Contents

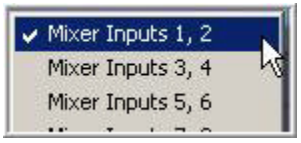
Quick Start-Loading & Adjusting GigaPulse

Load GigaPulse:

There are two ways to load gigapulse.

For GigaPulse VST, consult your DAW software documentation on how to use VST plugins. (Some host applications allow you to insert VST FX on a mixer channel strips) Once GigaPulse VST is up and running, it works nearly identical to GigaPulse Pro. (The GigaStudio 3.0 built in version)

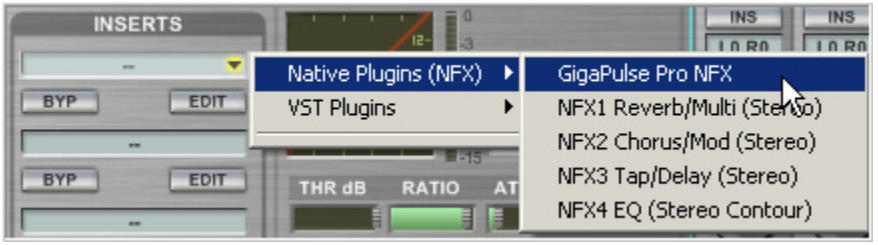
For GigaPulse Pro, assign an instrument to a MIDI channel.



Then route that channel to a pair of inputs on the DSP Station mixer.

Open the GigaPulse on an insert in that DSP channel.

See the chapter "GigaPulse Pro Signal Flow" for a more in depth explanation of the Gigastudio signal flow and instrument loading.

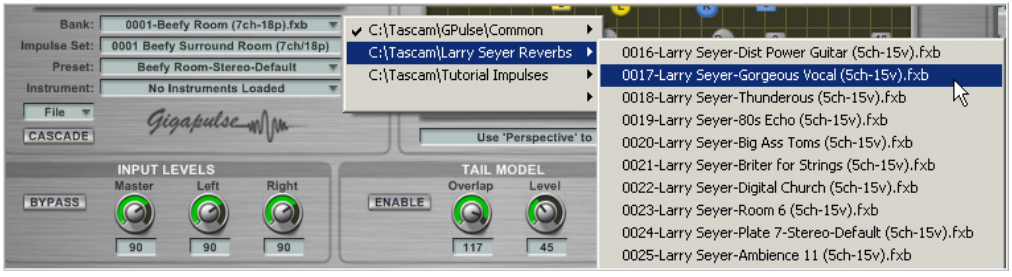


Alternatively, you can load a Gig file that has been encoded with a GigaPulse Instrument Impulse Set. When you load such an instrument, GigaPulse will also be loaded. You may open the GigaPulse interface or select different GigaPulse environments (if available) by clicking the 'FX' dropdown on the instrument's MidiMixer Channel.

Select Environment:

In Acoustic Space, select the desired environment from the Bank dropdown list.

The drop down menu labeled Bank will bring up a Directory/File list of different recording spaces that are available on the system. Select the environment you want from the list it gives. What shows up in this list is determined by the settings in the Configuration Window. (GigaPulse File Menu/Configuration)



Note that the checked items in the bank dropdown menus indicate the currently select bank. If there are more than one check on a given menu cascade, then a single bank is selected and can be found using each of the redundant search paths being display.

Enable Microphones:

To enable the other microphones, simply click on them with the mouse. Keep in mind that each extra microphone uses extra CPU resources.

Alternatively, you can use the 'ON" buttons in the Microphone Fader section to enable and disable mics (see "Adjust Mic Levels", below). For GigaPulseSP, this is the only way to control microphone use.

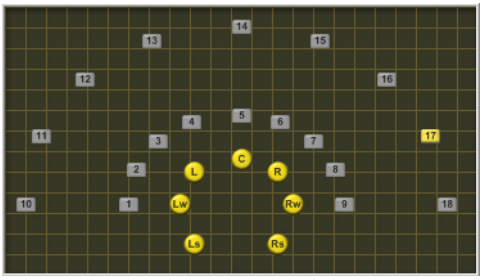


Fig A GigaPulse Pro

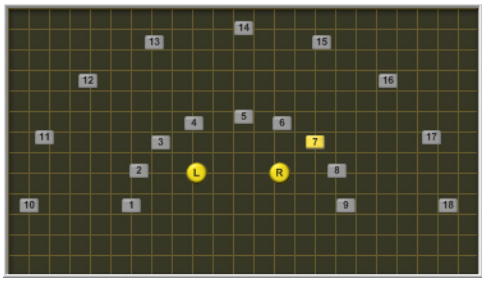


Fig B GigaPulse VST

Select Stage Positions:

Point Source Method:

Click on any single stage position (square) with the mouse. All the enabled mics will reference that one point for all the room characteristics. This is best for a single instrument or very small group, and is very good for monaural sources. Try out several positions while playing audio through the GigaPulse to hear the results.

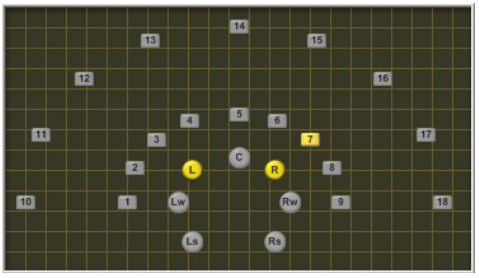


Fig C GigaPulse Pro

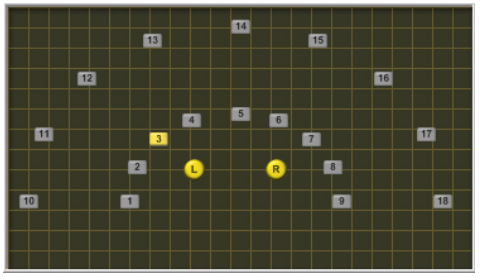


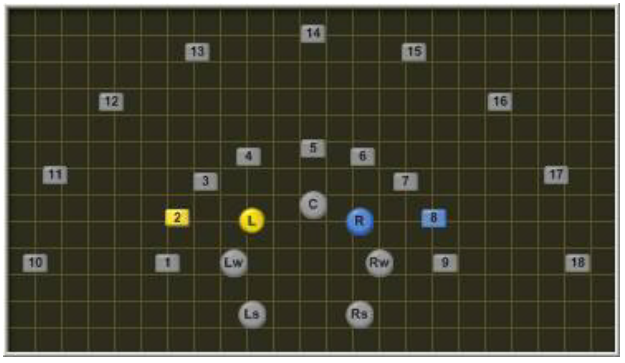
Fig D GigaPulse VST

Multi-Placement Method:

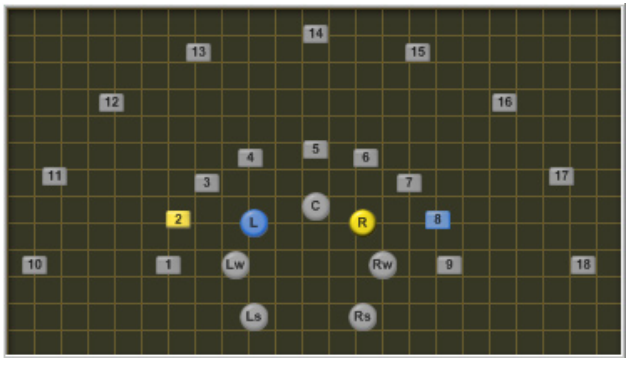
Instead of referencing a single position on the stage, the Multi-Placement mode mic selection allows specific microphones to be assigned directly to specific stage positions. To do this, hold down the ctrl key and then click on a mic. Then select a stage position. Repeat for the other mic positions that you want to assign.

Multi-Placement Mode can be used for a variety of effects.

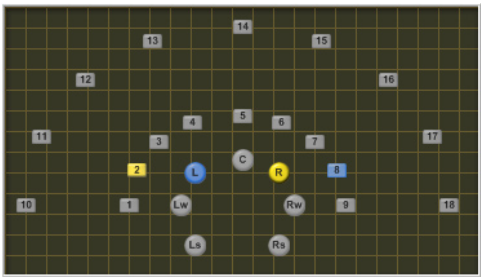
Stereo spread across the stage spanning from any position to another. This would be ideal for a string ensemble. It would effectively place an ensemble across the stage and preserve the stereo image. Assigning and ensemble with the point source method tends to decrease the stereo imaging. In fact, you can't tell the difference between a mono and stereo sample with the point source method.

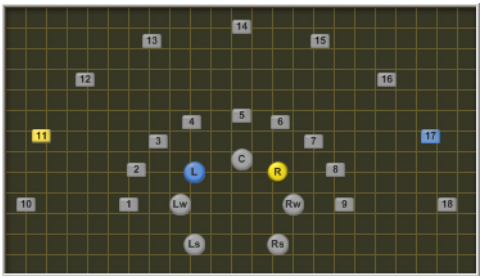


Blend of multiple positions. You could have a stereo blend from a front left to a back right position.

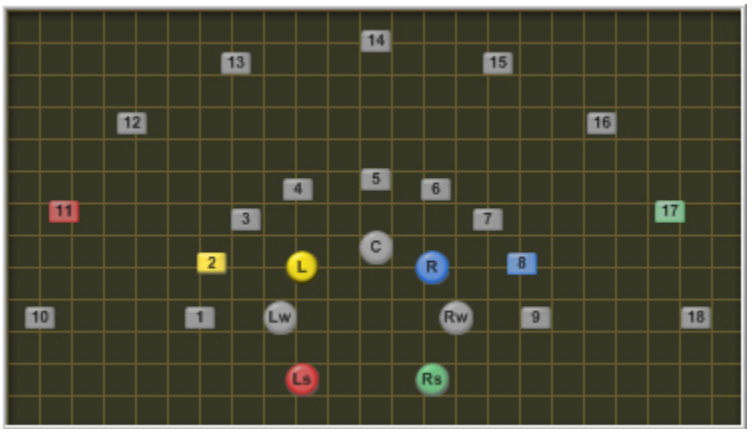


Reverse the stereo image by cross-assigning them.

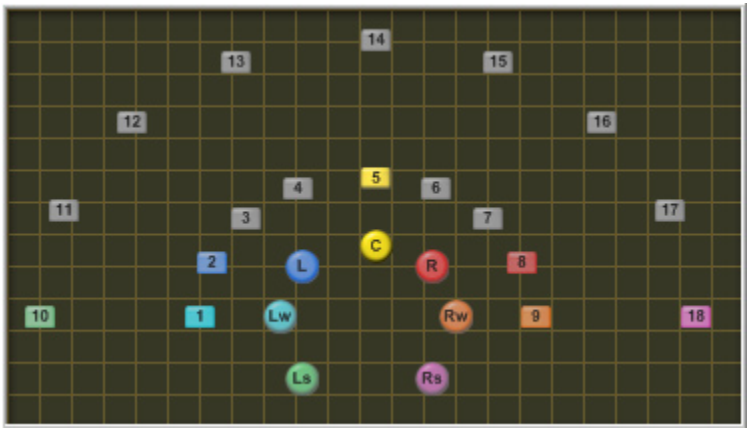




Assign surround mics to far stage positions. You get more colors with addition microphone assignments.



Assign each mic to a stage position.



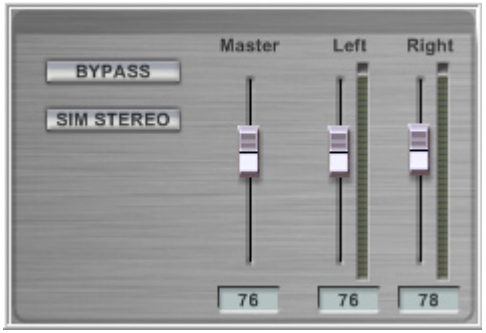
Adjust Input Levels:

Use the *Input Levels* to make your desired volume adjustments.
The *Bypass Button* is useful here as it allows you to instantly bypass the GigaPulse to compare the original sound with what you are getting now.

Note: The Bypass button does not exist on the VST or SP versions.
Please use the Host's Bypass control for this feature.

GigaPulse Pro Input Levels:

GigaPulse VST Input Levels:



There are separate controls for the Left, Right and Master input levels.
The Master level will adjust the Left and Right levels together while keeping them relative to each other. Each slave control's relative position is remembered even if the master attempts to drive the slave past a maximum or minimum point.

Moving the individual Left or Right inputs will also adjust the Master input level by 50 percent. If you move one of the Left or Right knobs, the Master will be increased or reduced by half that amount. (Showing the average between the two signals)

If the master is moves such that it forces one (but not both) of the faders to the maximum or minimum, the Master will maintain the average of the two faders trajectory (the position of the fader if it had NOT been limited by the maximum or minimum). As such, a maximized slave fader will not move until the master has pulled the slave's trajectory below the maximum value.

Microphone Replacement:

Mic Replacement may be used to add or remove microphone characteristics.

Once an Original Mic is selected, this Mic's characteristics will be removed from the envirmonment.
Once a Replacment Mic is slected, the Mic's characteristics will be added to the enviroment.

This will be of value even to those who are not experienced recording engineers who know a carotid mic* from a figure eight mic, because this is a chance to hear & experiment with a range of different types, makes and models of mics without spending a fortune.

In the drop down list in *Original Mic*, select the model of microphone used in the sample if its known. If you do not know the model used, select *ooo none – flat.*

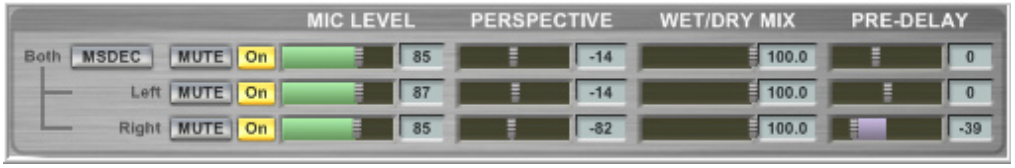
If the model used has more than one pattern, use the *Pattern* drop down list to make the appropriate selection.

If the model and pattern has a filter as well, select as needed in the *Filter* drop down list.

Then choose a replacement mic from the "Replacement Mic" dropdown. The characteristics of the new mic will affect the audio material very closely the way the real microphone would. Be sure to check out any patterns and filters on the replacement mic.

Adjust the Mic Levels:

GigaPulse VST Mic Master Pane: (Stereo)



GigaPulse Pro Mic Master Pane: (Multi Channels)

MSDEC Button-MSDEC stands for Mid-Side DECoding, which is a handy method of recording mono-compatible stereo sound. This technique also offers custom control of the stereo width and volume levels. A Figure-8 microphone (see the section on Mic Replacement) is used with a second, uni-directional microphone to create a stereo signal. MSDEC decodes the signal for stereo output

Mic Level controls the output volume of the Master and the individual channels.

Perspective adjusts the relative perspective of the Master or individual mic channels. Perspective is the relative distance of the performer to the microphone, and is simulated by subtle variations of timing and resonance. Perspective is most often used in rooms & halls to modify the front to back distance between stage positions.

Wet/Dry Mix adjusts the ratio (balance) of wet versus dry signal for the Master or individual mic channel. (Used when the impulses or banks are of an emulated processor or reverb)

Pre-Delay nudges the impulse start point forward or backward in time. (Only adjust this when no audio is passing through GigaPulse.)

The *ON* button of each mic is a redundant control to that found in the Placement Selection portion of the UI.

The *MUTE* button of each mic simply silences the mic. Note that the mic is still utilizing CPU and memory. To free up a mic's resources, use the ON button to turn the mic OFF.

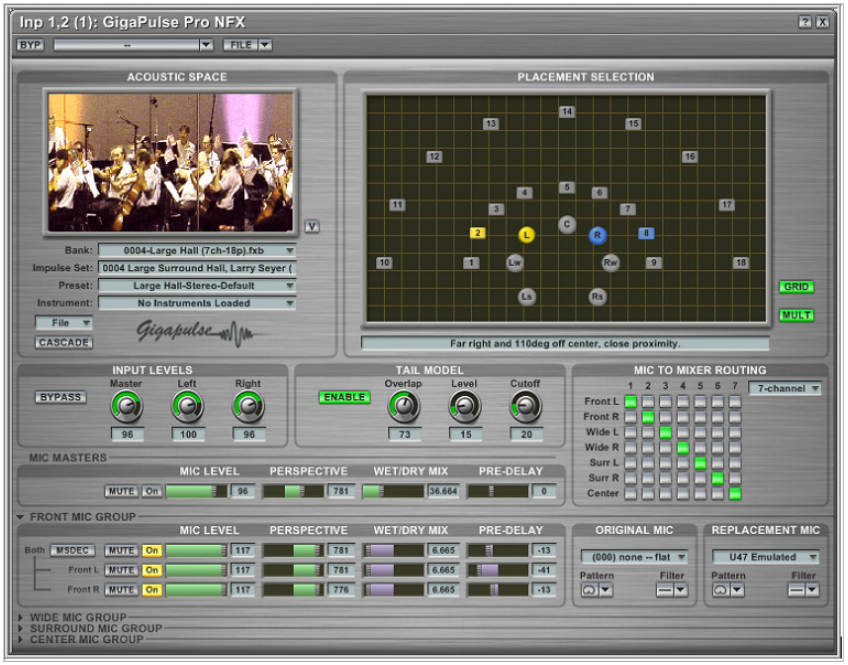
For GigaPulse SP and Pro there are 4 mic groups, typically Front, Wide, Surround, and Center (although the impulse set designer may give these groups (and the mics within them) alternative names. GigaPulse VST only has one mic group and defaults to the front mic group of a given impulse set.

Note that each mic group has a Master and two slaves (only one slave and no master's for the center mic group). The master/slave controls work in the same way as the input level controls. If a mic group is not displayed, it is because the mics within the group have no impulses or have been disabled by the impulse set designer.

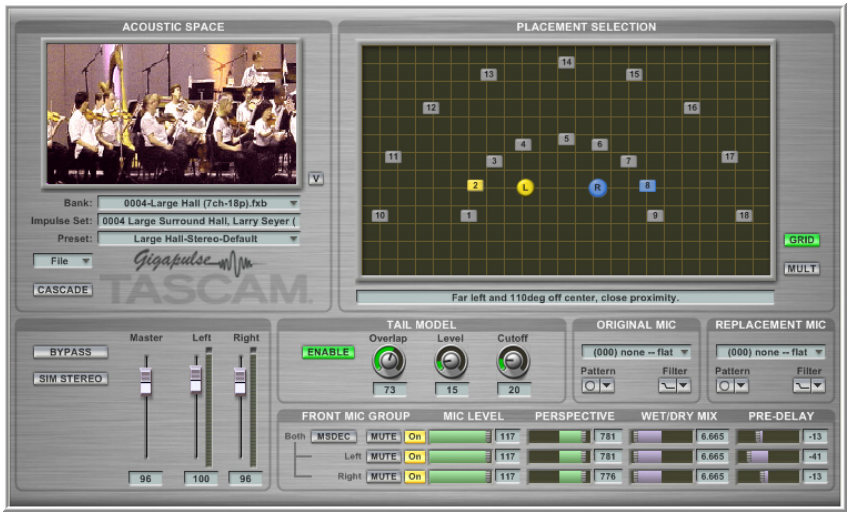
For GigaPulse Pro, there is also a Master Mic Group which controls the masters of the 4 individual mic groups.

