selectable positions.

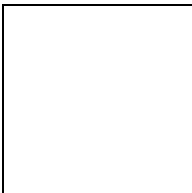


The display of the axes used as calibration objects can be inhibited, permitting only the dynamic status display of calibrated settings. The calibration axes take into account any Radius Mapping or Center Flat settings so that the dynamic status displays always indicate the actual hardware (or software) setting.

For more information, see the GraphiMix Help or the GraphiMix Reference Manual.

## Creating a Mix Session

To create a GraphiMix mix session, you must first have the MIDI driver files (VSL files) that you need to drive the hardware that you will be working with. These files are in the VSL subdirectory relative to the location of GraphiMix.exe.



### ***Mix Session VSL Files***

VSL files hold the MIDI message protocols to communicate to specific controls in the hardware or application.

Several VSL files are included with the GraphiMix base application. These are:

<b><u>VSL file</u></b>	<b><u>Supports</u></b>
PCMidi.VSL	Sound Card MIDI commands
VygrInternal.VSL	INTERNAL protocol commands to set internal GraphiMix variables.

Each Support Package also contains one or more VSL files specific to the target hardware or software.

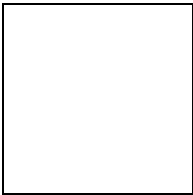
## ***Create from Scratch or Copy and Modify?***

There are two ways that a user can create a mix session. One is to start from scratch and create a new Mix Session from the menus. The second way is to copy an existing VOY session file and delete, add, and modify until the session is to your liking.

For each of the included GraphiMix Support Packages there are session files which provide initial configurations that control the target hardware available for a user to copy, prune, and customize. These should be copied and only the copies modified. Do not modify the template VOY files if you want to keep these as reference sessions.

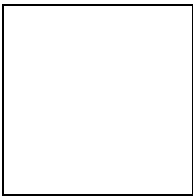
To read in an existing VOY session, start the GraphiMix application, then click on the File Menu and select Open. Navigate to the directory where the session files are stored and select the desired file. This may be the directory where the GraphiMix application was installed or another directory. Alternatively, the user can double-click on a VOY file, which will start the GraphiMix application with the selected VOY file.

To create a session from scratch, start GraphiMix by double-clicking GraphiMix.exe icon in the GraphiMix Program Start Menu.

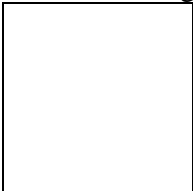


## ***Choose Mix Form Type***

After startup and the initial GraphiMix 'splash' screen disappears, you will see a blank stereo Mix Form. Right-click on the Mix Form and select 'Properties' to change the Mix Form type.

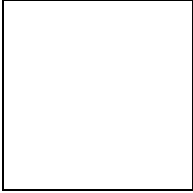


For stereo work leave the Mix Form type set to Stereo. Other choices are Surround, Stereo Rectangular, and Surround Rectangular.

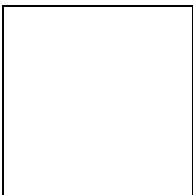


## **Select Mix Icons**

Pull down the View Menu and select 'View Icon Windows ...'.



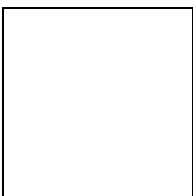
Select Primary or one or more of the other icon directories.



Choose the Mix Icons that you will need by 'left-click and dragging' them to the Mix Form from the Mix Icon Selection Window.

To create or modify Mix Icons, use the Tools Menu and select 'Edit/Create Mix Icon Images...'. With this tool, one can create or modify Mix Icons from Windows Bitmap Files (BMPs) or from text, or the user may create custom knob and fader icons.

Mix Icons can also be used as labels on the Mix Form. They can be 'locked' in place and disabled from selection. To 'lock' them in place, right click on the Icon and select the Mix Icon Properties Tab. On this dialog select 'Fixed Position' for the constraint. To be disabled from selection (by a left-click) uncheck the 'Allow Left Click' checkbox. Select OK to exit this dialog.

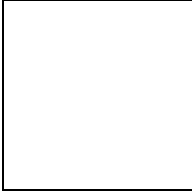


Other Mix Icon movement constraints can be selected to limit an icon's movement on the Mix Form.

## **Attach Controls**

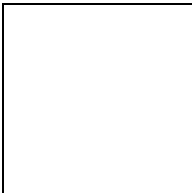
The next step is to ‘attach’ controls to the Mix Icon so that moving the Mix Icon causes a change in the mix hardware. This is done by ‘right-clicking’ on the Mix Icon, selecting Properties, and then selecting the Controls tab.

Initially, there are no controls shown on this dialog. Click on the button to insert one. Now select the MIDI driver (VSL file) that holds the desired control. Then select the Component name such as ‘Level’. If the VSL file has no component names, the component field will say ‘<default>’. Now select the Control from a list of controls shown in this component.

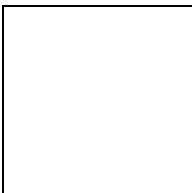


After the Control has been selected, the Description text field should show useful information such as the type of MIDI command it is and how its value is set. In this case, it says that the ‘Value is set from Mix Icon Coordinate’, which is set to ‘InverseRadius’.

Depending on how the VSL for the control is written, the value can be set from the Mix Icon Coordinate (and Data Type) or it can be set in one or more of the other fields in the Controls dialog. Values can be optionally set (and used in the sent message) in ‘Index’, the ‘Parameter’, or the ‘Program’ fields. The MIDI channel used to communicate to this control must also be set in this dialog.



If the control value is set from the Mix Icon Coordinate, then both the Coordinate and the Data Type must be set appropriately. For a fader-type or level control, the Data Type field should be set to ‘Fader’. For a pan pot or balance control, the Data Type field should be set to ‘PanPot’. Other Data Type selections are for an input-by-output bus matrix of faders. These Data Types allow the user to simulate a fader/panpot combination with two discrete faders, or to simulate a surround mix with 4 or more discrete faders.



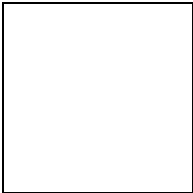
Choose the Mix Icon Coordinate that the control should be ‘attached’ to. For a stereo fader-type control, the coordinate chosen is usually ‘InverseRadius’ (loudest at center).