GigaPulse Interface:

GigaPulse Pro (GigaStudio 3.0) Interface



GigaPulse VST Interface



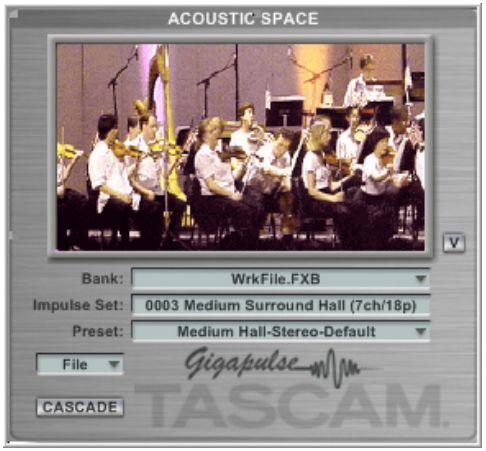
The GigaPulse Main Interface breaks down very conveniently into several sections that we will go over in detail in this chapter.

1. Acoustic Space
2. Placement Selection
3. Input Level
4. Tail Model
5. Microphone Replacement
6. Microphone Levels

Acoustic Space:

The Acoustic Space section is where you load & save banks, presets as well as other file management tasks. It also displays some very useful pictures of the environment that is loaded.

GigaPulse VST



GigaPulse Pro

Note: GigaPulse Pro has an additional menu-*Instrument*. It displays the name of any GigaStudio instrument that is assigned to the DSP channel that the GigaPulse is assigned to.

The Acoustic Space section is further divided into several areas,

A. Overall Graphics
B. Bank Menu
C. Impulse Set
D. Preset
E. File Menu
F. Cascade

Acoustic Space-Overall Graphics:

The *Overall Graphics* show how the recording space currently chosen might look. In this case, it is a medium-sized hall, and the direction of the view depends upon which stage position is selected in the placement selection pane.


Alternate View Button

The changes the graphic to an alternate picture. Quite often this will be a credit for somebody, perhaps the recording engineer or information about the impulse library.

It can also be relevant information for using the impulse set.

Note: You can also toggle the view by simply clicking on the picture itself.

Acoustic Space-Overall Graphics-Examples:

Here is the graphic for the Tweed Amp impulse bank. Here it shows the reverb level set to 1.

If you change the reverb setting in the placement selection pane by selecting #4, the graphic updates as well.

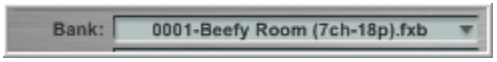
If you select the Alternate View Button or click on the graphic you get this window.

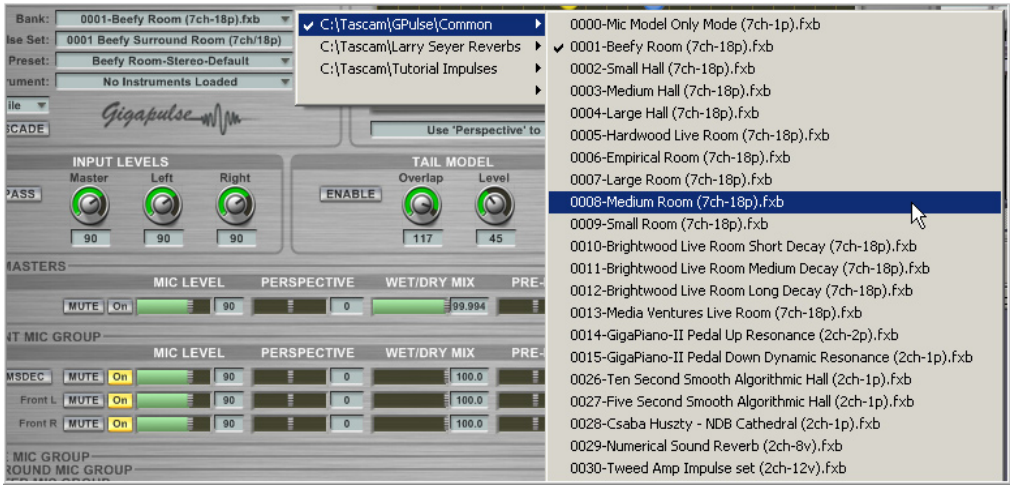
It is letting you know to click again to get back to the other graphic.

Here is another example of an Alternate View. This gives the credit & contact information for the Csaba Huszty Notre Dame de Budepest Cathedral impulse set.
Acoustic Space-Bank Menu:

Acoustic Space-Bank Menu:

The *Bank Menu* brings up a Folder/File dropdown list of all the available GigaPulse Banks. (All the folders that are enabled in the Configuration Window. These can be enabled & disabled to customize & simplify this menu)



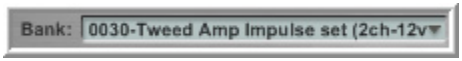


(Click the triangle at the right of the text to open the Bank Folder/File dropdown menus. Checked items indicate currently selected Banks)

Included with the GigaPulse program are small, intimate rooms, medium rooms, and large, resonant halls. There are selections designed for specific instruments, such as guitar or drums, and even a couple of choices that are the actual space inside the GigaPiano! (Kawai Soundboard resonance model)

There is also a 40-bank collection from C.K.S.D.E (See www.cksde.com for more details)

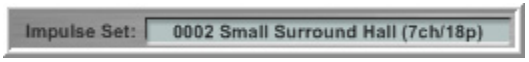
Note that [ctrl]+clicking on the Bank Menu will toggle between three different name displays. The internal name, the file name and the location path.



Acoustic Space-Impulse Set menu:

Immediately below the Bank Menu is the *Impulse Set*, which displays the impulse set that is currently used. (Different Banks can share a single impulse set) Clicking on the Impulse Set menu will toggle between two views. This menu is for display and is dependent on which bank is loaded up.

One [ctrl]+click displays the name of the impulse set.



Another [ctrl]+click displays the file path of the impulse set.

Acoustic Space-Preset Menu:

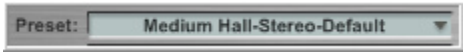
The Preset Menu gives a choice of available presets within the Bank. A preset includes all the adjustable settings in the GigaPulse interface. You can save your own custom presets at any time using the File Menu.

Here is the Preset Menu.

Clicking on the Preset Menu displays all the available presets that are part of the current Bank. (The current preset is checked)

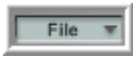
Here is an example of several custom created presets. (The current preset is checked)

[Ctrl]+Clicking will toggle the display between the preset name and the file path of the bank.



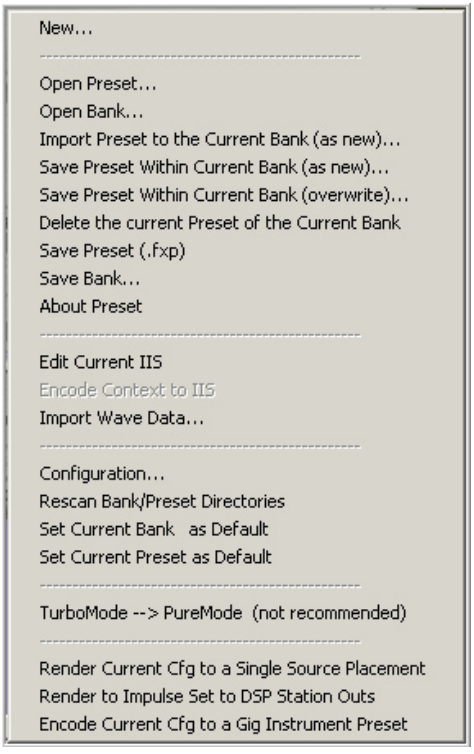
Note: You may select presets from the bank menu if the 'Show Presets' check box is check in the GigaPulse Configuration panel.

Acoustic Space-File Menu:

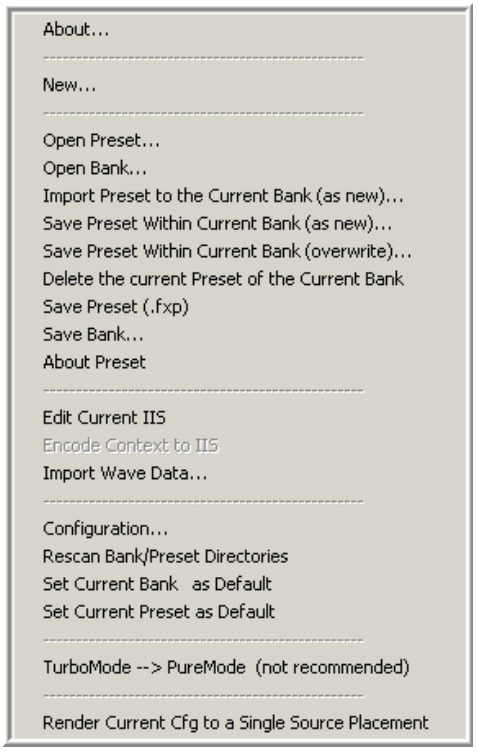


The *File Menu* opens a set of options rather like the file button on many other Windows-based programs. This is where all the file management & GigaPulse Configuration settings are found.

GigaPulse Pro File Menu



GigaPulse VST File Menu



Notice that there are 3 menu item differences between the GigaPulse Pro and the GigaPulse VST File Menus.

1. "Render to Impulse Set to DSP Station Outs" is GigaStudio Specific and not needed in GigaPulse VST.
2. "Encode Current Cfg to a Giga Instrument Preset" is GigaStudio Specific and not needed in GigaPulse VST.
3. "About" is included in GigaPulse VST only. For GigaPulse Pro, the "About" window is accessed in the main interface of GigaStudio.

Acoustic Space: Cascade Button

The Cascade Button combines the benefits, settings & impulse sets of two different banks while using the CPU resources of only one. You get two for the price of one using this feature. A room impulse uses plenty of CPU resources as it is. Imagine you also want to add a Violin Body or Piano Resonance to the mix. Normally doing so would require two separate instances of GigaPulse to be loaded and thus twice the CPU load. However, Cascade Mode resolves the problem by combining two or more impulse sets.

The only limitation with the Cascade feature is that you lose access to the settings of the first GigaPulse banks once you have clicked on the cascade button. You can tweak the second one after cascading but not the first one.

To use the cascade mode of GigaPulse to Combine two ImpulseSets:

For example, you can apply a ConcertHall as well as a PianoBody to a dry piano.

1. Select a Bank to load the first ImpulseSet (i.e. ConcertHall) and adjust the controls to your liking.
2. Click on the 'Cascade' button to turn it on (the yellow 'on' light should appear in the 'Cascade' button).
3. Select a Bank to load the second ImpulseSet (i.e. PianoBody).

At this time, the latest impulse set that is loaded (i.e. PianoBody) is combined with the first (ConcertHall) sound created in step (1). As you play notes, you will hear attributes of each...as if your instrument is being played in the (PianoBody) within the (ConcertHall).

Note that the 'Cascade' button's 'On' light remains in the 'On' state. This indicates that GigaPulse remains in 'Cascade Mode' (cascading the first impulse set (ConcertHall) with the current ImpulseSet and settings).
If desired, you may encode this cascaded GigaPulse configuration to a Gig File using the 'File' menu's 'Encode Current Cfg to a Gig Instrument'.

4. Repeat Step 3 as often as desired.
For example: Load a different ImpulseSet (i.e. GuitarBody).

At this time, the latest impulse set that is loaded (i.e. GuitarBody) is combined with the first (ConcertHall). As you play notes, you will hear attributes of each...as if your instrument is being played in the (GuitarBody) within the (ConcertHall). The (PianoBody) impulse set is no longer applied...it was replaced by the (GuitarBody).

5. To disable 'Cascade Mode', simple click the 'Cascade' button again and the 'On' light will turn off. This indicates that 'Cascade Mode' has been disabled.

At this time, all preserved cascade states are removed. You will only hear your instrument's notes being played through the current GigaPulse configuration.

To use the cascade mode of GigaPulse to Combine more than two ImpulseSets:

For example, you might want to remove an OriginalPianoBody from a normal piano GigInstrument, then apply a ConcertHall as well as a ReplacementPianoBody.

1. Load the first ImpulseSet Preset (i.e. ConcertHall).

2. Click on the 'Cascade' button to turn it on (the yellow 'on' light should appear in the 'Cascade' button).

3. Load the second ImpulseSet Preset (i.e. InverseOriginalPianoBody, to remove the piano body).

As before, the latest impulse set that is loaded (i.e. InverseOriginalPianoBody) is combined with the first (ConcertHall). As you play notes, you will hear attributes of each...as if your instrument is being played without the (OriginalPianoBody) within the (ConcertHall).

You may continue to tweak the controls and change banks/presets. As long as the 'Cascade' button light remains on, your current GigaPulse configuration is being cascaded with the GigaPulse configuration preserved in steps (1) and (2).

4. To apply another cascaded impulse set, use the Super Cascade Mode. Hold down the control key and click on the 'Cascade' button (Ctrl-Cascade).

Note that the 'Cascade' button light goes off momentarily. When it comes back on, your current state (steps 1-4) is preserved as a combined model (ReplacementPianoBody+Co ncertHall). You are again in normal 'Cascade' mode, ready to bring in your third impulse set (ReplacementPianoBody).

5. Load a third ImpulseSet (i.e. ReplacementPianoBody).

At this time, the latest impulse set that is loaded (i.e. ReplacementPianoBody) is combined with the preserved model (ReplacementPianoBody+ConcertHall). As you play notes, you will hear attributes of each...as if your instrument is being played with the (OriginalPianoBody) removed, the (ReplacementPianoBody) added, and within the (ConcertHall).

You may continue to tweak the controls and change banks/presets. As long as the 'Cascade' button light remains on, your current GigaPulse configuration is being cascaded with the GigaPulse configuration preserved in steps (1) thru (4).

If desired, you may encode this cascaded GigaPulse configuration to a Gig File using the 'File' menu's 'Encode Current Cfg to a Gig Instrument'.

6. Repeat steps 4-5 as often as required for your needs.

7. Turn off 'Cascade Mode' by clicking on the 'Cascade' button.

At this time, all preserved cascade states are removed. You will only hear your instrument's notes being played through the current GigaPulse configuration.

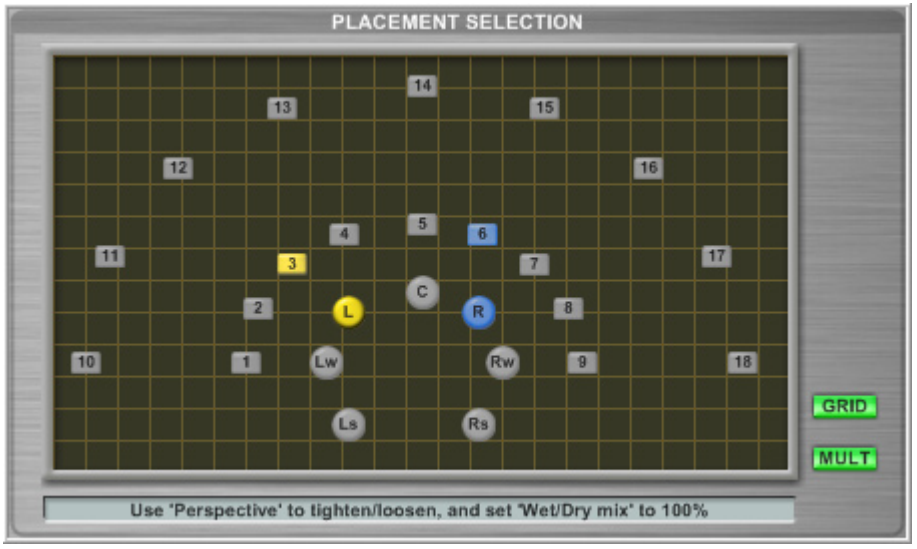
PLACEMENT SELECTION:

Note: Not available in GigaPulse SP.

Having the performance and the performance space are only two parts of the recording equation; microphones are still required. Using Placement Selection, you can control the mics and their relationship to a variety of stage or environment positions

Halls & Room Environments:

For Halls & Rooms, the Placement Selection pane shows placement of the mics – round markers – and up to 18-labeled square stage or environment position markers.

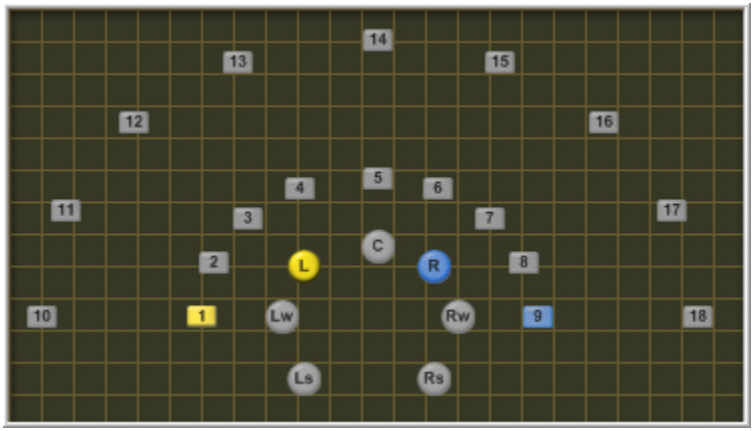


The stage position markers show where the Impulse Responses were measured in the real world when the impulses were created. This will permit you to move different instruments around the stage, whether right or left, or closer or farther away.

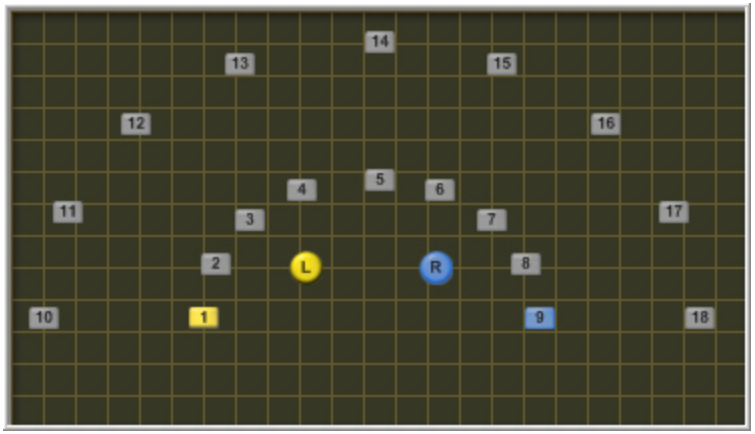
Note: GigaPulse VST is a stereo plug-in. For the rooms & halls, the left and right front microphones will be the only ones accessible. GigaPulse VST will ignore the other mic positions even though these impulses are included.

Note: In the near future, a patch update will be made available that will make these extra microphone positions available.

GigaPulse Pro Placement Selection (Rooms & Halls)



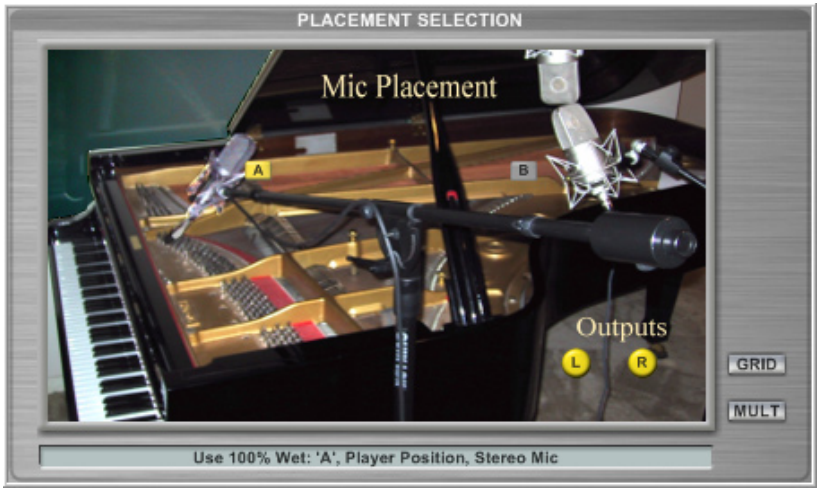
GigaPulse VST Placement Selection (Rooms & Halls)



Other Environments:

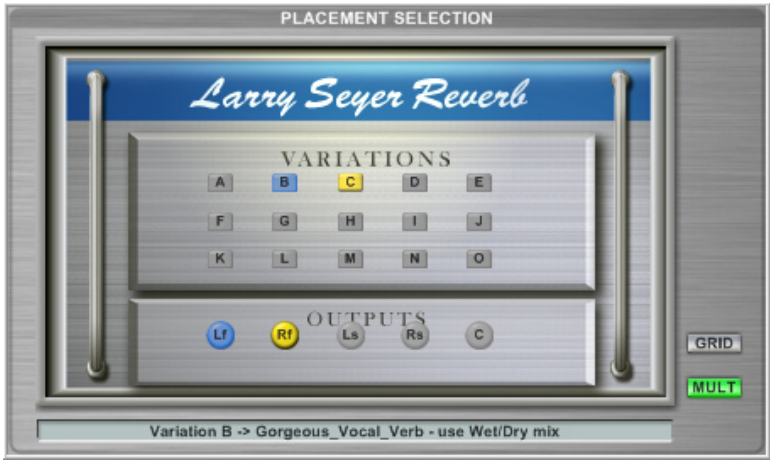
Another way the Placement Selection window is used is to represent instruments, audio gear or alternative microphone positions.

Here we have the Acoustic Piano Mic Placement. You can choose between the primary microphone position near the piano soundboard (A) – Player Perspective – or the Mid-Side placement off to the side (B) – Audience Perspective.

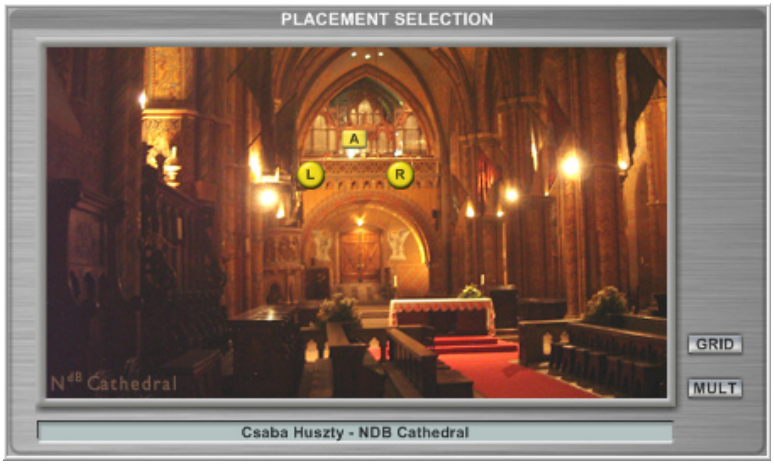


In this example, we have the Tweed Guitar Amplifier Placement.
Here we can choose either or both of the microphones and any of 12 amp reverb settings. Each Microphone can also be assigned an individual reverb setting. Again, the picture orients you to the actual environment.

Here we have a representation of a piece of audio hardware. This could easily be a black screen with grid markers and buttons and still work the same. However the picture is a helpful cue to what kind of environment we are dealing with.
(Audio Gear as opposed to a Room)



This last example of the Placement Selection window is purely for display and reference. There are no positions or microphones to select. (This being a single stereo impulse with one position) In this case, the graphic simply shows you what the environment actually looks like.



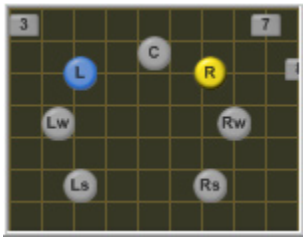
Player Perspective is the "Organ" (A)

Microphone Perspective positions were hung from the ceiling towards the center of the room.

Grid Button:

The *Grid Button* turns the grid pattern in the Placement Selection on and off. The button is lighted green when Grid is on.

Grid On

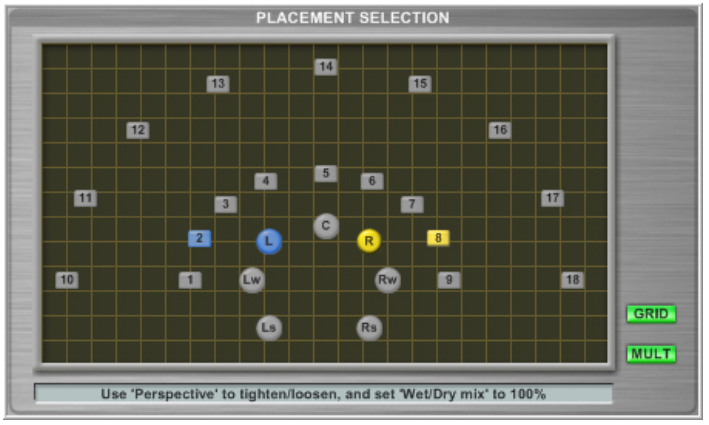


Grid Off

Multi-Placement Selection Mode Button:

The *Multi-Placement Selection Mode Button* enables & disables the Multi-Selection function. This button is lighted green when Multi-Selection is enabled.

Multi-Selection is automatically enabled when you hold down Ctrl-Select while selecting a mic and then a position button. This will cause the Multi Button to light up. Clicking on the button at this point will disable all the multiple selections.

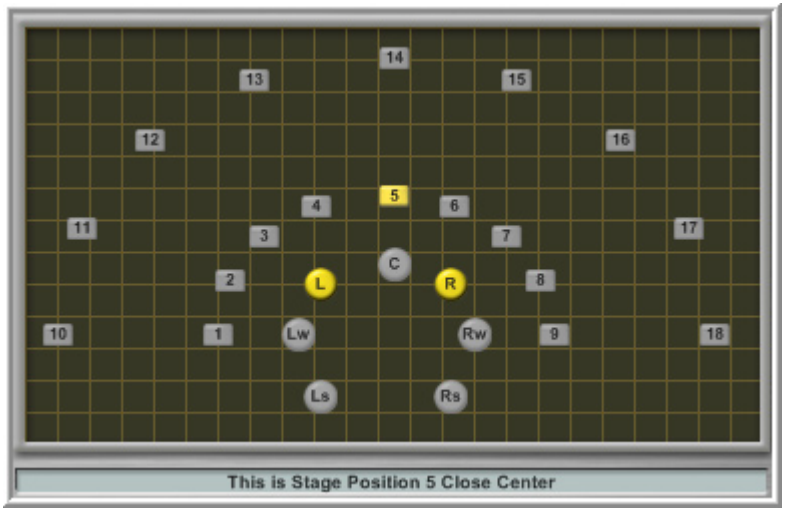


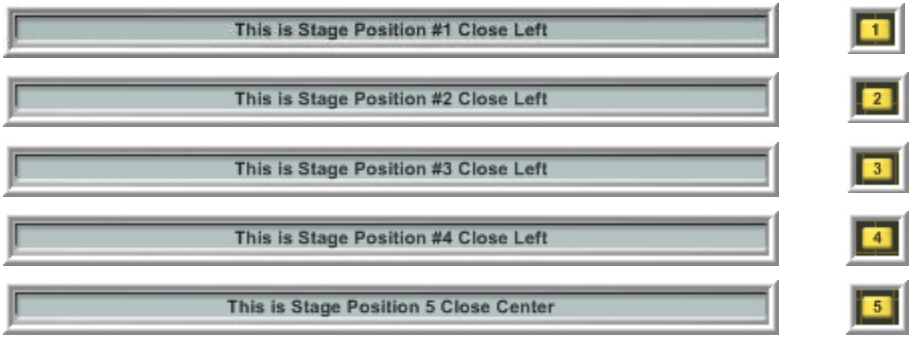
In this example, the L mic is recording the performance (audio stream) from position 2 while the R mic is recording the performance of position 8.
Multiple Selections allow specific mics to be directly assigned to specific positions or room locations.

Description Field:

The *Description Field* gives information regarding the preset or even specific information about the selected position. Each of up to 18 positions can have its own distinct Description Field.

In some cases there can be further information concerning how to best apply the preset in a musical context. Clicking on the field will also toggle between the Current Placement Image and the Overall Screen Images.

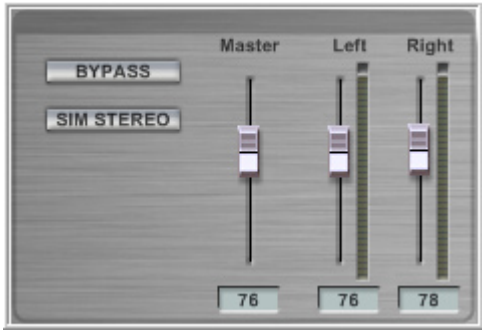




INPUT LEVEL:

GigaPulse Pro Input Levels:

GigaPulse VST Input Levels:



The input levels adjust the amount of signal that passes through GigaPulse.
You can adjust the left and right signal levels independently or set them both at once using the master input knob. (or slider in GigaPulse VST) If the master is moves such that it forces one (but not both) of the faders to the maximum or minimum, the Master will maintain the average of the two faders trajectory (the position of the fader if it had NOT been limited by the maximum or minimum). As such, a maximized slave fader will not move until the master has pulled the slave's trajectory below the maximum value.

Bypass:

Use the Bypass Button to quickly enable or disable the GigaPulse effect. When enabled, the button will be lit up green.

Note: The Bypass button does not exist on the VST or SP versions. Please use the Host's Bypass control for this feature.

Tail Model:

The user may override enable/disable of the tail extention (for impulses sets over 3 seconds in length) by clicking on this button. Note that when a new bank selection is made, the user override will be cancelled and the impulse set's default will be set.

The Tail Model is used when dealing with impulses that are longer than 3 seconds. (48khz 131072 samples to be exact). After 3 seconds, the Tail Model will smoothly blend an algorithm reverb tail near the 3-second cutoff into the digital reverb. This can save a lot of CPU resources with virtually no noticeable change in audio. (This tail will ideally kick in at very low levels as the reverb is trailing off) If the impulse environment is less than 3 seconds, the Tail Model will not be enabled, and enabling it will have no effect.

Enable Button – When lighted green, the Tail Model is on.

Overlap Control – Has a minimum/maximum range of 0-127. This is a timing offset combined with a cross fade that adjusts the overlap between the convolution signal and the artificial tail.

Level Control – The level control allows the Tail Model signal level to be adjusted to better match the original signal.

Cutoff Control – The cutoff control is essentially a low pass filter.
It permits the tonal quality of the Tail Model signal to be matched to that of the original signal.

MIC REPLACEMENT:

Different microphones have different recording characteristics. Microphones come in different quality levels (price will be a clue), and they also have different directional characteristics (Omni directional, Cardoid, Wide Cardoid, Hyper Cardoid, Figure 8), They may also give different responses according to the pitch or timbre of the source audio. To cover all these possibilities, GigaPulse includes a generous selection of Microphone impulse models. You can use these to remove the characteristics of one microphone and replace it with the characteristics of another. Note: Processor impulses may also be used here. "E.G. Boxinator"

Note that using original (inverse) and/or replacement mics (as well as Pattern and Filter selections) will cause GigaPulse to run pause and run a short calculation when the mic models are chosen, but they do not require additional CPU when processing audio.

Drop Down Menus:

GigaPulse gives you a generous choice of microphones. Choose these using the Drop Down Menus.

Original Mic:

Provides a list of microphones that might have been used in the original recording that is being processed by GigaPulse. By selecting the appropriate mic, you apply the inverse impulse response, which effectively removes its character of the selected mic model from the original audio.

(This is why we have the (inv) at the beginning of the majority of choices.)

Replacement Mic:

Provides a similar list, but these microphones are used to replace the original one.

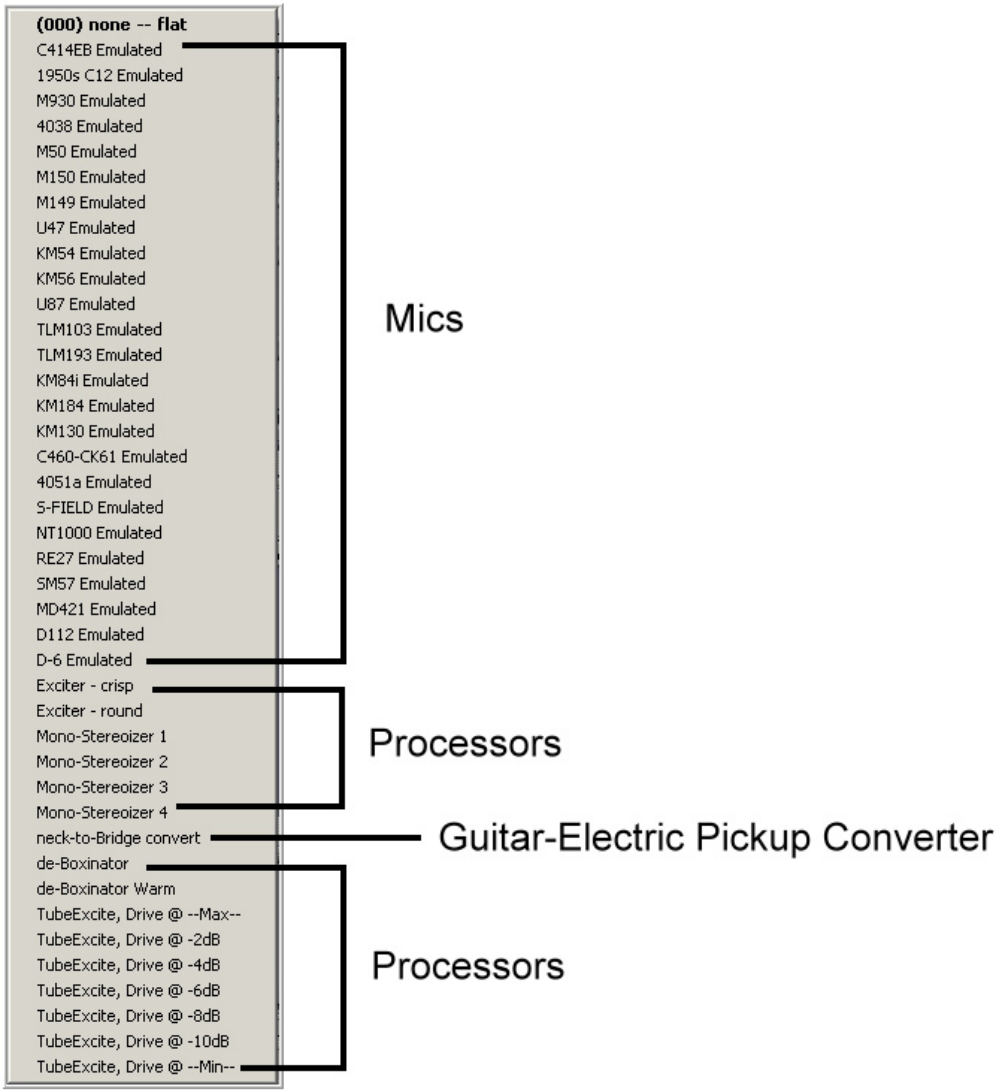
One thing is important to understand here, that the match with the microphones used may not be absolutely perfect. The characteristics employed by GigaPulse are those of good condition, unmodified models, and there may be variations according to age and wear. The match should be fairly close in most cases though.

Microphone Lists:

(000) none -- flat
(inv)C414EB Emulated
(inv)1950s C12 Emulated
(inv)M930 Emulated
(inv)4038 Emulated
(inv)M50 Emulated
(inv)M150 Emulated
(inv)M149 Emulated
(inv)U47 Emulated
(inv)KM54 Emulated
(inv)KM56 Emulated
(inv)U87 Emulated
(inv)TLM103 Emulated
(inv)TLM193 Emulated
(inv)KM84i Emulated
(inv)KM184 Emulated
(inv)KM130 Emulated
(inv)C460-CK61 Emulated
(inv)4051a Emulated
(inv)S-FIELD Emulated
(inv)NT1000 Emulated
(inv)RE27 Emulated
(inv)SM57 Emulated
(inv)MD421 Emulated
(inv)D112 Emulated
(inv)D-6 Emulated
Exciter - crisp
Exciter - round
Mono-Stereoizer 1
Mono-Stereoizer 2
Mono-Stereoizer 3
Mono-Stereoizer 4
neck-to-Bridge convert
de-Boxinator
de-Boxinator Warm
TubeExcite, Drive @ --Max--
TubeExcite, Drive @ -2dB
TubeExcite, Drive @ -4dB
TubeExcite, Drive @ -6dB
TubeExcite, Drive @ -8dB
TubeExcite, Drive @ -10dB
TubeExcite, Drive @ --Min--

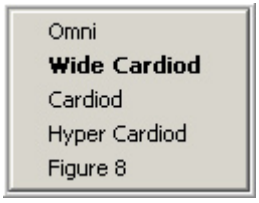
(000) none -- flat
C414EB Emulated
1950s C12 Emulated
M930 Emulated
4038 Emulated
M50 Emulated
M150 Emulated
M149 Emulated
U47 Emulated
KM54 Emulated
KM56 Emulated
U87 Emulated
TLM103 Emulated
TLM193 Emulated
KM84i Emulated
KM184 Emulated
KM130 Emulated
C460-CK61 Emulated
4051a Emulated
S-FIELD Emulated
NT1000 Emulated
RE27 Emulated
SM57 Emulated
MD421 Emulated
D112 Emulated
D-6 Emulated
Exciter - crisp
Exciter - round
Mono-Stereoizer 1
Mono-Stereoizer 2
Mono-Stereoizer 3
Mono-Stereoizer 4
neck-to-Bridge convert
de-Boxinator
de-Boxinator Warm
TubeExcite, Drive @ --Max--
TubeExcite, Drive @ -2dB
TubeExcite, Drive @ -4dB
TubeExcite, Drive @ -6dB
TubeExcite, Drive @ -8dB
TubeExcite, Drive @ -10dB
TubeExcite, Drive @ --Min--

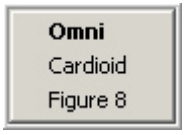
Here is a breakdown of the Microphone Replacement List



Pattern Button:   

Most microphones have a choice of polarity patterns. Some have just one pattern while others have up to 5 patterns. Click on the Pattern Button dropdown to see what is available for each mic.