Similarly, the user would normally attach a pan pot control to the ‘Theta’ coordinate to the same Mix Icon. This creates the standard GraphiMix ‘Pan-Fader’ type of Mix Icon. For more information on Mix Icon controls, see the GraphiMix Reference Manual.

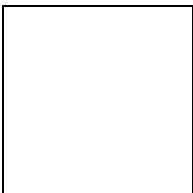
Mix Icons and Mix Forms can be cut, copied, and pasted to and from the windows clipboard by selecting the appropriate options in the ‘Edit’ menu. Remember to highlight (select) the appropriate target first. If an icon is selected (red box around it) then it is selected for cut and paste. Otherwise the highlighted Mix Form is selected. The standard windows behavior for <control-C>(copy), <control-X>(cut), and <control-V>(paste) are supported.

A common way of cloning controls to make multiple channels of identical tracks would be to set up one Mix Icon with all its names and attached controls. Then cut and paste a copy of this icon, and change the Component field for each of the controls on the new icon to the next desired channel using Find and Replace.

If a switch-type Mix Icon is selected, several new coordinates, SwitchToOn and SwitchToOff, appear in the Coordinate drop-down list.



On and Off controls can be attached to these coordinates to implement a switch control. In the above example, two instances of the same control would be attached to the same Mix Icon, one to send the ‘Pre’ state, the other to send the ‘Post’ state.



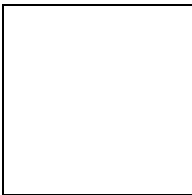
To switch the state of a switch-type Mix Icon, hold the <control>key down and left click on the icon. Since the value for the control setting is set in the ‘Parameter’ entry and not by the Mix Icon Coordinate, the setting for Data Type is irrelevant. Unlike other coordinate selections, the ‘SwitchToOn’ and ‘SwitchToOff’ coordinates only ‘fire’ when those events are true. This insures that only one of the two attached controls fires on each switch state.

The switch Mix Icon can also be put into a mode where the <control> key is not required; a simple left-click will toggle the switch. Certain other types of Mix Icons have the same feature.

When MIDI input is received which matches the MIDI sequence for a SwitchToOn control, the mix icon will automatically enter the On state and will be displayed with the ON state image. Similarly when a mix icon is in the ON state and MIDI is received which matches a control assigned to SwitchToOff, then the mix icon enters the OFF state and is displayed with the OFF state image.

Other types of controls can be attached to the normal Mix Icon coordinates (Radius, Theta, etc) in addition, allowing the movement of the switch on the Mix Form as well as the switch state to set controls. For more information on switch Mix Icons, refer to the GraphiMix Reference Manual.

If a fader or knob-type Mix Icon is selected, two other new coordinates, Fader and InverseFader, will appear in the Coordinate drop-down list.



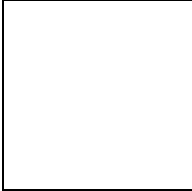
Controls can be attached to these coordinates to allow the position of the knob on the fader to set controls as well as where the Mix Icon is placed on the Mix Form. Of course, any type of Mix Icon, including switches, faders and knobs, can be constrained to 'Fixed Position' which 'locks them down' on the Mix Form if desired.

To adjust the value of the fader or knob, hold the <control> key down and then left-click and drag the fader to the desired position. For more detail on knobs and faders, refer to the GraphiMix Reference Manual.

The knob and fader Mix Icons can also be put into a mode where the <control> key is not required; a simple left-click-and-drag will operate the control. The change in position of the Mix Icon on the Mix Form is inhibited in this mode.

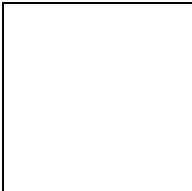
## ***Solo and Mute***

The ‘SoloOn’ and ‘SoloOff’ coordinate selections allow the user to solo a given instrument. A mix icon toggles its solo mode when the user shift-clicks on the mix icon. A mix icon which is in solo mode is shown with a bright green halo. Solo mode typically ‘solos’ the track or bus so that it can be heard by itself, temporarily removing all other ‘non-soloed’ tracks from the mix.



When the user causes a mix icon to enter the SoloOn state by using a shift-click, any control which is assigned to the SoloOn will output its MIDI. Similarly when the user causes the mix icon to enter the SoloOff state, any control which is assigned to SoloOff will issue its MIDI.

The ‘MuteOn’ and ‘MuteOff’ coordinate selections allow the user to mute a given instrument. A mix icon toggles its mute mode when the user shift-clicks on the mix icon. A mix icon which is in mute mode is shown as semi-transparent. Mute mode typically ‘mutes’ the track or bus, temporarily removing its contribution to the mix or monitors.



When the user causes a mix icon to enter the MuteOn state by using a shift-right click, any control which is assigned to the MuteOn will output its MIDI. Similarly when the user causes the mix icon to enter the MuteOff state, any control which is assigned to MuteOff will issue its MIDI.

When MIDI input which matches the MIDI sequence for a MuteOn control is received, the mix icon will automatically enter the MuteOn state and will be displayed as semi-transparent. Similarly when a mix icon is in the MuteOn state and MIDI is received which matches a control assigned to MuteOff, then the mix icon enters the MuteOff state and is displayed normally.

Solo and Mute modes can also be set by using the Mix Icon context menu (right-click on Mix Icon).

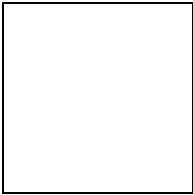
## ***Add More Mix Forms***

Additional Mix Forms can be added to a session by opening the 'Insert' menu and selecting 'New Mix Form', or by using the Mix Form Tool Bar.

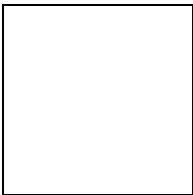
A Mix Form can also be replicated by selecting the Edit Menu->Copy Mix Form entry or typing <control-C>. The Mix Form that is currently selected is then copied to the windows clipboard. If a Mix Icon is selected (red box around it) it will be necessary to de-select it first (click on a blank area of the Mix Form).

Paste the Mix Form to the same or different Scene or State by selecting the Edit Menu->Paste Mix Form or by typing <control-V>.

## ***Enable MIDI***

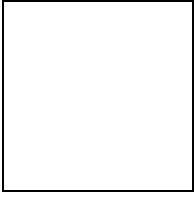


Finally, enable MIDI by selecting the MIDI Menu->Select Midi Devices... dialog. There are primary and secondary MIDI device selections that allow GraphiMix to send and receive to two different MIDI ports at the same time. Select the appropriate MIDI port that is attached to your Mix hardware. For more details on MIDI and the GraphiMix, see the GraphiMix Help or the GraphiMix Reference Manual.



## ***Runtime Status Display***

The positional status of a selected Mix Icon can be shown by selecting the View Icon Status in the View menu. This window shows the 'values' for each of the attached controls, the name and image of the selected Mix Icon, and the X, Y, Radius and the Theta Mix Form coordinates. The image of the selected icon appears in the upper left corner of this display.



## Installation and Licensing

### ***Installation and Licensing for a Web Download.***

You may download a 24 day free trial of GraphiMixPro from [www.voyagersound.com](http://www.voyagersound.com). You may also download and install free trials of any of the available support packages.

The GraphiMix software consists of two elements, the basic GraphiMix Engine, and, optionally, one or more Support Packages. The GraphiMix Engine is the basic graphic user interface toolkit which allows the user to create his own VSL midi drivers and template files. Each Support Package adds the files and drivers required to interface with a specific console or digital audio workstation or other software or hardware applications.

To use the GraphiMix software, the basic GraphiMix engine and, optionally, one or more support packages must be installed and licensed.

First, download or otherwise obtain the self-extracting executable file and copy it to a temporary directory. This file will be named according to which product variant you are installing. GraphiMix install files are available for the base Engine only, for the support packages only (no engine), or as a combination of the base Engine plus one support package.

Note: If a previous version of Voyager GraphiMix is installed, you must remove it first by using the 'Add/Remove Programs' application in the Control Panel window. To get free updates for one year, simply download the new version of the same configuration originally purchased. An update will not require re-licensing.

Run the downloaded executable by double-clicking on its icon in the directory window. Follow the installation directions.

Note: On rare occasion, the GraphiMix installer may issue a message that it cannot install because it is missing some Microsoft Installer components. If this message occurs, it will be necessary to download the Microsoft Installer from Microsoft's website <http://www.microsoft.com/downloads> (Search for 'Windows Installer'). Exit from the GraphiMix installer first. Then download and install this update from Microsoft. It will be necessary to reboot your computer after installing. Once this has been done, restart the Voyager installer and continue. If problems continue, check the FAQ on our website, or e-mail [support@VoyagerSound.com](mailto:support@VoyagerSound.com).

After you have finished installing GraphiMix, it will be enabled with all features and support packages (they must be downloaded and installed to be accessible) for a single initial 24 day free trial period.

Only one such 24 day free trial period is allowed. After this trial period, GraphiMix must be licensed in order to run.

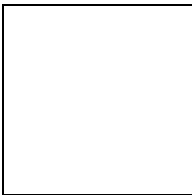
When you have decided to purchase a license for GraphiMix and/or any of the support packages, use the following steps if you are on the computer that will be licensed and it is connected to the internet. **If you are not on the computer that will be licensed or the computer to be licensed is not connected to the internet**, follow the instructions in the *Manual Licensing Procedure using Email* section, page 91.

Additional Support Packages may be downloaded and a free license obtained that runs for 10 days. To obtain a free 10 day trial license see section *Obtaining a Free Trial License for a Support Package*, page 92.

Step 1 – Visit [www.voyagersound.com](http://www.voyagersound.com) and click on the ‘Shop’ button.

Step 2 – Follow the instructions on the web site to purchase the product. When you purchase the product you will receive a purchase number.

Step 3 – Run GraphiMix, pull down the Help Menu and select ‘License’. The License Status dialog will come up. Click on the ‘Get a License’ button.



Step 4 – Click on the ‘Get Site Key Over the Internet’ button.

Remaining Steps – Follow directions on the dialog boxes. You will need your purchase number.

### ***Manual Licensing Procedure using Email***

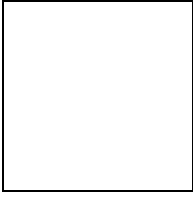
If you are on a different computer from the one to be licensed you must do the following instead:

When you have decided to purchase a license for GraphiMix and/or any of the support packages, use the following steps:

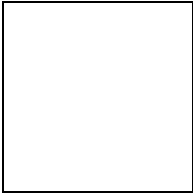
Step 1 – Visit [www.voyagersound.com](http://www.voyagersound.com) and click on the ‘Shop’ button.

Step 2 – Follow the instructions on the web site to purchase the product. When you purchase the product you will receive a purchase number.

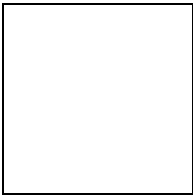
Step 3 – Run GraphiMix on the computer where you want your licensed version of GraphiMix to run, and select ‘License...’ from the Help menu.



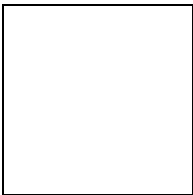
Step 4 – Your Site Code will be displayed. A site code is a number which is unique to your computer.



Step 5 – Send email to [registration@voyagersound.com](mailto:registration@voyagersound.com). The subject should be ‘MANUALREGISTRATION’ and the text of the mail should have the target computer’s site code on the first line and your purchase number on the second line, as shown below. Do not place any other text in this message.



Step 6 – You will receive email from Voyager sound with your Site Key. The Site Key will unlock the purchased feature on your computer. When you receive the email, run GraphiMix again, select ‘License...’ from the Help menu, enter your site key, and click the ‘Apply Site Key’ button. Your product is now licensed for used.



### ***Obtaining a Free Trial License for a Support Package***

Additional Support Packages can be downloaded and ‘tried out’ with a licensed GraphiMix application with a single-use 10 Day Free Trial License.

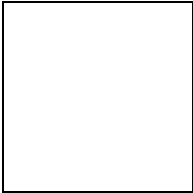
This license can only be used with one Support Package at a time.

Additional Free Trial Licenses can be obtained for other Support Packages, but each new license will terminate the previous free trial license. Any other, purchased, licenses are unaffected.

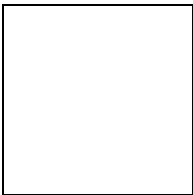
To obtain a 10 Day Free Trial license, use the following steps.