Omni – Short for Omnidirectional, this type of microphone records fairly evenly from any direction around it. This the most basic form of microphone; all other forms are modifications of the Omni.

Cardoid – This is a unidirectional microphone; a graphic representation of its recording pattern resembles a heart, hence the name (Cardio-).

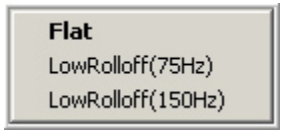
Variations include *Wide Cardoid* and *Hyper Cardoid.*

Figure-8 – This is a bi-directional microphone, often used to record two performers while bypassing everything off axis. The Figure 8 pattern is also used to creating mono compatible Mid-Side recordings.

Note: These pattern symbols are representations of what a microphone dB & frequency pattern looks like when charted out on paper.

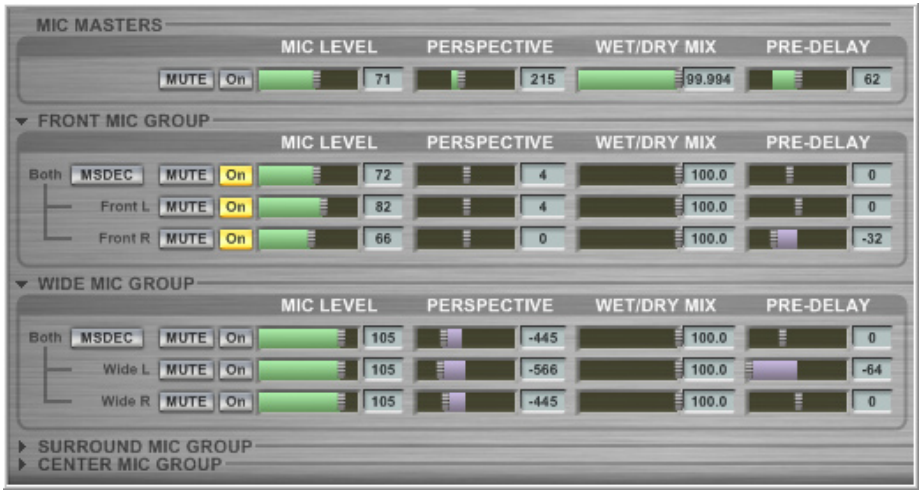
Filter Button:    -Functionality of roll-off

The type of microphone roll-off is selected here. Many mics have only the flat rolloff setting but others can have one or more. The roll-off filters out all the frequencies below the roll-off frequency. The roll-off is often used to reduce the excess low-end sound of a bass instrument or the boominess in a close proximity vocal recording.



Mic Masters & Groups:

Finally, we have the controls for master and individual microphone groups.



The default control of all the Mic Group settings is matched by the master settings. If the individual settings are adjusted individually, the masters control them by keeping their settings relative to one another.
(Proportional Relationship)

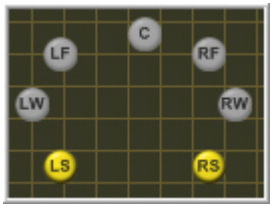
Note: The Center channel has only one mic in its group.

Front Mic Group

Center Mic Group

Wide Mic Group

Surround Mic group



Mid-Side Decode Button: (MSDEC)

MSDEC stands for Mid-Side DECoding, which is a handy method of recording mono-compatible stereo sound. This technique also offers custom control of the stereo width and volume levels. A Figure-8 microphone (see the section on Mic Replacement) is used with a second, uni-directional microphone to create a stereo signal. MSDEC decodes the signal for stereo output. The button will be green when enabled.

Here is a picture of a Mid-Side Microphone arrangement as used with the GigaPiano II GigaPulse Bank.

Mute Button:

Silences the Master or the individual channel, but still uses CPU. The button is yellow when the signal is muted.

On Button:

The On button turns off the individual microphones and frees up the CPU resources. The mics can also be enabled & disabled by clicking on them in the Placement Selection window. When a mic is enabled, it will be highlighted in the Placement Selection window and its "On" button will be lit yellow. (And vice versa when disabled)

Examples:

Front Mics "On"

Center Mic "On"

Mic Level:

Adjusts the volume of the Master or individual mic channel.

Mic Level Readout:

Shows the volume of the Master or individual channel on a scale of 0-127.

Perspective Control:

Adjusts the relative perspective of the Master or individual mic channels. Perspective is the relative distance of the performer to the microphone, and is simulated by subtle variations of timing and resonance. Perspective is most often used in rooms & halls to modify the front to back distance between stage positions.

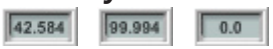
Perspective Readout:

Shows the relative perspective of the Master or individual channel on a scale of –1024 - 1023, with 0 usually being the point where the impulse response was sampled.

Wet/Dry Mix:

Adjusts the ratio (balance) of wet versus dry signal for the Master or individual mic channel. (Used most when an impulse bank is of a processor. For example, the Larry Seyer "Gorgeous Vocal Reverb")

Wet/Dry Mix Readout:



Shows the ratio (balance) of wet versus dry signal for the Master or individual channel as a percentage.

Pre-Delay:

Adjusting the Pre-Delay nudges the impulse start point forward or backward in time.

Pre-Delay Readout:

Displays the Pre-Delay settings on a scale of –64-63 (Sample start nudge by how many samples forward or backward)

Mic to Mixer Routing: (GigaPulse Pro Only)

Sim Stereo – Simulates a stereo signal from a mono source audio stream passing through GigaPulse.

Width and Image Controls –These work as together when simulating stereo.

Width Control – Simulates the width of the performing group from left to right.

Image Control – Simulates the depth of the performing group from front to back by creating extra voices and shifting them slightly temporally.

Note:

Mic Names can be modified by the impulse set designer.
Disabled mics will not be displayed.
Unavailable channels will not be displayed.

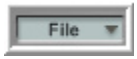
GigaPulse VST:

The "Sim Stereo" button for GigaPulse VST is found in the master volume section. The controls work the same in both programs.

Sim Stereo "Disabled"

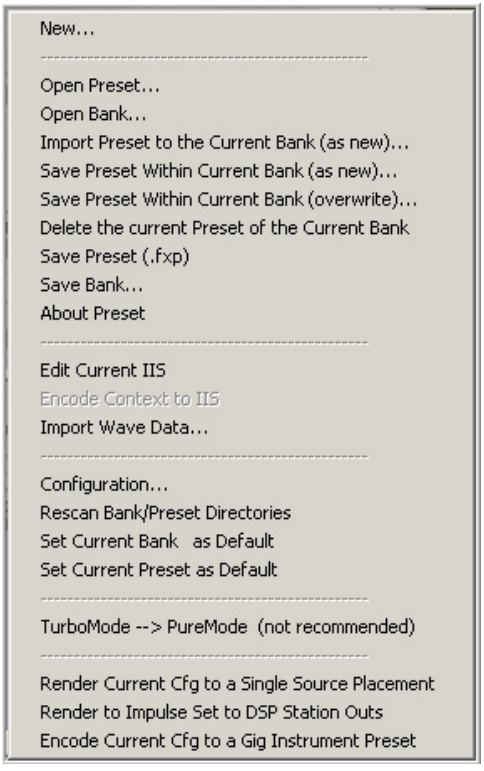
Sim Stereo "Enabled"

File Menu:

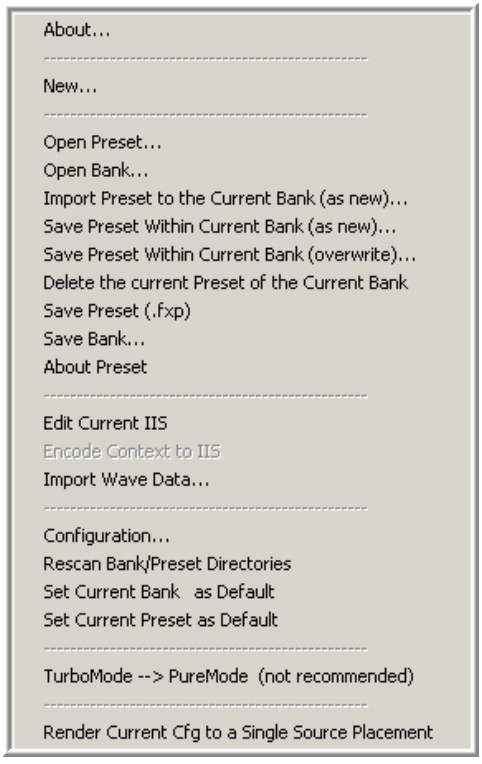


The File Menu opens a set of options rather like the file button on many other Windows-based programs. This is where all the file management & GigaPulse Configuration settings are found.

GigaPulse Pro File Menu



GigaPulse VST File Menu



About: GigaPulse VST Only

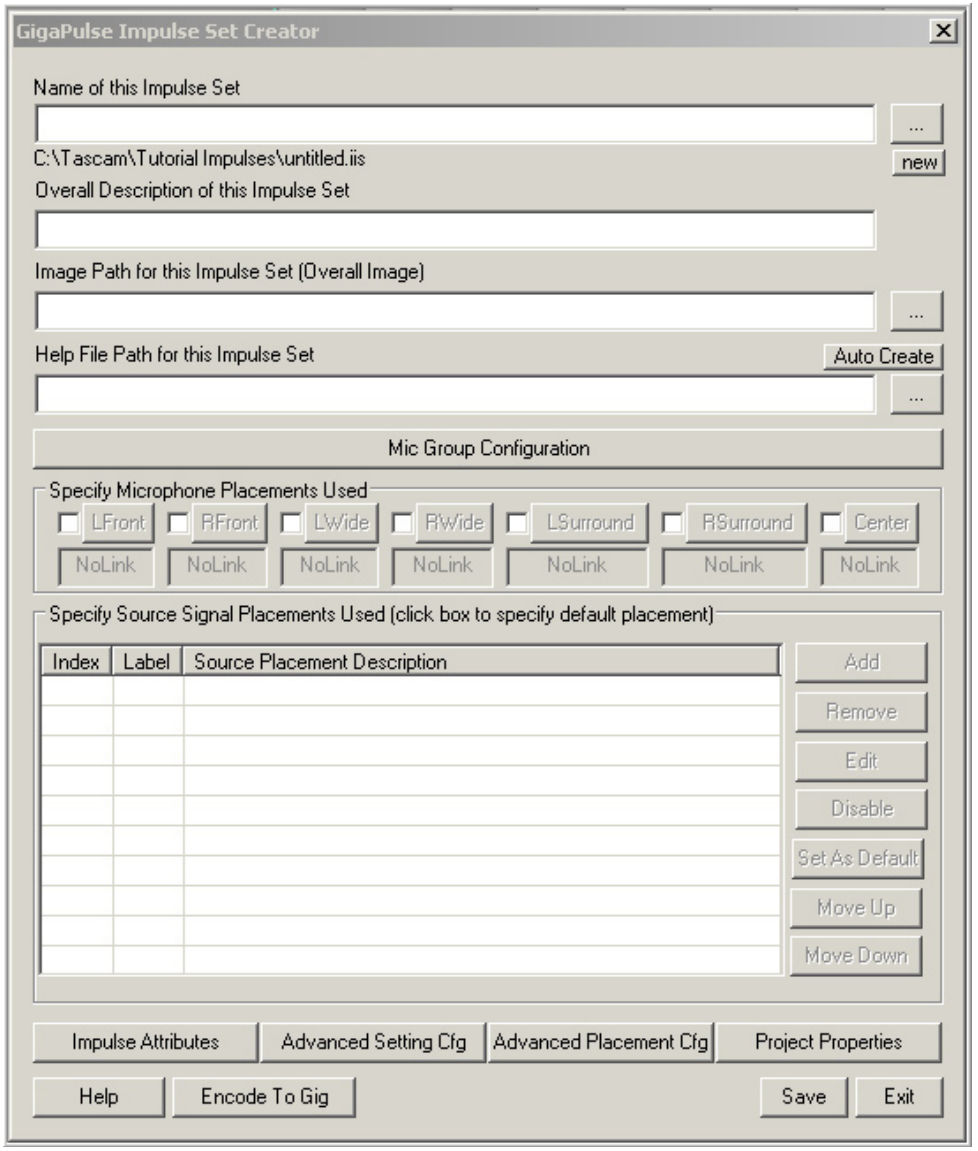
This brings up the information screen. In addition to some trademark, version and copyright information, licensing and registration information can be found here.

Note: For GigaPulse pro, the "About" window is launched from the main GigaStudio Help menu. That will launch the "About Gigastudio" window.

File Menu-New:

The *New* command brings up the GigaPulse Impulse Set Creator. This is where you start out when you want to create a custom .IIS file from scratch.
(An IIS file is A collection of impulses defining a bank. Also known as an Instrument Impulse Set. It includes all the impulses, text info and graphics)

The GigaPulse Impulse Set Creator Window:

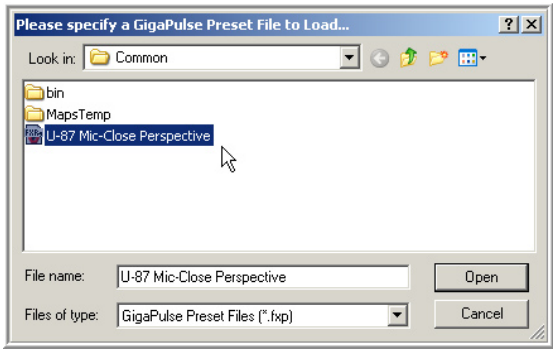


File Menu-Open Preset

Presets contain most of the settings of the GigaPulse interface. This command allows you to load an existing preset from the hard drive into the current loaded bank. It also clears out any current presets and replaces them with the new one.

Select *Open Preset* with the mouse:

Browse for a Preset and select it.



This preset now becomes the *Default Preset*

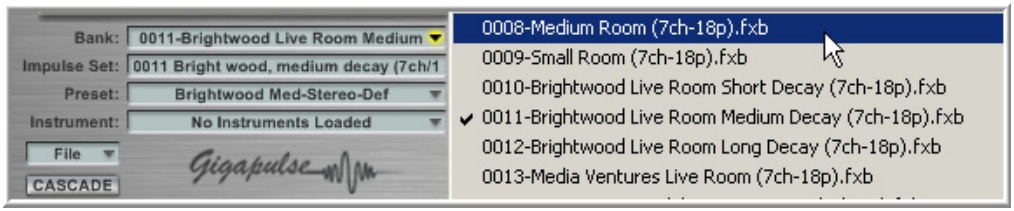
This example Preset Changes the microphone to a U87.

It also changes the Perspective sliders to a closer mic to performer sounding setting.

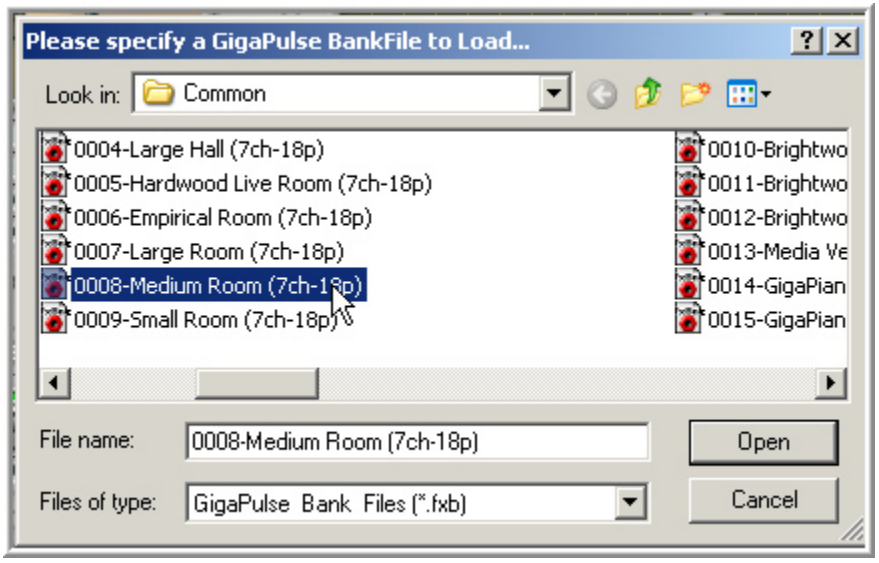
Open Bank:

This opens an existing bank from the hard drive.

This does the same thing as the bank menu as shown here.



However, the Open Bank command allows you to browse the hard drive and load from any folder on the system, including folders that the GigaPulse is not yet configured to see.



Note that you can use the 'Files ofType' dropdown menu to search for and load .FXB (bank files), .FXP (Preset Files), and/or .IIS (impulse set banks)
File Menu-Import Preset to the Current Bank (as new)

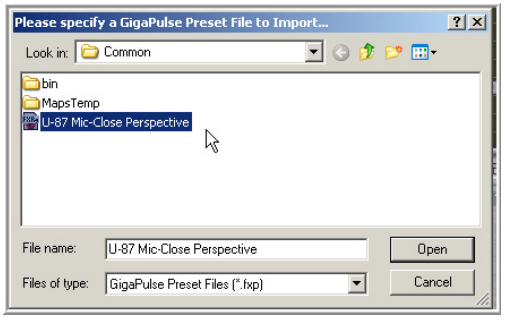
Import Preset to the Current Bank (as new)

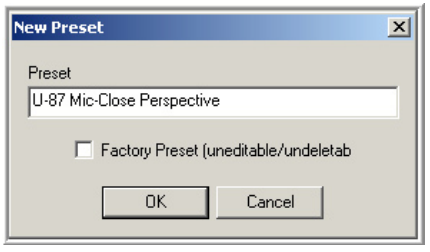
This is similar to opening a preset but instead of wiping out the current presets, it will add the new preset to the existing preset list.

In this example, there are two Presets in the Preset Menu:

Now we select the command with the mouse:

Then browse for and choose a preset file:



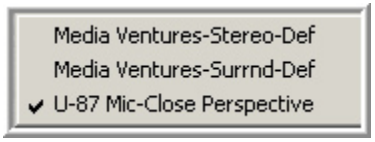


The "New Preset" window will come up giving an opportunity to change the name of the Preset, as it will appear in the Preset Menu. Also we can lock it down to not allow it to be deleted or modified. This option is best reserved for your "Default Preset"

Now the Preset Menu has three presets:

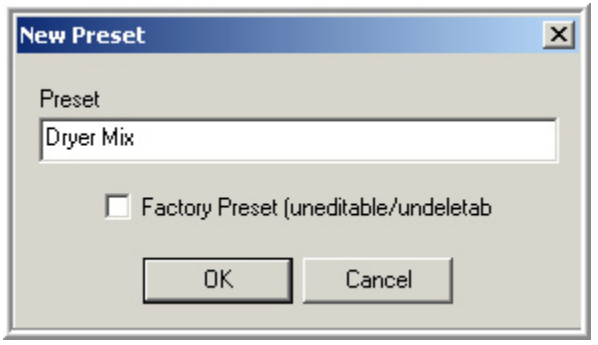
Save Preset Within Current Bank (as new)

With this command, we can make some tweaks to the GigaPulse settings and then save those as a preset within the current loaded bank. Doing so saves the extra step of having to save the preset to the hard drive and then import it into the bank.



Here we have three sets of Presets in the Preset Menu. At this point we can make some tweaks to the GigaPulse settings.