Step 1 – Visit [www.voyagersound.com](http://www.voyagersound.com) and download the desired Support Package.

Step 2 – Run GraphiMix on the computer where you want your Support Package to run, and select ‘License...’ from the Help menu.

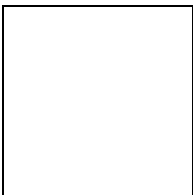


Step 4 – Your Site Code will be displayed. A site code is a number which is unique to your computer.



Step 6 – Click on the Support Package to be trialed.

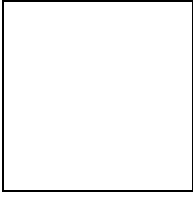
Step 7 – Click on the ‘Get Free Trial’ button.



The Site Code will change to the Free Trial Site Code.

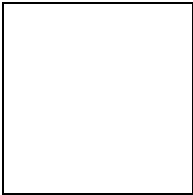
If the computer to be licensed is connected to the internet, click on the ‘Get Free Trial Site Key’. Follow instructions.

**If the computer to be licensed is not connected to the internet**, follow the manual licensing instructions in the section, *Free Trial Licensing Procedure using Email*, page 94.



## ***Free Trial Licensing Procedure using Email***

Step 1 – Send email to [registration@voyagersound.com](mailto:registration@voyagersound.com). The subject should be ‘MANUALFREETRIAL’ and the text of the mail should have the target computer’s Free Trial Site Code on the first line and your purchase number on the second line, as shown below. Do not place any other text in this message.

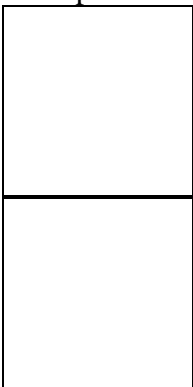


Step 2 – You will receive email from Voyager sound with your Site Key. The Site Key will unlock the purchased feature on your computer.

When you receive the email,

1. Run GraphiMix again.
2. Select ‘License...’ from the Help menu.
3. Highlight the selected Support Package.
4. Click on ‘Get Free Trial Site Key’.
5. Enter your Free Trial Site key, and,
6. click the ‘Apply Site Key’ button.

Your product is now licensed for use for 10 days.



## ***Transferring a License to another computer***

You may move your GraphiMix license along with any support package licenses from one computer to another as often as you want. Free Trial licenses are not transferable.

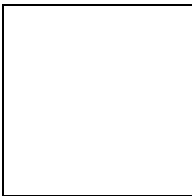
In order to move your license from a licensed source computer to an unlicensed target computer, use the following steps:

Step 1 – On the target computer, install GraphiMix and any required support packages if you have not already done so.

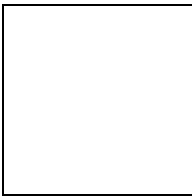
Step 2 – On the target computer, if you are in the initial 24 day free trial period, you must first destroy your 24 day trial period license. In order to do this, select ‘License Transfer’ from the Help menu and then click the button labeled ‘Kill License and Get Code To Prove That License Has Been Killed’. You can ignore the kill code. You will not need it.

Step 3 – While still on the target machine, re-run GraphiMix. The License Status dialog box will automatically come up because GraphiMix is unlicensed.

Step 4 – Put a blank floppy disk into the computer and click the button labeled ‘Prepare Floppy to Import License to This Computer’. Note: The floppy disk will appear empty. There will be no files written to the floppy. Using ‘Quick Format’ on the floppy first will clear all data and allow the floppy to be used for this purpose.



Step 5 – Now bring the floppy to the source computer which does have a license, run GraphiMixPro and select ‘License Transfer’ from the Help menu.



Step 6 – Insert the floppy into the source computer and click the button labeled ‘Move License Out of This Computer To a Prepared Floppy’.

Step 7 – Take the floppy to the target computer and click the button labeled ‘Transfer License from Floppy Into This Computer’.

The license has now been moved from the source computer to the target computer.

## ***Example of Transferring the License between Home and Work Computers***

To transfer your GraphiMix license between a 'home' computer and a 'work' computer, follow these instructions.

### **First time preparation**

Obtain two floppy disks and label one 'Home' and the other 'Work'. You may use 'Quick Format' in Windows to clear them of data and to allow them to be used for this purpose.

The unlicensed computer must not be in the initial 24 day free trial period. To clear the trial license, run GraphiMix and pull down the Help menu. Select 'Transfer License...'. Now click on the button labeled 'Kill License and Get Code to Prove That License Has Been Killed'. Ignore the kill code, you will not need it.

Step 1 - On the 'Home' computer (initially unlicensed), put the floppy labeled 'Home' in the drive and run GraphiMix.

Step 2 - The License Status dialog will come up. Click on 'Transfer License...'.

Step 3 - The License Transfer dialog will come up. Click on the button labeled 'Prepare Floppy to Import License to This Computer'. Let it finish, exit GraphiMix and remove the floppy.

### **Transfer procedure from Work to Home**

Step 1 – On the 'Work' computer, put the floppy disk labeled 'Home' in the drive and click on the GraphiMix 'Help' menu. Select 'Transfer License...'.

Step 2 – On the 'Work' computer, click on the button labeled 'Move License Out of This Computer To a Prepared Floppy'. Let it finish, and remove the floppy. This copy of GraphiMix is now unlicensed.

Step 3 – Still on the 'Work' computer, put the floppy labeled 'Work' in the drive, and click the button labeled 'Prepare Floppy to Import License to this computer'. Let it finish and remove the disk. This disk will be used to 'bring the license back' to this computer.

Step 4 – On the 'Home' computer, start GraphiMix, and put the floppy labeled 'Home' in the drive.

Step 5 – The License Status dialog will come up. Click on 'Transfer License...'.

Step 6 – The License Transfer dialog will come up. Click on the button labeled 'Transfer License from Floppy Into This Computer'. Let it finish. GraphiMix is now licensed.

## **Transfer procedure from Home to Work**

To move the license back to the work computer, follow these steps.

Step 1 – Put the floppy labeled ‘Work’ in the drive. This floppy has been prepared to move a license to the work computer as outlined in Step 3 above.

Step 2 – Run GraphiMix on the ‘Home’ computer and pull down the Help Menu. Select ‘Transfer License...’.

Step 3 – In the License Transfer dialog, click on ‘Move License Out of This Computer To a Prepared Floppy’. Let it Finish and remove the disk. This copy of GraphiMix is now unlicensed.

Step 4 – Still on the ‘Home’ computer, put the floppy labeled ‘Home’ in the drive, and click the button labeled ‘Prepare Floppy to Import License to this computer’. Let it finish and remove the disk. This disk will be used to ‘bring the license back’ to this computer.

Step 5 – On the ‘Work’ computer, start GraphiMix, and put the floppy labeled ‘Work’ in the drive.

Step 6 – The License Status dialog will come up. Click on ‘Transfer License’.

Step 7 – The License Transfer dialog will come up. Click on the button labeled ‘Transfer License from Floppy Into This Computer’. Let it finish. GraphiMix is now licensed on the ‘Work’ computer.

These procedures can be executed any number of times to move a license between computers.

## ***Installing and Configuring MIDI Yoke™***

MIDI Yoke™ and MIDI-OX™ are useful MIDI utilities that some users may find very useful when creating GraphiMix VSL files or when using multiple MIDI applications at the same time on the same PC. MIDI Yoke™ is included with the GraphiMix™ install. There are two different versions included. One version supports Windows 95/98/ME systems and the other supports Windows NT/2000/XP systems.

To install MIDI Yoke™, click on the Start menu and navigate to Programs->Voyager Sound GraphiMix. Click on the “MIDI Yoke Install” icon. This runs a script that leads you through the installation of MIDI Yoke on the particular Windows platform that you are running. Follow directions.

## ***GraphiMix Support Packages***

The GraphiMix software consists of two elements, the basic GraphiMix Engine, and, optionally, one or more Support Packages. The GraphiMix Engine is the basic graphic user interface toolkit which allows the user to create his own VSL midi drivers and

template files. Each Support Package adds the files and drivers required to interface with a specific console or digital audio workstation or other software or hardware applications.

To use the GraphiMix software, the basic GraphiMix engine and, optionally, one or more support packages must be installed and licensed.

Packages currently available include support for the Soundcraft 324, Soundcraft 328, Tascam DM24, Cakewalk SONAR, and the Yamaha DME32. Others are in development and will be available shortly.

## Frequently Asked Questions

### **Q1: I lost my GraphiMix license somehow! What do I do now?**

A1: Contact [support@voyagersound.com](mailto:support@voyagersound.com) giving the site code of your computer and an explanation of how the license was lost.

### **Q2: Why do I sometimes lose my GraphiMix License!!!! I run Norton Speed Disk or Defrag and after I run it, GraphiMixPro says it is not licensed.**

A2: The interaction with Speed Disk is the problem. It can move the location of the license files, invalidating the Site Code. However, there is a very easy solution which allows for the continued use of Speed Disk. Here is the procedure to prevent Speed Disk from causing a problem:

1. Open Norton Speed Disk.
2. Select "File / Options / Customize / Unmovable Files." from the Speed Disk Menu.
3. Specify that \*.ENT, \*.KEY and \*.RST files cannot be moved.
4. Remember to perform a "File / Options / Optimization / Save" from the Speed Disk Menu.
5. You're done! That should configure Speed Disk so that it does not move the License

### **Things NOT to do:**

**DO NOT** move the program once it's installed without using the 'transfer license' option from the License Transfer dialog box.

**DO NOT** change the date backwards in time. *This is only for the 24-day trial period.*

**DO NOT** erase any hidden files in the installation directory.

**DO NOT** uninstall if you plan on using the program again without first transferring the license to a disk or to a different computer.

**DO NOT** run **Norton Utilities Speed Disk** without changing the settings:

1. Open Speed Disk and choose **File|Options|Customize|Unmovable Files**.

2. Specify that the \*.ENT, \*.KEY and \*.RST files cannot be moved and then Speed Disk can be run without having any affect on CrypKey licensing. The \*.41S files do not need to be specified.
3. Remember to do a **File|Options|Optimization|Save** in order to save the new profile.

**DO NOT** convert from a Win95 machine with FAT16 to a Win98 machine with FAT32 without first transferring the GraphiMixPro license, otherwise this will corrupt the CrypKey and result in losing the license. You need to do the following:

1. Transfer the CrypKey license to another machine, using direct of floppy transfer.
2. Do the conversion
3. Transfer the CrypKey license back.

This procedure is necessary one time only, for this particular conversion.

## License Agreement

### NOTICE

Copyright (c) 1993-2007 Voyager Sound, Inc.

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## **Patents and Copyrights**

Voyager Mix GraphiMix® Copyright © 1993 - 2003 by Voyager Sound, Inc.

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Applicable patent laws for the US and Europe applies.

Voyager Sound has US & Foreign Patents which protect this intellectual property.

U.S. Patent 5,212,733

Foreign Patent 0517848

All Voyager screens, literature and graphic material are Copyrighted, ©1993-2003

Voyager Sound Inc. of Weston, Massachusetts.

Please contact Voyager for license info.

# Appendix

## **About This Manual**

This manual is provided with the release and is available in the GraphiMix install directory as GraphiMixUsersGuide.pdf.

## **Acknowledgements**

Certain passages are excerpted from “Maximum MIDI: Music applications in C++ by Paul Messick. © Manning Publications Co. 1998.”

The applications, MaxSeq and MidiSpy are authored by Paul Messick. © Manning Publications Co. 1998. The Voyager Sound applications, GraphiSeq and GraphiSpy are adapted from these and have been extensively modified.

The MIDI file, 'bach\_air\_on\_g\_string\_bwv1068.mid' is provided to run the GraphiMix demo/tutorial. This file is a sequence (c) Pierre R. Schwob - by permission. Original from the The Classical Archives.

## **Contact Information**

Due to this free shareware opportunity, support will be given to those who submit a shareware fee of \$25 (US) sent via US post. Please include your email address. You will be sent a receipt.