Then select the command from the File Menu:



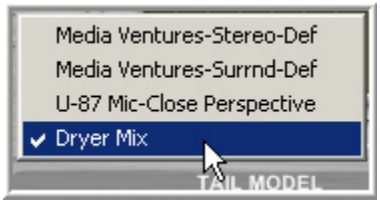
his will bring up the *New Preset* window. Again, we can enter a new name for this preset.

Now we have the new Preset in the list.

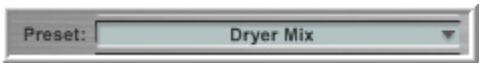
Save Preset Within Current Bank (overwrite)

This is exactly the same as the previous command but instead of adding the preset to the list, it will "replace the currently selected preset"

The old preset will no longer be available.

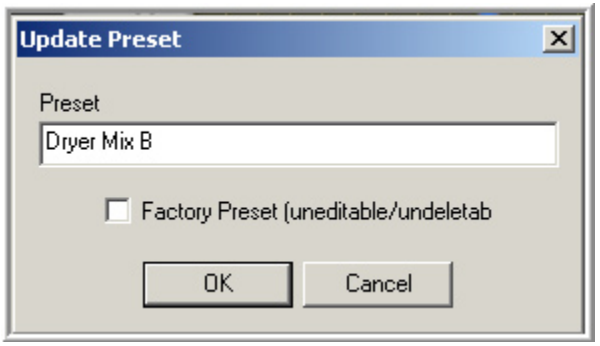


Here we have 4 presets and select the last one in the list.

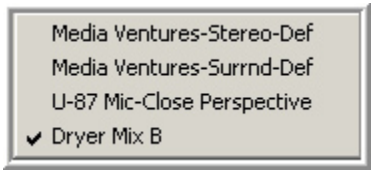


Now the current Preset is *Dryer Mix*

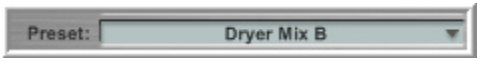
Next we select the command from the file menu.



Now we get an *Update Preset* window. Here we can change the name of the Preset. In this example its named *Dryer Mix B*



Now the last Preset in the list has been changed to "Dryer Mix B"

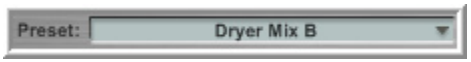


Here it is in the Preset Menu.

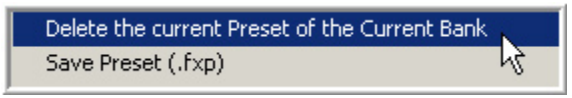
Delete the Current Preset of the Current Bank

This command Permanently removes the current preset from the current bank.

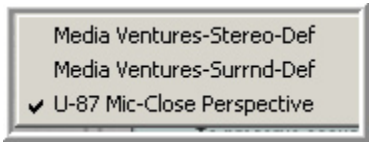
Select a preset from the list. In this case we will select Dryer Mix B



Here it is in the Preset Menu.



Now we select the command from the File Menu.

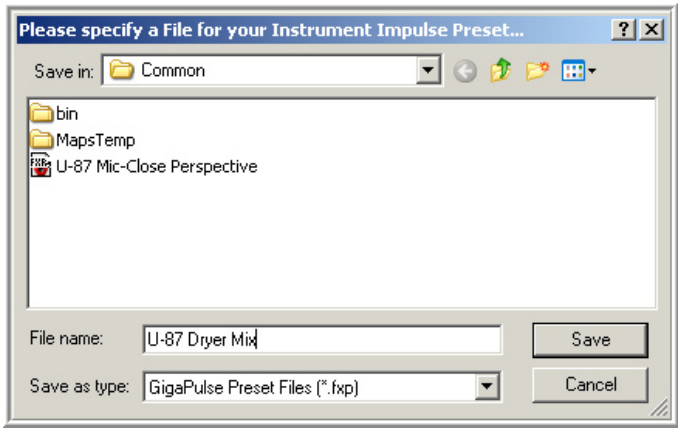


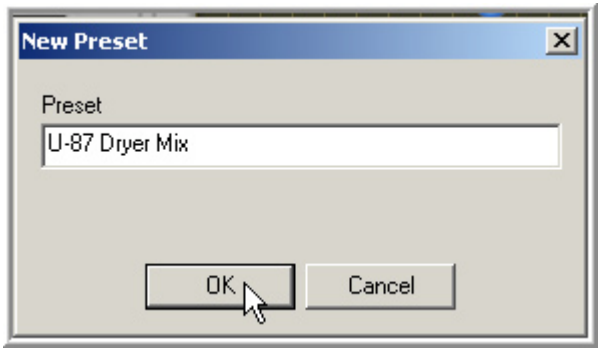
Now the preset Dryer Mix B has been removed from the Preset list.

Save Preset (.fxp)

The *Save Preset* command saves the currently selected Preset to a specified location on the hard drive. This will create an .fxp file. (Preset file)

Then browse to a location to put the Preset.





This brings up the *New Preset* window. Here you we enter the menu name.

Anytime we load this Preset into any Bank, this is the name that will show up in the Preset Menu & Window.

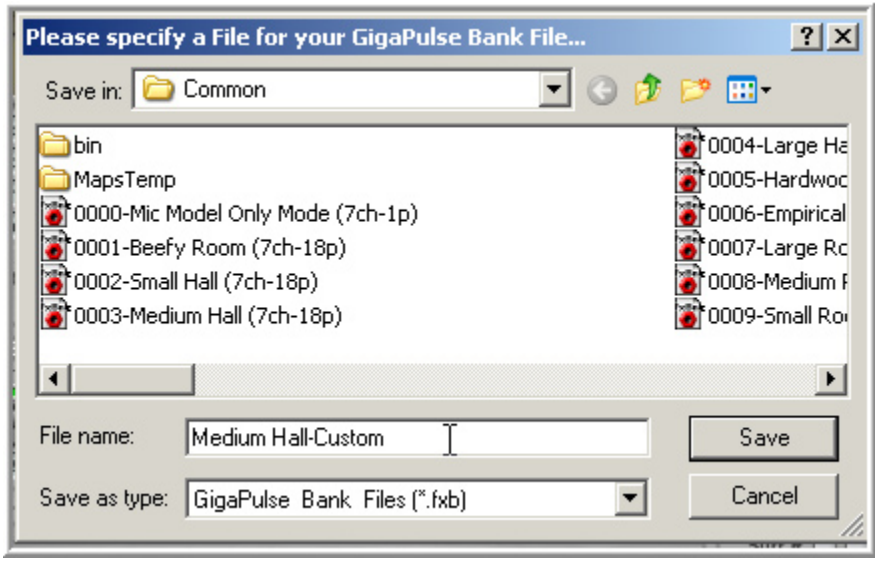
Now we can load this Preset as the *Default* preset by selecting *Open Preset...* from the File Menu

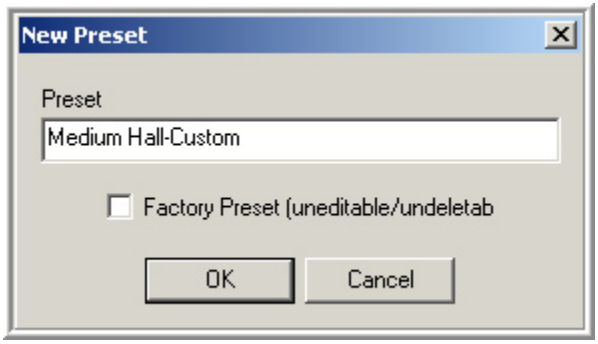
Or we can select Import the *Preset to the Current Bank* (as new)... to add it to the current Preset list.

Save bank

With the *Save Bank* command, we can save an entire customized Bank to the hard drive.

Then pick a location on the hard drive and give it a name.



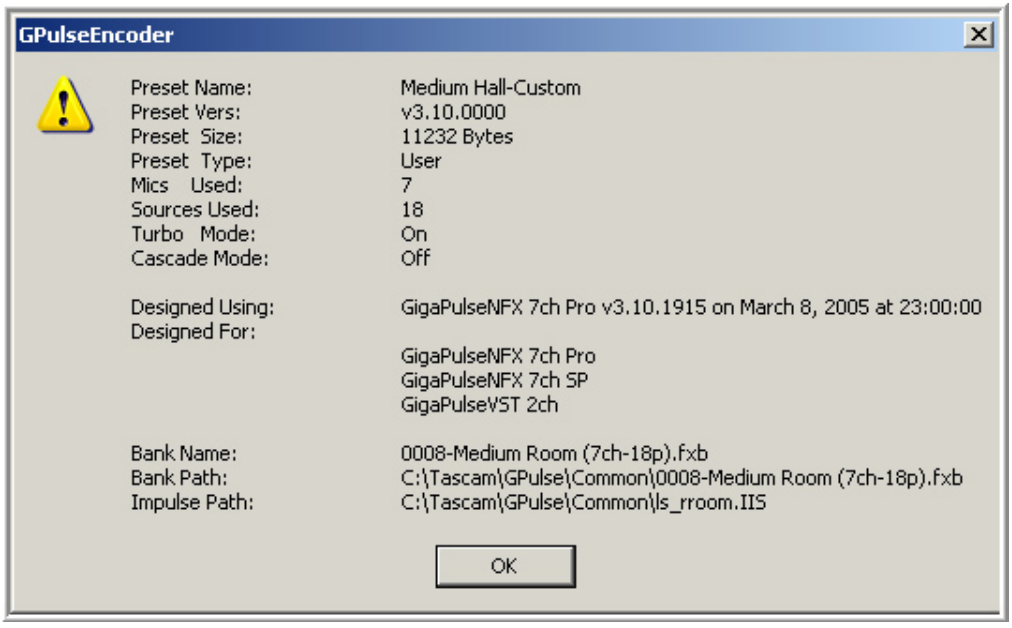


Doing so brings up the *New Preset* window. Here you enter the Bank menu name, which will show up in the Bank Menu whenever it is loaded into GigaPulse.

At this point we can load this new Bank into GigaPulse at any time, either from the "Bank Menu" or from the "Open Bank" command in the File Menu.

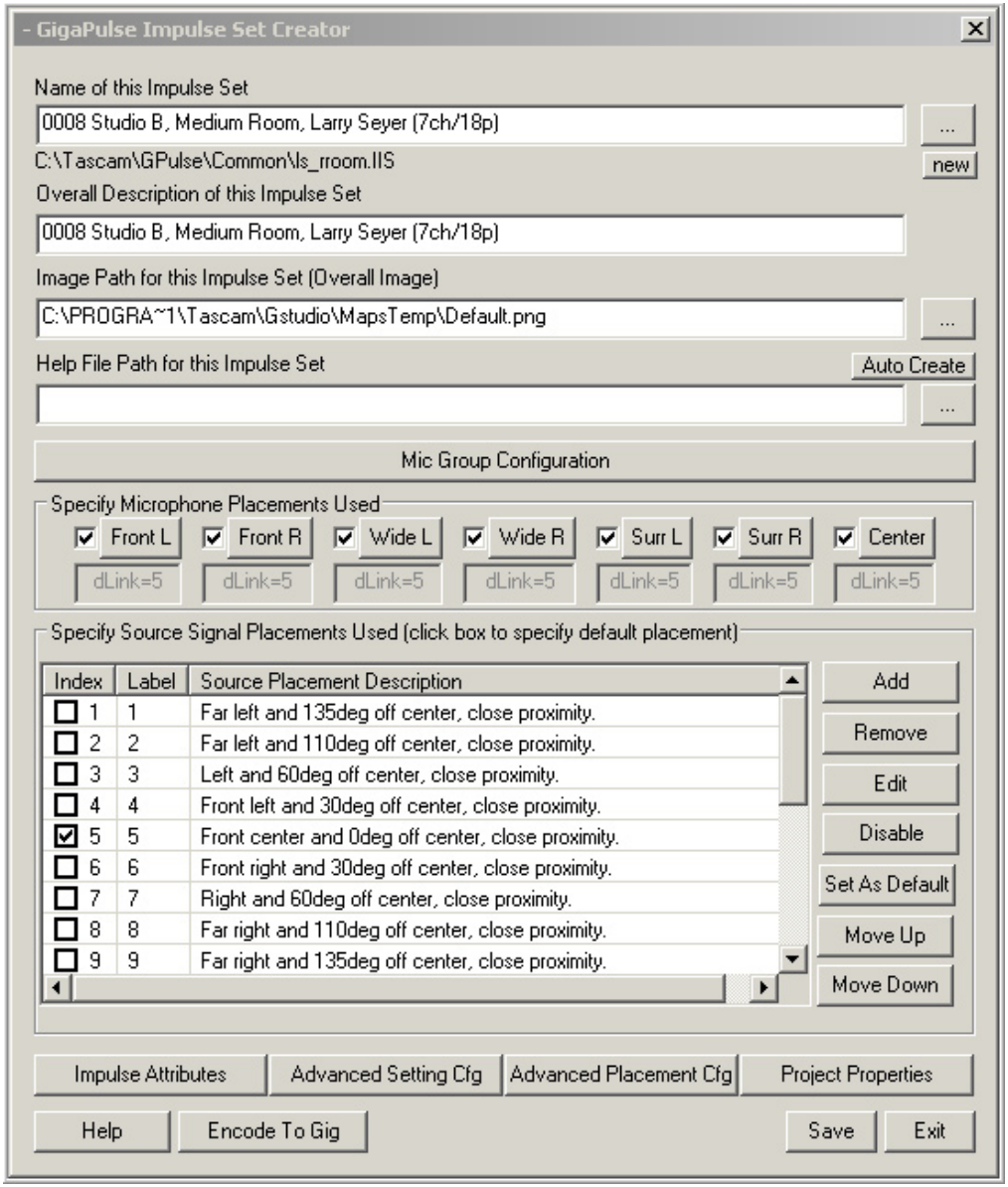
About Preset

The *About Preset* command opens the information window for the currently selected Preset.



Edit Current IIS

This brings up the "GigaPulse Impulse Set Creator" with the current IIS file loaded and ready for editing.



Encode context to IIS

This command is for any early GigaPulse developers that may still be working with INI.DAT format impulse sets. That was the predecessor to the IIS impulse set. This command will convert an INI.DAT impulse set to the current IIS impulse set format.

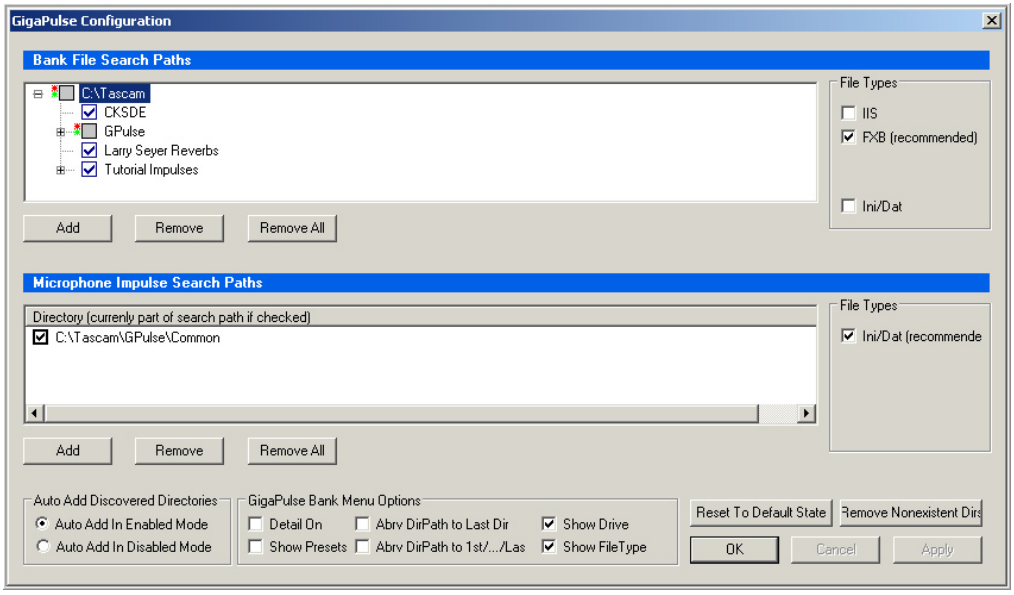
Unless an INI.DAT set is loaded, this command will be greyed out.

Configuration

Configuration opens a window for defining search paths and options for the banks and microphone models and their associated file types. Use this to organize the file structure for your GigaPulse files.

The configuration permits you to structure your GigaPulse files to your convenience. You'll want to add impulse sets to your library, and in time the list can become too long to be workable. To deal with this, you organize your impulse sets into folders, each with as many or as few banks as you desire, organized in any way that you wish. There is no set place where these folders have to be located on your hard drives, but of course grouping them together so they can be found easily is a reasonable start. For GigaPulse to see them in the Bank Menu, they need to be added in this window.

Use Windows Explorer to create new filders and drop impulse sets (iis), Bank Files (fxb) and presets (fxp) into these folders. Then use this screen to define the search paths.



Rescan Bank/Preset Directories

Updates Bank and Preset Directories.

Set Current Bank as Default

Makes the current bank the default bank setting when GigaPulse is initiated.

Set Current Preset as Default

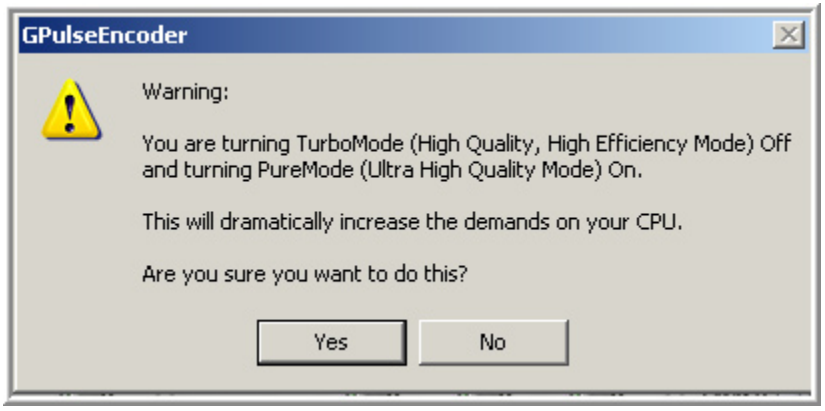
Makes the current preset the new default preset setting when the bank impulse is loaded.

TurboMode->PureMode (not recommended)

PureMode is a 100% mathematically perfect convolution without the use of an artificial reverb tail model for up to 3 seconds.

Convolution is very CPU intensive and therefore the default setting (Turbo Mode) is an effective limit of three seconds of actual convolution at 48 kHz before going into the Tail Model.

It is very likely that PureMode can be used more in the future, as computers get more powerful. Until then however, we recommend leaving it set to Turbo Mode. Pure Mode would mainly be used for ambiences that are longer than three seconds and the artificial tail model is noticeable.