To send us a postal letter, send it to:

**Support  
Voyager Sound Inc  
P.O. Box 115  
Weston, MA. 02493 U.S.A.**

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## Glossary and Definitions

ACTIVE REGION	The area of the Mix Form between the Mix Form Origin and the 100% Radius coordinate (on a Stereo Mix Form) or the +/- 100% X and Y coordinates. The area outside the Active Region has the Radius Coordinate set at 100%. The X and Y coordinates are similarly 'pinned' at their maximum and minimum settings.
BMP	An abbreviation for a Windows Bitmap File.
CHANNEL	A single input to an audio console. Also, in MIDI, a number between 1 and 16 that specifies the MIDI channel for the communication.
CLICK	A press of a mouse button.
CLIPBOARD	A Windows feature. The user can 'cut' or 'copy' to the clipboard, then possibly select a different window or application, and finally 'paste' the clipboard object on the to the destination.
CONSTRAINT	Mix Icon movement on the Mix Form can be limited in certain ways. For example, the Mix Icon can be allowed to move up and down only and not side-to-side. In this case the movement constraint would be 'ConstantX', it can only change the Y coordinate. The 'Fixed Position' constraint does not allow the Mix Icon to move at all.
CONTROL	A control is usually a piece of hardware that allows the user to manipulate some parameter of the audio production. A volume control or fader that receives input from a source of audio and outputs to a single bus would be an example of a control. Any mechanism that allows the user to manipulate some parameter of an audio mix would be a control.
CONTROL RECIPE	A specification or 'recipe' that describes how a control can be communicated with. It effectively describes the message protocol to a particular control. These message protocols are designed by the companies that manufacture the hardware or software. Most of the time, these protocols are described in the equipment

	<p>manuals.</p> <p>The Control Recipe describes how to construct a particular message, using the GraphiMix™ VSL language. These recipes usually include constants that indicate which control is being addressed, and over what channel, as well as numbers that indicate the setting to be applied.</p>
CONTROL-KEY	<p>The Control Key on the PC keyboard is usually located at the lower left and right bottom corners. A Control-Key command involves holding the Control Key down while pressing another key or clicking the mouse.</p>
DIALOG	<p>A Dialog is a Menu screen put up by GraphiMix™ to allow the user to set and select various parameters. A Dialog Box is a single entry on a Dialog menu screen.</p>
DOUBLE-CLICK	<p>Two rapid mouse clicks in sequence. The threshold that defines the difference between two single clicks and a double click can be set using the Windows operating system.</p>
DOWNLOAD	<p>When the user is connected to the Internet, he can browse to web sites which enable him to copy files from a remote computer to his own, local computer. This process is referred to as a download.</p>
EFFECTS	<p>Controls which modify the sound and add filtering and reverberation are called audio effects.</p>
EMAIL	<p>Electronic mail that can be sent from the users computer to other computers by using the Internet.</p>
EQ	<p>EQ is short for Equalization. Equalization usually means modifying the audio work by filtering and not by adding effects, such as reverberation.</p>
EVENT	<p>When a Mix Icon changes state, either by moving its position or changing its internal states such as a switch changing from On to Off, an event is generated. This event usually results in a message being sent to all of the Controls which are attached to the selected Mix Icon if the event represents a change to the particular control.</p>

EXECUTABLE	An executable is a file with the filename extension ‘.EXE’. These files usually represent programs and applications that are ‘run’ by the user.
FADER	A fader usually refers to a type of volume control that slides up and down (or side to side) in a linear fashion. A ‘knob’ would be a volume control that works in a rotary fashion.
FEEDBACK LOOP	A feedback loop is created when an output of a system is fed back into the input. An example would be when a microphone on stage gets too close to the speaker which usually results in a loud squeal. With MIDI, it is possible to hook a MIDI input to the same MIDI output which can result in erroneous operation. MIDI Yoke™ includes a mechanism to detect MIDI feedback and will disable its port if it is detected.
FIELD	A field usually holds a number or a character string. In dialog menus, there are usually fields that hold an individual selection of a number or a name which can be changed by the user.
FONT	A font selects the ‘style’ of alphanumeric character text. ‘Times New Roman’ and ‘Arial’ are examples of font names.
GLASS CONSOLE	A ‘Glass console’ is a software application that provides control of a hardware or software audio console by representing the individual controls as a simulation of a hardware console. The on-screen adjustments are made by adjusting graphic faders, switches, and knobs with the mouse.
GRAPHIC MIX	The Voyager Sound Graphic Mix is a new and unique way to control hardware and software consoles using Mix Icon graphics placed on multiple Mix Forms. Each Mix Icon changes the settings of several attached controls with a single movement, greatly multiplying the ability of the sound mix engineer to interactively control the mix on a computer screen.
GRAPHIC USER INTERFACE	A Graphic User Interface is a system of on-screen displays and mouse and keyboard interactions that provide a way for the user to specify actions to the

	computer. An example of a Graphic User Interface (abbreviated as GUI) is the Windows Operating System.
HARDWARE CONTROL	A hardware control is usually a piece of electronics that processes and modifies audio signals in a way that can be changed according to the engineer's requirements. A hardware control can be as simple as a knob or fader potentiometer, physically moved by the engineer, or as complex as a software algorithm encoded into a digital audio processing device.
KNOB	A knob is a rotary device that changes one or more mix parameters.
LICENSE NUMBER	The Voyager Sound GraphiMix™ requires a 'Site Key' license number to enable use beyond the initial 24 day Free Trial Period.
LINK	A link is a connection from a 'Master' Mix Icon to one or more 'Slave' Mix Icons. The position of the Slave Mix Icons is controlled by the position of the Master Mix Icons and by the linking rules that determine what the positional relationship is. Various linking rules can be specified by the user.
MENU	A Menu is a page that 'drops' down or otherwise appears to allow the user to select various options or parameters from a 'menu' of options or parameters.
MIDI	The <b>M</b> usical <b>I</b> nstrument <b>D</b> igital <b>I</b> nterface (MIDI) was invented in the early 1980's by a group of synthesizer manufacturers as a way to connect instruments together to make sound. Since then it has evolved into the protocol of choice for controlling everything from sound synthesizers to tape machines. MIDI is a communications protocol consisting of messages that consist of as few as 1 byte and up to thousands of bytes.
MIDI INPUT	A device or application that can receive and act upon MIDI messages must have its MIDI Input source selected.
MIDI OUTPUT	A device or application that can send MIDI messages to other devices or applications must have the

	appropriate MIDI Output device specified.
MIDI PORT	A MIDI port is a hardware or software device that sends and receives MIDI messages to external hardware or other software applications.
MIDI SEQUENCER	A MIDI sequencer is like a ‘tape recorder’ for MIDI. It receives and stores sequences of MIDI messages and can then ‘Play them back’. Some sequencers allow the engineer to modify the stored sequences and add more sequences to different tracks to allow the engineer to build up large multi-track compositions.
MIDI THRU	Some MIDI devices can receive MIDI messages from other devices and then ‘pass them on’ to its MIDI output, mixed with its own MIDI messages. This mode of operation is known as ‘MIDI Thru’ mode.
MIDI YOKE™	MIDI Yoke™ is a set of software drivers that create software MIDI ports. These ports can be used to ‘plug together’ software MIDI applications. For example, one application can output to a MIDI Yoke™ port and a different application on the same computer can receive input from that same MIDI Yoke™ port, effectively connecting the output of the first application to the input of the second.
MIRROR	When linking Mix Icons, the link rules can be set to determine how the linked Icon’s movements are controlled. A common linking rule is a ‘mirror’ operation where one of the coordinates would be inverted around the Mix Origin, creating a ‘mirror’ effect, as if the Mix Icon were reflected around the Mix Origin.
MIX CONSOLE	A Mix Console is a device that usually controls multiple channels of audio inputs and outputs. The audio on these inputs can have their volume and filtering adjusted and effects added before being sent to the outputs. Mix Consoles are used by the audio engineer to create final works of audio production such as records or movies by manipulating the Mix Console controls to achieve the desired effect.
MIX FORM	A Mix Form is a window that has one or more Mix

	<p>Icons placed on it to control some piece of audio hardware or software.</p> <p>A stereo Mix Form represents a half plane where the Mix Form Coordinates can range from +/- X to only +Y. A Surround Sound Mix Form represents a full plane where the Mix Form Coordinates range from +/- X and +/- Y. The maximum values of the coordinates are 100% and the minimums are 0 at the Mix Form Origin.</p>
MIX FORM COORDINATE	A Mix Form Coordinate is one of Radius, Theta, X, and Y. These coordinates are converted into control commands by the placement of a Mix Icon and the individual VSL control settings.
MIX FORM ORIGIN	The Mix Form Origin is where the Radius, X and Y have a value of 0%. For a Stereo Mix Form, the Mix Form Origin is at the bottom center, for a Surround Mix Form, the Mix Form Origin is in the center.
MIX FRAME	The Mix Frame is the outermost window of a GraphiMix™ mix session.
MIX ICON	A Mix Icon is a graphic object that is placed on a Mix Form to represent and control a collection of controls that affect the Mix Parameters for a single source of sound. For example, a single Mix Icon may control both the volume and the pan position mixer controls for a single channel.
MIX ICON STATE	The Mix Icon State is represented by its coordinates on the Mix Form as well as the setting of any internal states that it may have. A switch-type Mix Icon, for example, has two additional states, Switch On and Switch Off, in addition to the coordinates of its position on the Mix Form.
MUTE BOUNDARY	The Mute boundary is the circle that is at the 100% Mix Form Radius coordinate. If a fader is attached to the InverseRadius Mix Icon coordinate, then the value of the attached fader will be 0 (muted) at this point. At any point beyond this Mute Boundary, the fader will remain muted. This area is the Mute Region. For X/Y Mix Forms, the Mute Boundary is a square at +/- 100% X and Y coordinates.

MUTE REGION	The Mute Region is the area that is beyond the Mute Boundary, depending on the Mix Form type. If the Inverse coordinate function is used, this area can be used to 'park' inactive or muted Mix Icons.
NON-LINEAR	A Non-Linear function is a function where the output changes in an abrupt manner and does not follow a straight line.
PANPOT	A Panpot control usually takes an audio signal and distributes it between two or more output channels. The relative distribution between the output channels can be changed by setting the pan position appropriately. For example, if the stereo pan position control is in the middle, the signal is evenly divided between the two output channels. If it is turned toward the right, then more signal is sent to the right output than to the left output.
PANPOT CONVERGENCE	The Panpot Convergence refers to exactly how the signal is distributed to the output channels as the control is centered. Normally, signal power is conserved, and if the control is centered, each output's level is -3dB down from the input (total output power = total input power). In some situations, the user may desire that both channels get boosted or cut from this value. This change is made by adjusting the Panpot convergence up or down.
PAR FILE	The Yamaha DME32™ can output a file that describes its custom configuration of mixer controls and effects. This PAR file can be imported by the GraphiMix02™ to create a custom VSL file which can be used in a GraphiMix™ mix session.
PC SOUND CARD	A personal computer that features sound capability (beyond keyboard beeps) contains a PC Sound card. Most PC Sound cards can respond to MIDI commands to create and modify sounds.
PIXEL	A pixel is another name for a Picture Element, which is a single, addressable 'dot' on a graphic display.
PROTOCOL	A message Protocol is an instruction for how to construct a message to be sent and received between two communicating devices. MIDI and TCP/IP are

	two examples of message protocols.
PURCHASE NUMBER	The Voyager Sound GraphiMix™ requires four fields of information to enable all its features. The Purchase Number is issued by Voyager Sound based on the product and the date of purchase.
QUAD	One of several different types of Surround Sound. Quad usually involves 4 separate speakers and 4 separate channels of sound.
RADIUS	The Radius represents the Mix Icon's distance from the Mix Origin.
RADIUS BOUNDARY	The Radius boundary is where the Mix Form Radius Coordinate becomes 100%.
REBOOT	Some software installations may require the user to shut down Windows (using the Start->Shut down menu in the desktop's lower left corner) and restart. This is termed a 'reboot'.
REGISTRATION FIELD	The Voyager Sound GraphiMix™ requires four fields of information to enable all its features. These fields are called 'Registration Fields'. These can be accessed under the 'Help' menu.
RESPONSIVENESS	GraphiMix™ can 'smooth out' the mouse movement by effectively averaging many mouse move events and outputting the time average instead of the current mouse position. This has the effect of giving the Mix Icon a 'smoother' feel when adjusting its position with the mouse.
REVERB	Reverb is a type of effect that adds 'echo' to the audio signal. Depending on the amount and kind of echos (reverb parameters) the effect can range from simulating room acoustics to a setting that is an intentional distortion to create a unique effect.
RS422	RS422 is a serial port hardware interface standard. Message protocols may specify serial interface standards such as RS232, RS422, or MIDI.
RUNTIME	'Runtime' refers to when engineer is using GraphiMix™ to actually perform the audio mix. This