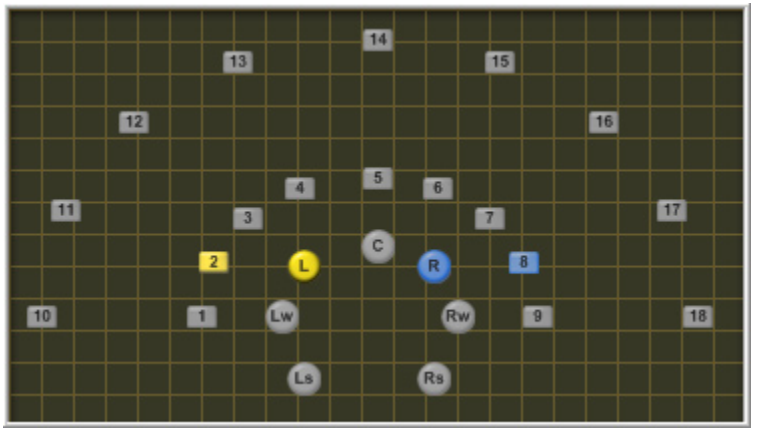
Render Current Cfg to a single Source Placement

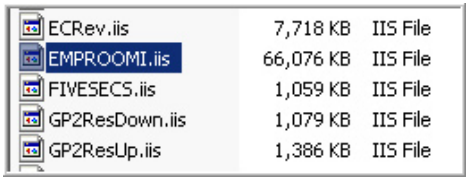
This feature is used to compress a multiple source impulse set down to a single source set. A single source impulse set deletes all the un-referenced impulse positions leaving a single position and the microphones. There are a couple of reasons why you would want to collapse and impulse set down like this.

> The main purpose is if you want to encode an impulse to a .Gig file in GigaStudio 3.0. When an impulse is encoded to a gig file, it will automatically load when ever the instrument is loaded into GigaStudio with all its default settings. It doesn't use up any inserts or aux busses in the process. This is often done for convenience and simplification. Simply load the instrument and play without having to go load GigaPulse, hunt for a bank and make settings. Everything is ready to go as soon as the instrument is loaded. However, it also allows developers to ship built in impulse banks with their libraries and they will work on all the versions of GigaStudio 3.0. (GigaPulse Pro is not included in the lighter versions)
>
> The other purpose would be to simplify favorite banks and have them use fewer resources. For example, an impulse set with 18 stage positions could be 33 megabytes. When reduced to a single source, it can get down to about a single megabyte in size. That saves RAM and hard disk space.

Start off by loading a room or a hall and making some placement and parameter settings. (Use the Multi Placement mode and assign at least two or more of the mics to their own stage position.)

In this example, we are using the *Empirical Room* bank that ships with the GigaPulse.



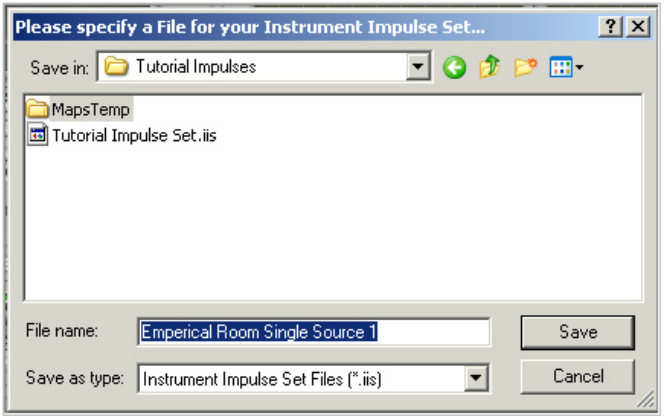


This impulse set is 66 megabytes in size on the hard drive at this point.

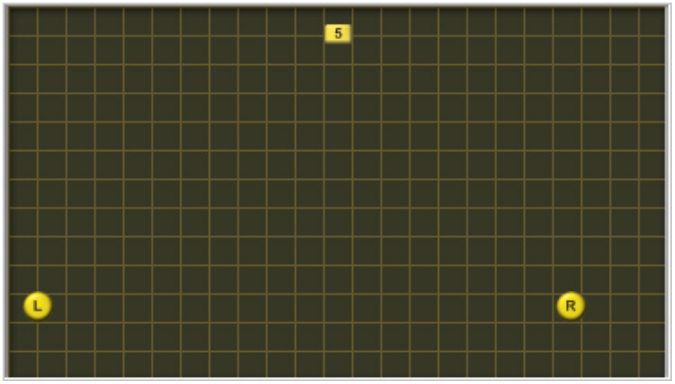
That is because it has all 18-stage positions for every microphone built into it. (up to 128 impulses) These are available and ready to access at a moments notice. However, by reducing this bank down to a single source, we can drastically simplify and reduce the size of it.

Next, choose *Render Current Cfg to a single Source Placement* from the file menu.

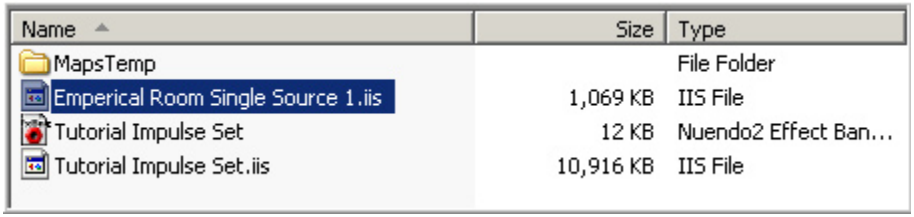
Choose a place to save the IIS file and give it a name.



Once its finished compiling and saving, the result will be a more sparse *Placement Selection* pane.



Notice the size of the single source version is much smaller now.



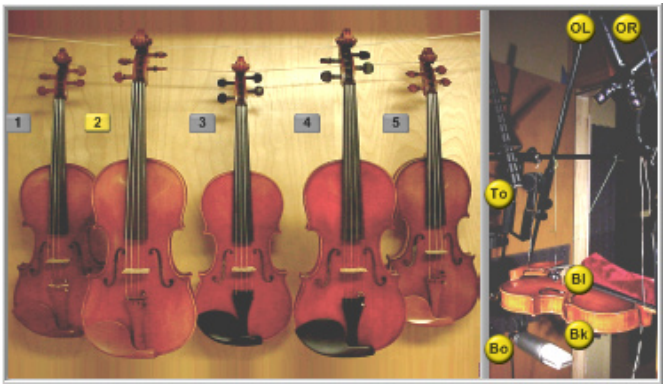
The audio quality is the same. The only thing lost at this point is the ability to make room & mic positions changes. You can always go back to the original to do that at any time though.

Now the impulse is ready to be embedded (encoded) to a gig file.

Render to Impulse Set to DSP Station Outs: (GigaStudio 3 Orchestra & GigaPulse Pro Only)

Rendering to the DSP Station Outputs allows the full mix and signal path of the GigaPulse to be mixed down to a more simple impulse set. It can be used in a similar way to bouncing down audio tracks. You could accurately call it a *GigaPulse Mixdown.*

A good example of how this would be used would be the Giga Violin Library. In this library, you can choose among several violin bodies and each of those has 6 microphone positions.



You can enable any number of the mic positions and adjust their individual levels within GigaPulse and also on the multiple channels of the DSP station.

The various mic positions can be spread across the DSP mixer channels using the *Mic to Mixer Routing* matrix. The mix down would be the audio of those channels.

The mic positions could also be assigned to two channels for a simple stereo mix down.

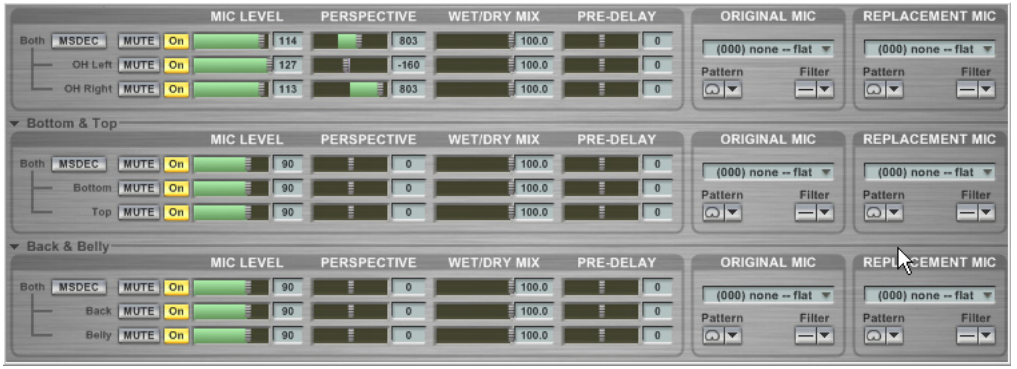
To use this feature, you would first pick out your bank and make all your settings.
In this case we will use the Violin body.

The impulses of the Violin bodies are recorded from 6 positions. Experimenting with enabling & disabling various mics and adjusting their levels & perspectives can create an infinite variety of sound characteristics.

Using all the mic positions at once uses a lot of extra CPU power. If we have all 6 enabled at once, mixing them down will cut the CPU usage down to a third of the amount. (2-channel stereo instead of 6 channels)

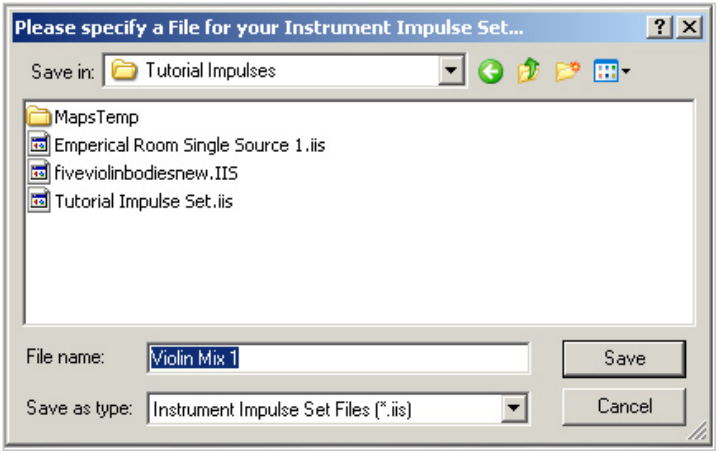
Use the Mic to Mixer routing to assign the violin mics to the DSP station mixer channels. In this case, they are all going to 1-2.

You can tweak the individual mic levels & perspective and even replace the microphones with other models.

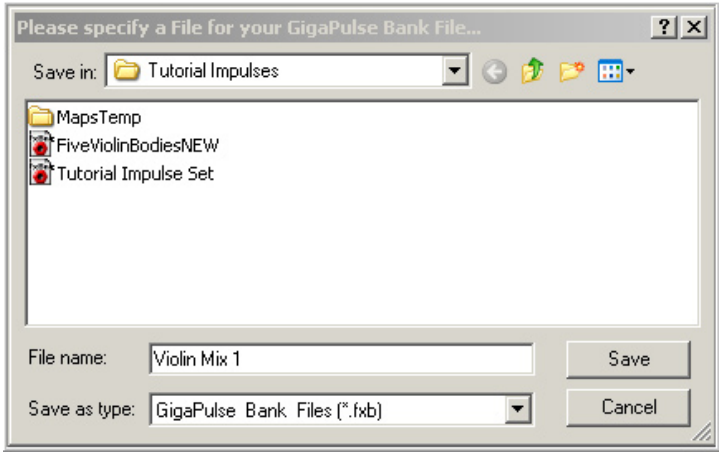


Once everything is set the way you like it, choose *Render to Impluse Set to DSP Station Outs* from the file menu.

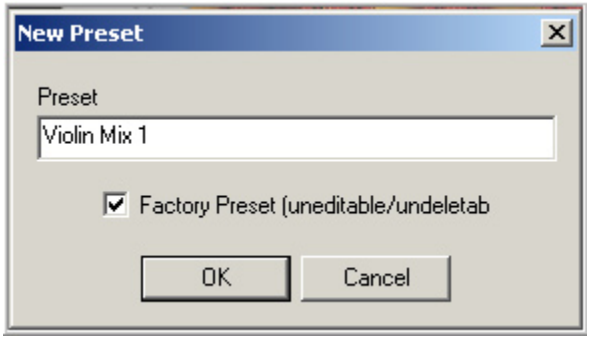
Browse for a place to put them and give the impulse set a name.



Next you will be prompted to provide a bank name.



The last screen asks for a preset name.

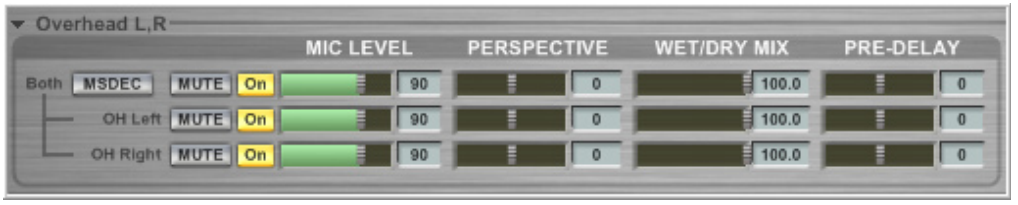


Once its done saving, we are left with a simplified version of the Violin impulse bank.

The graphic is the same but there is now only one violin body available and two mic positions. (these are the mix downs of the 6 earlier ones represented by the two overhead mics)

Mic to Mixer Routing has been pared down to the two channels.

The Mix Master section is also pared down to the two channels.



What we have at this point is the same audio result as before but it is mixed down and more manageable. It also uses a third of the CPU resources. The only thing that is lost at this point is the ability to choose violin bodies & mic positions & adjust the mic levels etc. You can always go back to the original bank and start over though. You can create a huge collection of your favorite bodies and mic settings using this technique.

Keep in mind the number of resultant mic channels is dependent on the DSP station routing. You could have GigaPulse Mic to Mixer setup to use all 7 output channels, but if the DSP station mixes these down to 2 hardware output channels, then you'll only get 2 mic channels.

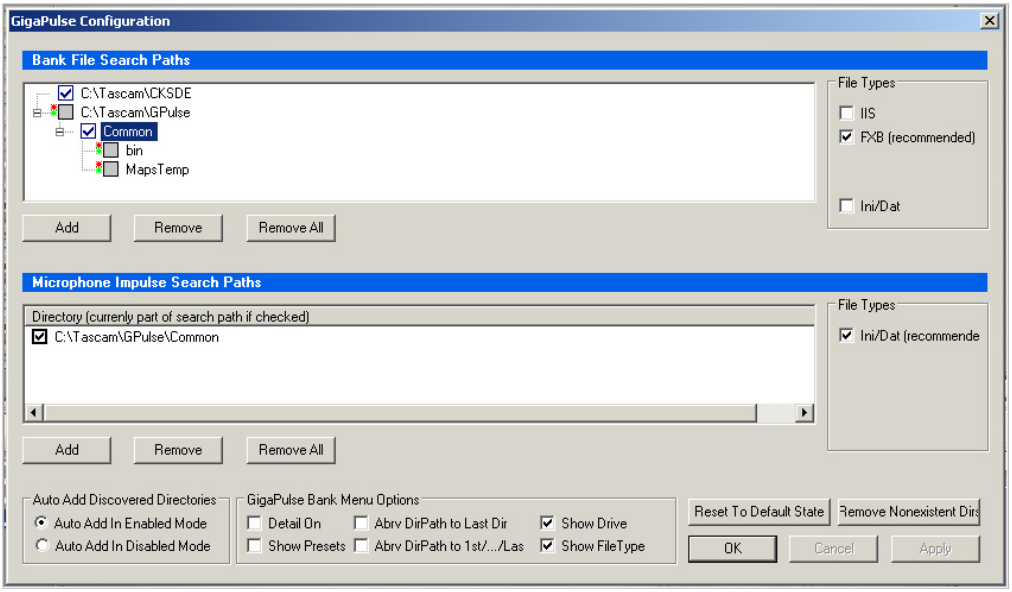
The DSP Station's routing and fader and pan values are also taken into account when calculating the impulse set's new impulses (insert, group, output). However, no other DSP Station feature is calculated into the resultant impulses (no EQ, Dynamics, other effects).

Encode Current Cfg to a Gig Instrument Preset: (GigaStudio 3 Orchestra & GigaPulse Pro Only)

This feature allows you to encode a currently loaded GigaPulse configuration to a GigaStudio instrument. Doing so embeds the GigaPulse environment into the instrument. When the instrument is loaded into GigaStudio, the environment is also loaded with all the default settings. This has proven most useful for things like the GigaPiano II where the pedal down resonance is pure GigaPulse audio. Just load the piano and play it. The sustain pedal triggers the GigaPulse environment as you play it. This could be done manually by loading just the piano samples to a MIDI channel and then opening GigaPulse on an insert in DSP station, then finding the Piano resonance bank. However, encoding the GigaPulse environment saves all that hassle.

GigaPulse Configuration Window:

The *Configuration* window is used for defining search paths and options for the banks and microphone models and their associated file types.

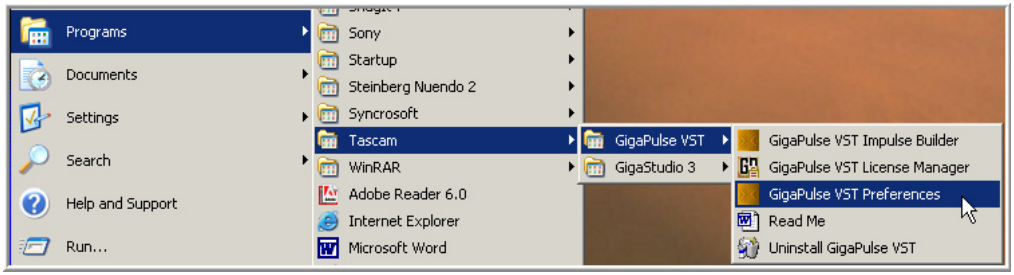


The configuration window permits you to guide GigaPulse to find your banks, presets and impulse sets. You'll want to add impulse sets to your library, and in time the list can become too long to be workable. To deal with this, you organize your impulse sets into folders using Windows Explorer to create the folders & place the iis, fxb & fxp files within. Each folder can have as many or as few banks as you desire, organized in any way that you wish. There is no set place where these folders have to be located on your hard drives, but of course grouping them together so they can be found easily is a reasonable start. For GigaPulse to see them in the Bank Menu, they need to be added in this window.

Opening The Configuration Window

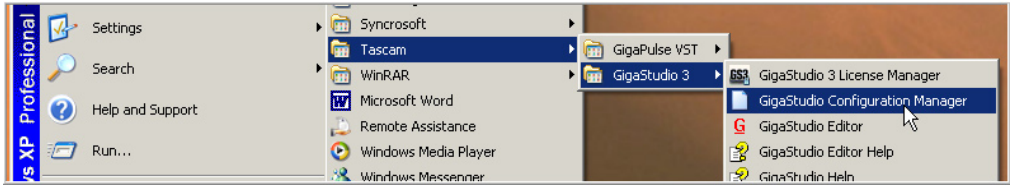
There are several ways to open the GigaPulse Configuration Window:

Opening the Configuration screen from the Start Menu: GigaPulse VST



1. Click the *Start* Button at the bottom left corner of your screen.
2. Select *Program Files.*
3. Select *Tascam.*
4. Select *GigaPulse VST.*
5. Select *GigaPulse VST Preferences.*

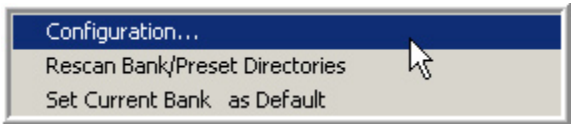
Opening the Configuration screen from the Start Menu: GigaPulse Pro



1. Click the *Start* Button at the bottom left corner of your screen.
2. Select *Program Files.*
3. Select *Tascam.*
4. Select *GigaStudio 3.*
5. Select *GigaStudio Configuration Manager*
6. Click on the *GigaPulse/Convolution Tab*

Opening from within GigaPulse at the File Menu

Select *Configuration* from the file menu in Acoustic Space.