	is in contrast to when the engineer is designing the mix session by creating Mix Icons and Mix Forms.
SCENE	A GraphiMix™ scene contains one or more Mix Session States. Each state contains an entirely separate copy of the Mix Session allowing for extreme flexibility in defining Mix Session presets.
SOFTWARE METHOD	A ‘Software Method’ defines a certain algorithm for converting one kind of data value (such as a Mix Icon Coordinate) to another (such as a control value).
SPLASH SCREEN	The Splash Screen is the initial screen image that comes up on the user’s monitor. The splash screen contains the application manufacturers name and the US and foreign patents that apply.
STATE	A GraphiMix™ state contains an entirely separate copy of a mix session. Each Mix Session State can represent an entirely different arrangement for control of the mix hardware.
STEREO	A Stereo mix usually has at least two sets of output channels, one labeled ‘Left’ and one ‘Right’.
SUB MIX	A ‘Sub-Mix’ usually involves a subset of the available inputs that are mixed together separately before entered into the ‘Main Mix’. An example would be a situation where a drum set might have several microphones placed to optimally record the bass drum, the cymbals, the high-hat, and the toms. These separate inputs might be mixed together with a ‘drum sub-mix’ before the single or stereo output of this sub-mix is entered into the ‘main mix’ with the rest of the channels representing all the other instruments in the session.
SURROUND	A ‘Surround’ mix involves output channels that represent a 360 degree sound field when played. An example would be a multi-channel movie mix where sound effects can come from behind and even from within the audience. This can range from as few as 3 to a large number of output channels. The GraphiMix™ provides several types of Surround Mix Forms.

SWITCH	A switch is a two state device consisting of an ON and an OFF state. A multiple-pole switch is actually a series of two state switches mechanically or algorithmically linked together.
SYSEX	MIDI <b>SY</b> stem <b>EX</b> clusive messages are abbreviated as SYSEX and are a type of variable-length MIDI message.
SYSTEM EXCLUSIVE	MIDI System Exclusive messages are a message type that begins with a <hexadecimal>F0 and ends with a <hexadecimal>F7. This is the only MIDI message type that is variable length. In practice, SYSEX messages are used to signal everything from control and program changes to bulk dumps and loads of the entire hardware system state.
TAB BAR	A Tab bar is a toolbar of tabs, each tab pulling up a separate page, menu, or Mix System State.
TCP/IP	This is a message protocol used over networks to allow computers to access other computers and the world wide web. It is an acronym that stands for Transport Control Protocol-Internet Protocol.
TEMPLATE SESSION	Creating a Mix Session from a blank Mix Form can be somewhat tedious if a large number of controls are to be created. To speed this process somewhat, Voyager Sound Inc provides several 'template' Mix session files already set up to interface to several popular digital mix consoles via MIDI. These 'template' session files can be copied, modified, and customized to any degree. Individual Mix Icons with controls attached can be copied, cut, and pasted to other Mix Forms.
THETA	A Mix Form and Mix Icon Coordinate. Front center is 0 degrees. Negative angles are on the left and positive angles are on the right. When converted to a Mix Icon control value, MIN is at the left extreme and MAX is at the right extreme.
TOKEN	A token in the VSL Control language is an individual value or identifier, in a stream of such identifiers, that represents a value or a computation in the output message protocol specified in the VSL entry for a

	<p>particular control. For example, the MIDI channel number, the address of the control in a control change command, or the value sent to a mix console fader control would all be represented as tokens in the VSL file.</p>
TOOL BAR	<p>A tool bar is a collection of icons that perform actions within the GraphiMix™ application when clicked with the mouse. A toolbar can be attached as a unit to the Mix Frame or floated free as an independent window.</p>
TOOL KIT	<p>GraphiMix™ includes a ‘kit’ of tools that help the user construct and customize the Graphic User Interface he uses to control the attached mixer hardware.</p> <p>The user can create his own Mix Icons and their behaviors, decide how his hardware is to be controlled by Mix Icon movement, and how many or how few controls he wants on each Mix Form.</p> <p>GraphiMix™ is really a toolkit of parts that can be assembled in many unique and individual ways to suit any engineer and any session requirements to create a more effective way to control audio mix hardware.</p>
TOP-DOWN	<p>A term that means from the most general description progressing to the most detailed description.</p>
UART	<p>An acronym that means <b>U</b>niversal <b>A</b>synchronous <b>R</b>eceiver <b>T</b>ransmitter. A UART is a device that sends and receives messages to external devices through a variety of serial protocol interface standards.</p>
VIRTUAL CONSOLE	<p>A Virtual Console is a representation of an audio mix console on a computer screen.</p> <p>A virtual console may appear as a graphic simulation of a standard hardware console (a ‘Glass Console’) or as a multi-dimensional Graphic User Interface (the GraphiMix™).</p>
VLB FILE	<p>The GraphiMix™ uses a file with the filename extension ‘.VLB’ to hold each individual Mix Icon Object and its image. Each Mix Icon that is shown in the Mix Icon Selection Window and in the Mix Icon Images properties tab is represented by a single VLB file. An individual VLB may be used by more than one Mix Icon at a time and on more than one Mix</p>

	Form.
VOY FILE	A GraphiMix™ session is stored in a file with the filename extension ‘.VOY’.
VSL FILE	The control recipes that detail the message protocol for a particular piece of controllable hardware is contained in a file with the filename extension ‘.VSL’. An individual user may create VSL files with up to 32 controls each. Larger VSL files are available from Voyager Sound Inc.
WEECON	A tiny (‘wee’) icon can be attached to the corner of a Mix Icon to add extra distinguishing marks to allow the user to visually discriminate the selected Mix Icons.
WORK SURFACE	The term ‘Work Surface’ refers to the placement and arrangement of the collection of controls arrayed on a screen or on the surface of a mix console. The design of the ‘work surface’ can help or hinder the engineer’s ability to create the audio work-in-progress.