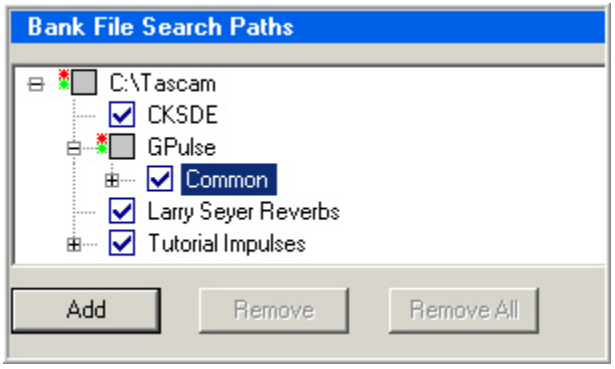


Search Paths

GigaPulse releated files.

Right mouse clicking on a directory in the Bank Selection Tree will give you an indictation of the state of the directory

- is it a valid directory?
- does it have Gpulse related files?
- does it have Selected Gpulse files?
- Is it currently enabled as valid search path?

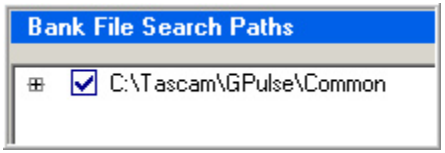


Use the Search Paths to specify which directories have GigaPulse releated files. (FXB, IIS, INI.DAT)

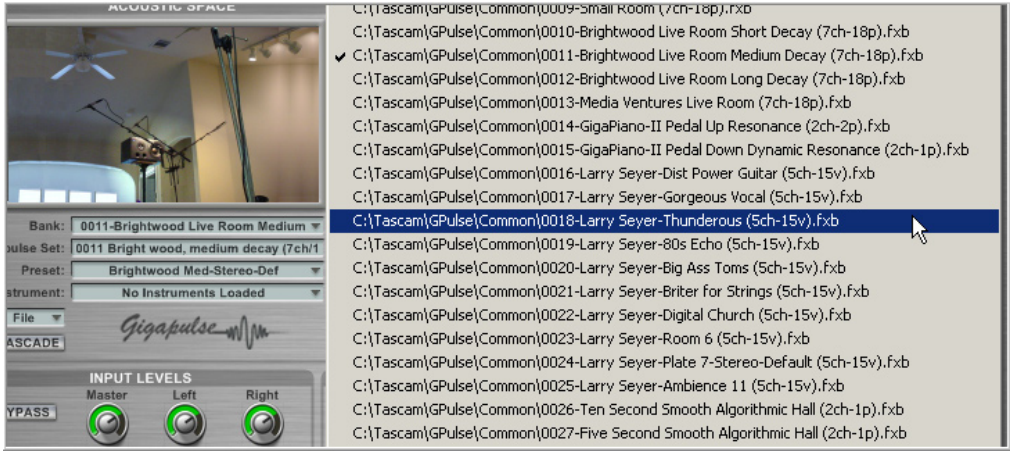
The list box in the top portion of the GigaPulse Configuration Panel shows the list of these directories. By default, the Factory GigaPulse Bank File directory is included in this list. (Hard Drive:\Tascam\Gpulse\Common)

For example, here if have the entire set of factory default banks files in one single directory.

C:\Tascam\Gpulse\Common

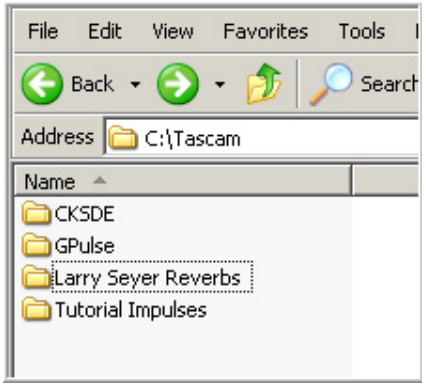


This is what we see in the bank window in GigaPulse.



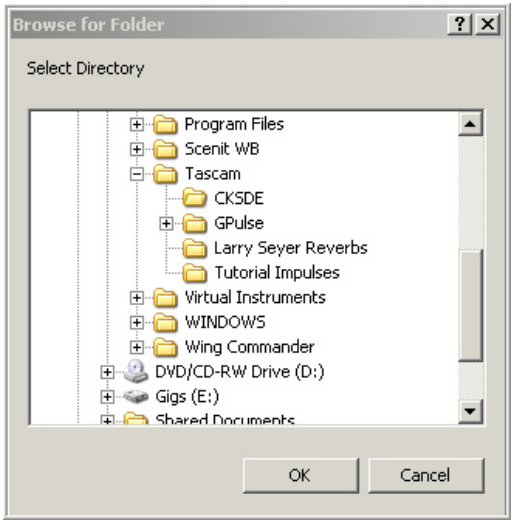
You get one huge long list with every single impulse bank. However, this is a bit cumbersome to keep up with. You have to do allot of scrolling to get to specific banks, which can be rather tedious and time consuming.
To solve this problem, we can reorganize the banks on our hard drive to better manage them.

To solve this problem, we can reorganize the banks on our hard drive to better manage them.



(Windows Explorer View)

Here we have created several folders and reorganized the impulse banks. The Larry Seyer reverbs have been moved to their own directory, as have the CKSDE impulses. There is also folder to put "Tutorial" impulses in. The sky is the limit to how you want to arrange your folders & banks. Using the Add Button and Check boxes, we can direct the GigaPulse to see these folders and enable them.

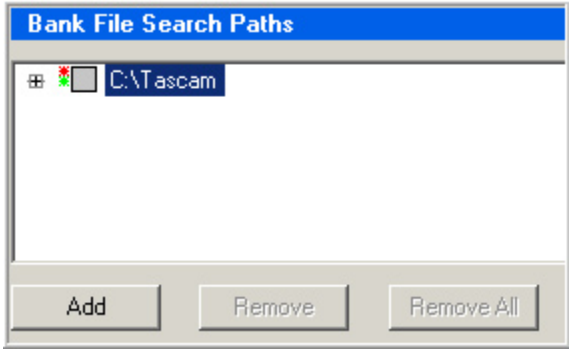


(GigaPulse Configuration)

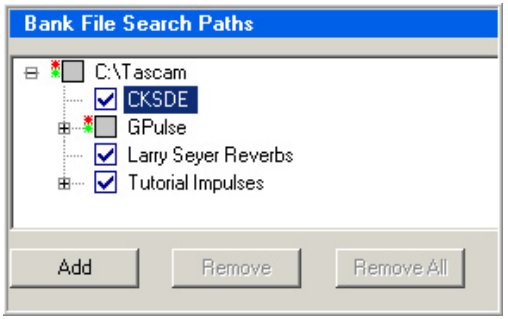
In the Configuration Window, Clicking on the Add button will launch a directory browser, with which you can select a directory to be added.

Highlight the folder you want to add to the search paths. Once selected, click on the "OK" button.

If you select the Tascam directory, all the sub directories will show up in the Bank File Search paths.

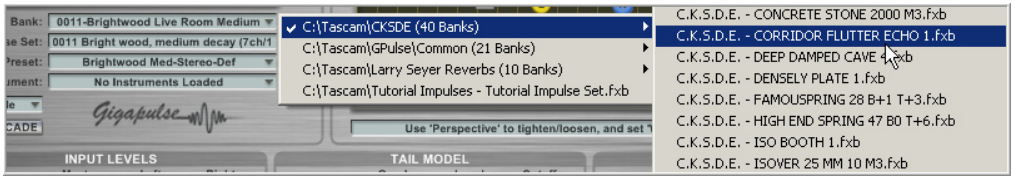


To see the subdirectories, you need to click on the plus to the left. (+)



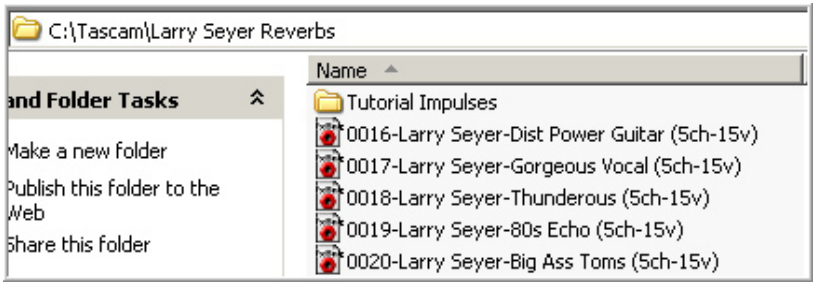
Once the directories are visible, use the check boxes to determine which directories will show up in the Bank List. It this example, we will check them all.

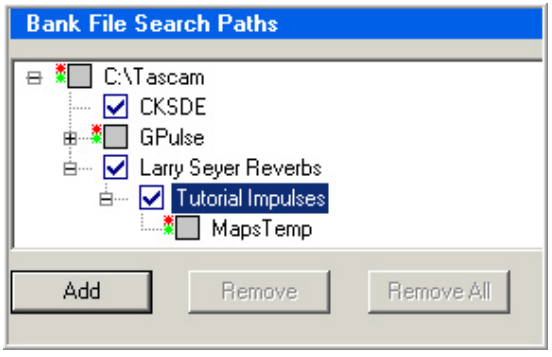
In the Bank List, the files are now subdivided and easier to get to. Instead of the long list with every file in it, we have individual directories and their contents.



In fact, we could have directories within directories as well.

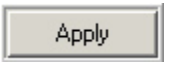
For example, lets put the Tutorial Impulses directory inside the Larry Seyer Reverbs directory.





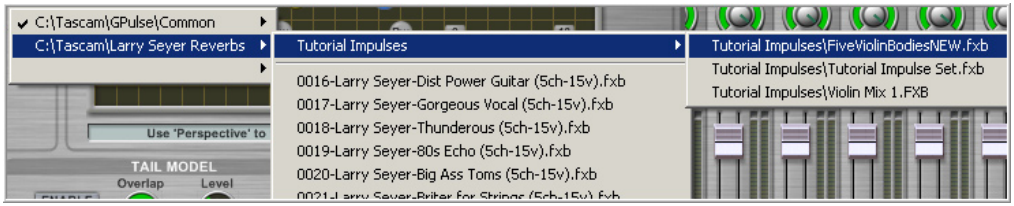
In the Configuration Window, the tutorial impulses are now displayed inside the Larry Seyer Reverbs folder.

If they don't show up, simply remove the Tascam folder and the Add it again.

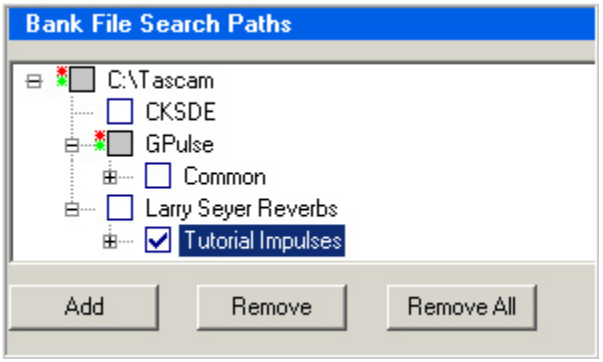


Select Apply to make the changes.

In the Bank List, the result is the same. We get a three part dropdown menu that takes us through the directory structure as it is arranged on the hard drive and in the Configuration Window search paths.



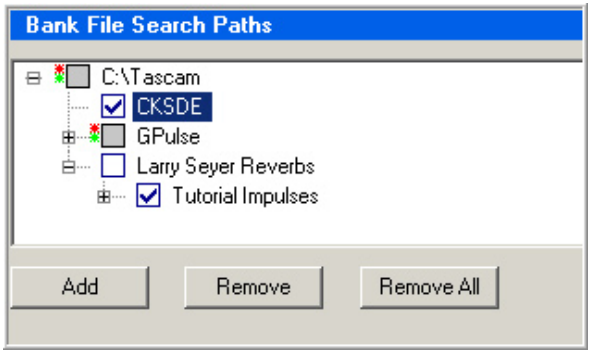
This can also work the reverse way as well. Sometimes, you may not need access to certain types of GigaPulse banks for a project your working on.
In that case, simply disable the checkbox for any directory you don't want to see in the Bank List.



In this example, we have disabled everything except the Tutorial Impulse folder, which is still nested inside the Larry Seyer Reverbs directory.

Select Apply to make the changes.

Now the Bank List is very simplified, only showing only the enabled Tutorial Impulse folder bank files.



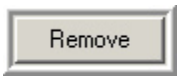
We can enable more directories by clicking the check boxes.
In this case we will enable the CKSDE folder.

Remember to select Apply to enable the changes.

That folder will then show up in the Bank List as well.

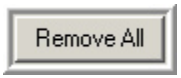
And so on with any combination of enabling & disabling & organizing bank files & directories.

Remove Button



You may select one or more search paths (Shift+Click or Ctrl+Click to select multiples) in the list and then remove them from your list by clicking on this button.

Remove All Button



This will remove all the search paths in the list at once.

File Types

These are the file extensions that may be searched for in the search paths specified by the Bank and Mic lists.

IIS-Instrument Impulse Set Contains ALL the impulses, bitmaps, text descriptions, button layouts, channel information etc.

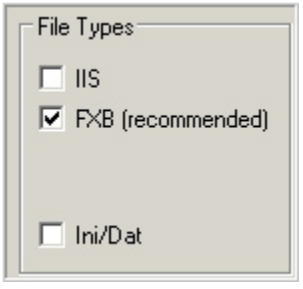
.fxb-Effects Bank An effects bank is selected from the bank menu in GigaPulse. A bank file saves all the parameters such as volume, perspective, wet/dry, pre-dely etc.

INI.DAT These are specifically Microphone Replacement impulse model files. They are factory sets and are not editable. (Hardwired so to speak) They are installed into the "Factory Mics" folder in the GPulse\Common directory

Note: Another GigaPulse related file type is the Preset.
A preset offers multiple sets of parameter settings within a bank. This allows a large number of custom user settings to be saved with a bank. Presets can also be saved separately from the "File Menu" to the hard drive and later loaded into other banks. However, presets do not show up in the Bank List so they are not one of the check box options in the configuration. Presets are built into the bank or are located from the GigaPulse File menu.

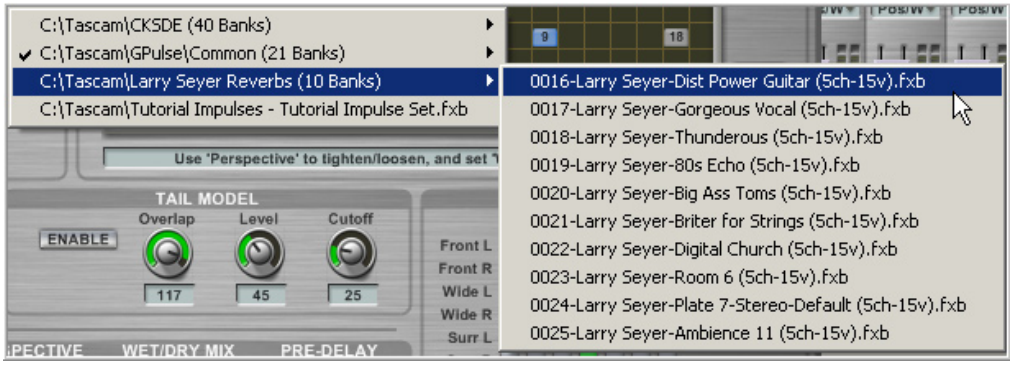
Examples:

Banks Enabled

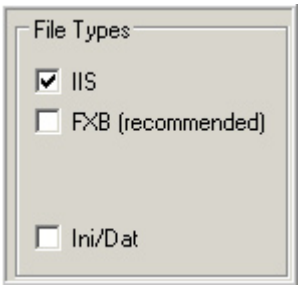


In this example, only the FXB (Bank Files) are enabled in the configuration window.

As a result, in the Bank List, only the Banks will be displayed.



IIS Files Only Enabled:



In this example, only the IIS files are enabled in the configuration window.

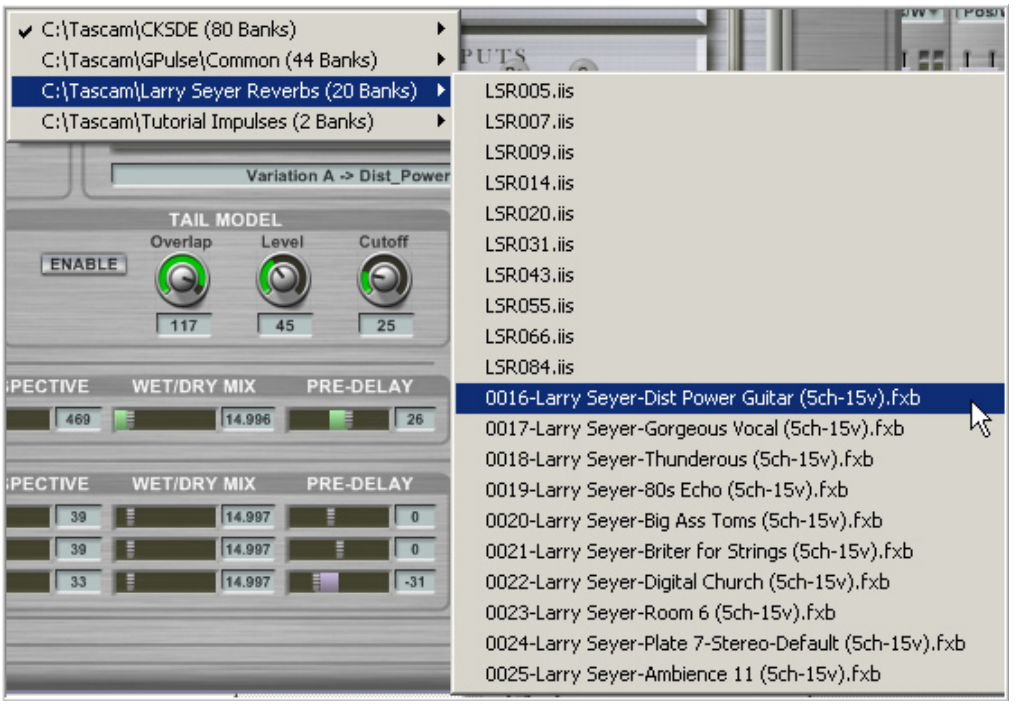
Now, only the IIS files appear in the Bank List.

If you choose an IIS file from the list, it will load into the GigaPulse interface without changing any of the Bank File settings of the currently loaded Bank.
This is handy if you want to keep all the parameter settings and try out various impulse sets without changing them. If you load banks, they reset your parameters to the default for that bank

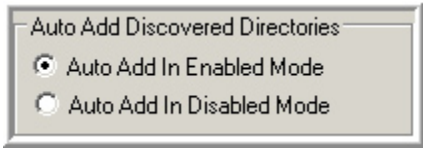
Banks & IIS File Enabled:

Now we have both the FXB and IIS files enabled in the configuration window.

In the Bank List, both sets of files show up in the dropdown. The IIS files come first in the list followed by the bank file.



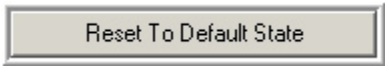
Auto Add Discovered Directories



As GigaPulse loads various files, it may 'Discover' files in directories that are not in your list. With your permission, GigaPulse may add these directories to your list. As a preference option, the directories may be added in 'Enabled' or 'Disabled' mode. In either case, you may update the 'enabled'/'disabled' state of these directories at any time by launching the configuration panel.

Select the 'Auto Add In Enabled Mode' to add 'Discovered' files as Enabled.
Select the 'Auto Add in Disabled Mode' to add 'Discovered' files as Disabled'

Reset To Default State



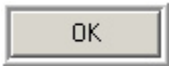
Resets all controls and lists to their default values.

Remove Nonexistent Dirs

This will remove any directories that are still in the file search paths but are no longer actually on the hard drive. It's good for cleaning up obsolete directories.

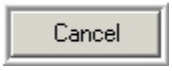
Typically, these directories are shown with a 'broken' checkbox.
If you use removable drives, you may not want to remove non-existent directories that are on a drive you plan to use in the future.

OK



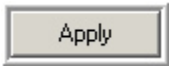
Applies your changes and exits the Configuration Manager

CANCEL



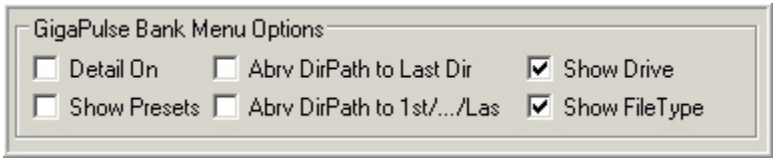
Ignores any changes made (except before 'Apply' button save operation and the 'Reset to Default State' operation) and exits the configuration panel.

APPLY



Saves the current state of the control panel, but does not exit the configuration panel

GigaPulse Bank Menu Options

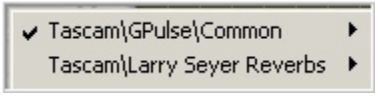


Here is a group of Bank Menu Display options. These allow you to completely customize how the files are displayed in the Bank List.

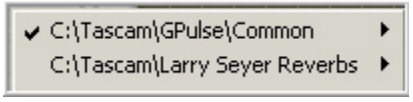
Show Drive

If you need to simplify the display, you can disable the display of the hard drive in the Bank List.

Disabled



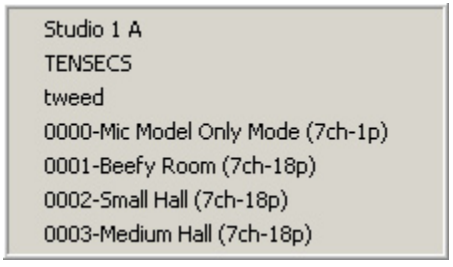
Enabled



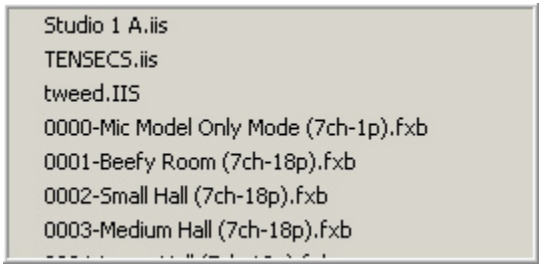
Show File Type

You can further simplify the display by disabling the File Type display.

Disabled



Enabled

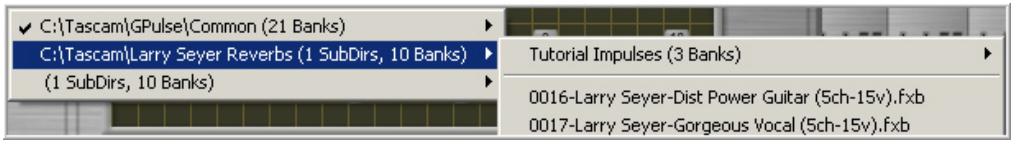


(Notice the .iis & .fxb file extensions)

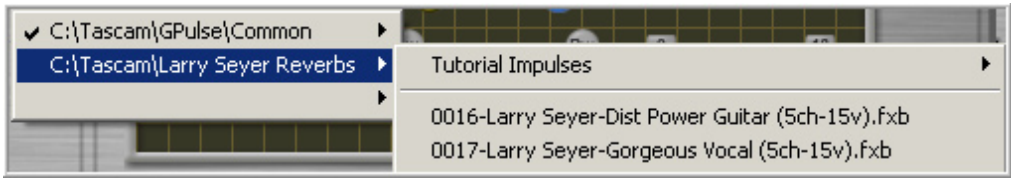
Detail On

This checkbox enables and disables the display of extra details in the Bank List. These details include the number of Subdirectories and Banks within each directory.

Enabled (Notice the details about SubDirs and Banks)



Disabled (No Details)



Show Presets

This option will add the bank's available presets as an additional cascade layer to the bank selection menu. Normally, when you select a bank, the default preset is loaded. To save the time of loading the default preset, then loading the desired preset, enable this option and directly select the desired preset.

File Path Abbreviation Options

Here we have two options to shorten the length of the file path in the Bank Menu. This can be handy if you wind up with complex nests of organized directories full of banks.

Abrv DirPath to Last Dir

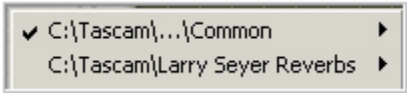
(Abbreviate the Directory Path to display only the Last Directory name)

Enabled

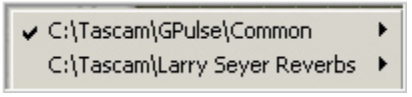
Abrv DirPath to 1st/.../Last

(Abbreviate the Directory Path to display only the 1st and Last Directory Name)

Enabled



No Abbreviation enabled



GigaPulse Pro Signal Flow

To effectively use the GigaPulse, you need to know the signal flow and how to assign the GigaPulse microphones to specific mixer channels and audio outputs. (Especially for surround mixing) In this section, we will cover the signal flow from the MIDI channel on through to the physical outputs. Ideally, you will have a GigaStudio compatible sound card with 4 or more physical outputs for surround mixing. 8 outputs is the ideal, as that would handle all 7 potential microphone channels.

GigaPulse VST Signal Flow

The VST version's signal flow begins at the VST DAW (Digital Audio Workstation/ Sequencer) audio channel insert and then passes through the "Input Section" of the GigaPulse.
Consult the DAW documentation for details on its signal flow and how to use VST plugins with it.

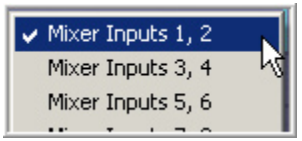
Signal Path

The signal path goes from Midi Channel to Mixer Channel to group or physical output assignment.

Instrument is loaded to a specific MIDI channel.

At the far right of the MIDI channel is a mixer input drop down menu.

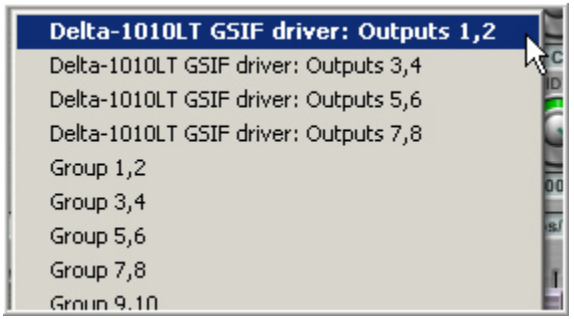
From the output assignment dropdown menu, we assign the MIDI channel to a Mixer Input. GigaStudio 3.0 can have up to 128 Mixer channels. (User selectable amount.)



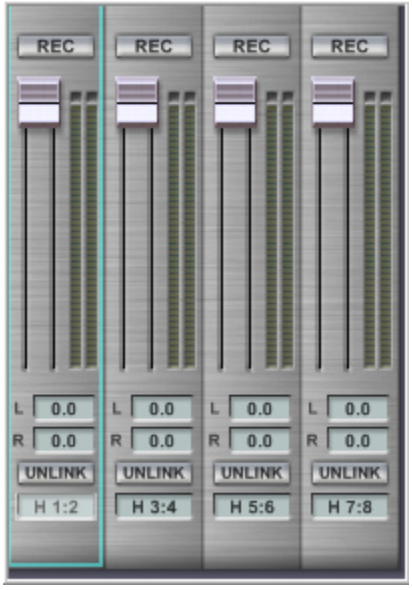
The instrument will now play through the assigned Mixer Input.

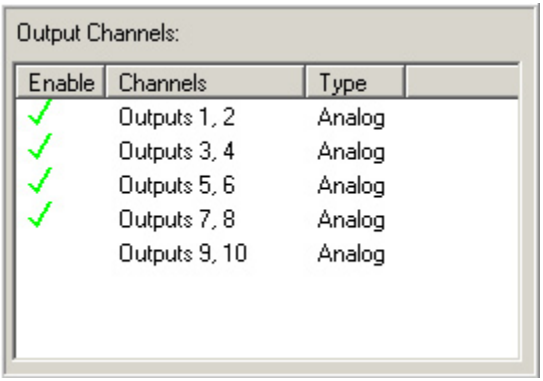
At the bottom of each mixer channel is an output assignment drop down menu.

From that menu, we can assign the mixer channel to a mixer group or directly to an audio output pair on the sound card.



The Output Masters in the GigaStudio Mixer correspond to the available audio card outputs that are enabled in the GigaStudio configuration.





· These output pairs can then be routed to their final destination depending on how you work.

· They can be routed directly to the proper speakers. (Left, Center, Right, Surround etc.)

· They can be routed to a hardware mixer via analog or digital connections depending on the audio card & mixer. The mixer then handles the audio routing at that point.

· They can be routed to another computer DAW environment via analog or digital connections depending on the audio card & DAW connections.

· They can also be internally connected to the local computer DAW environment via Rewire.

GigaPulse Mic to Mixer routing-Channel Inserts

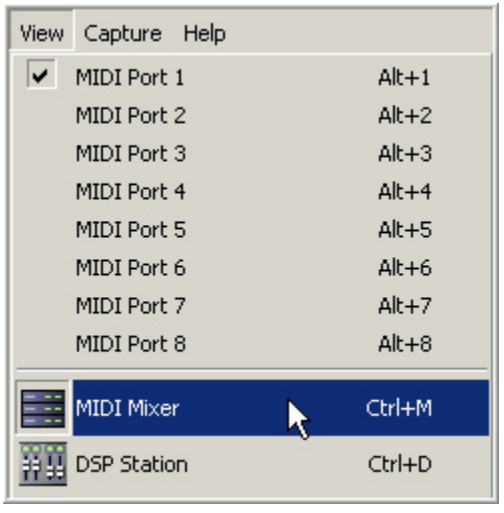
This is where the GigaPulse environment is directed to specific mixer channels and then onto hardware outputs.

For this first example, we will stick with using GigaPulse as an insert on a mixer channel. Later we will cover using it in an aux buss but to see how this routing works, its best to start with a mixer channel first.

Start by loading an instrument to a MIDI channel.

Go to the MIDI channel page to load an instrument.

To bring up the MIDI mixer pane, click the *MIDI Mixer* button at the top of the screen.



You can also select the MIDI Mixer from the View menu.

(Or Ctrl+M on the keyboard.)

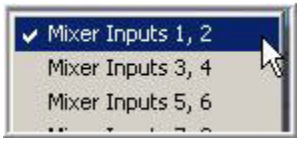
For this lesson purposes, load an instrument to MIDI channel-1 on Port-1 and make sure you can play the instrument with your keyboard or through your sequencer.

Port 1 Selected:

Instrument Loaded on MIDI Channel 1:

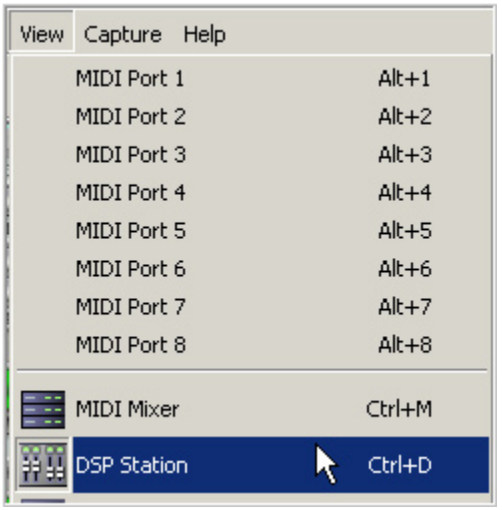
To the right of the MIDI channel, locate the Mixer Input dropdown menu.

Use the dropdown to assign the Mixer Input. For now, set it to Inputs 1,2 if its not there already.



Next, bring up the DSP Station. (The GigaStudio Mixer)

Click on the *DSP Station button* at the top of the screen to bring up the mixer.



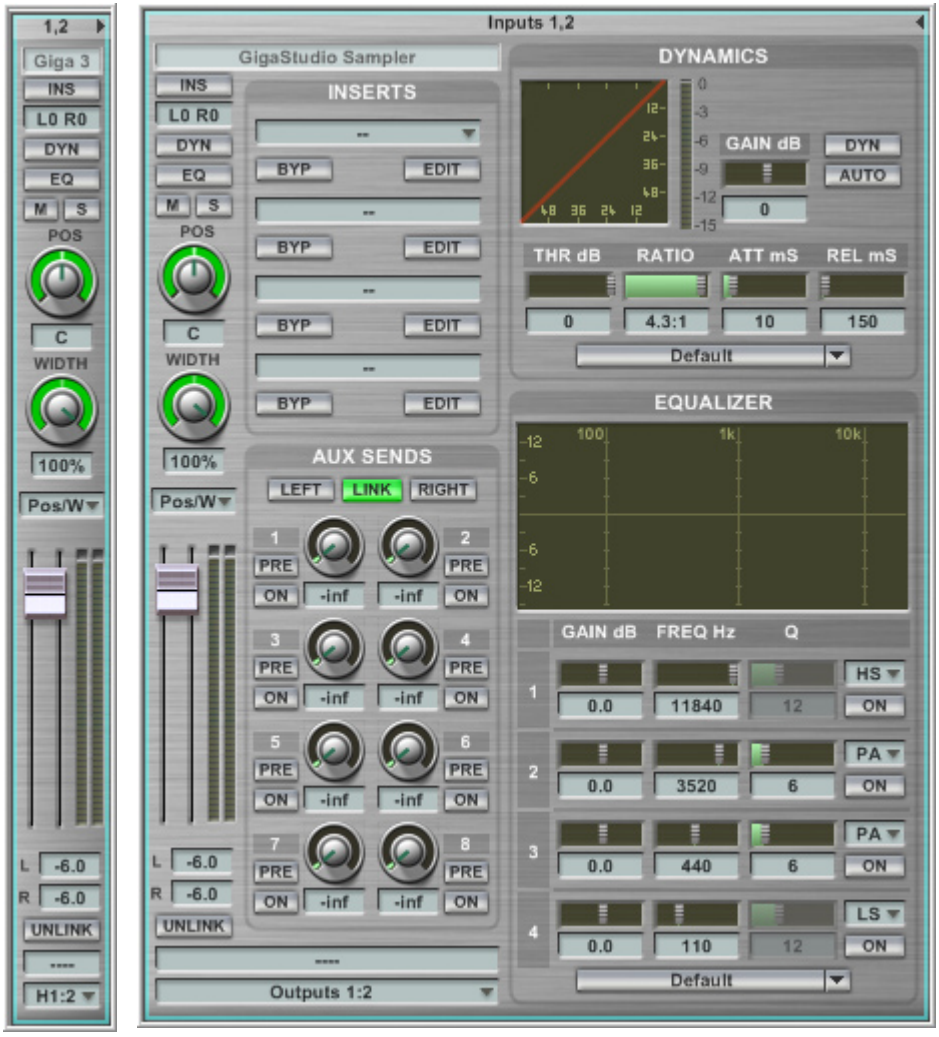
You can also select the DSP Station from the View menu.

(Or Ctrl+D on the keyboard.)

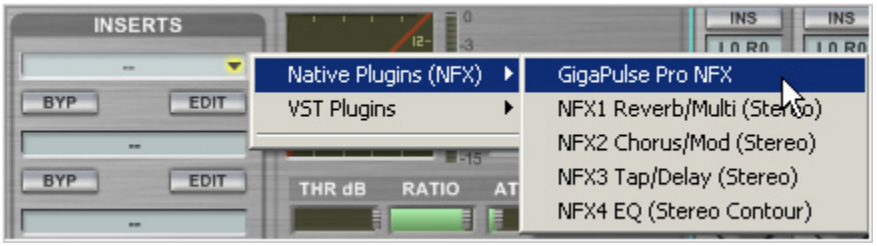
Select *Channel 1,2* in the mixer.

At the top of each channel pair is a little right-pointing triangle next to the channel numbers. By clicking on the triangle, that channel pair can be changed to Wide Channel View.

Note that the triangle points to the left once the channel is expanded. Click on it again to return to the *Narrow Channel View.*



Now assign GigaPulse Pro NFX to the first insert in Channel 1,2

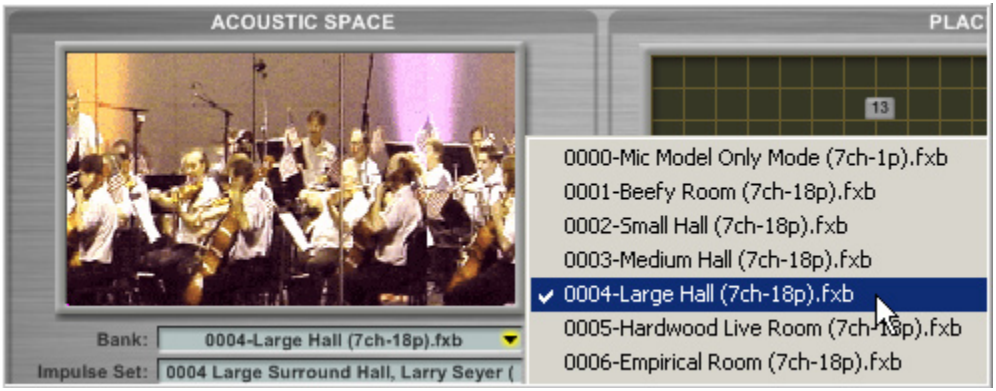


Click on the *drop down arrow* in top empty slot in the inserts pane, then *Native Plugins (NFX)*, and finally *GigaPulse Pro NFX*. This will insert the GigaPulse Pro

GigaPulse Pro NFX In the Insert.

This brings up the GigaPulse interface.

In the *Acoustic Space Pane*, click the drop down arrow under Bank to select a room for its characteristics. Large halls are better for music, and small rooms are better for voice.



Play the instrument and see how the GigaPulse sounds on it.

Take a look at the *Mic to Mixer Routing* section.

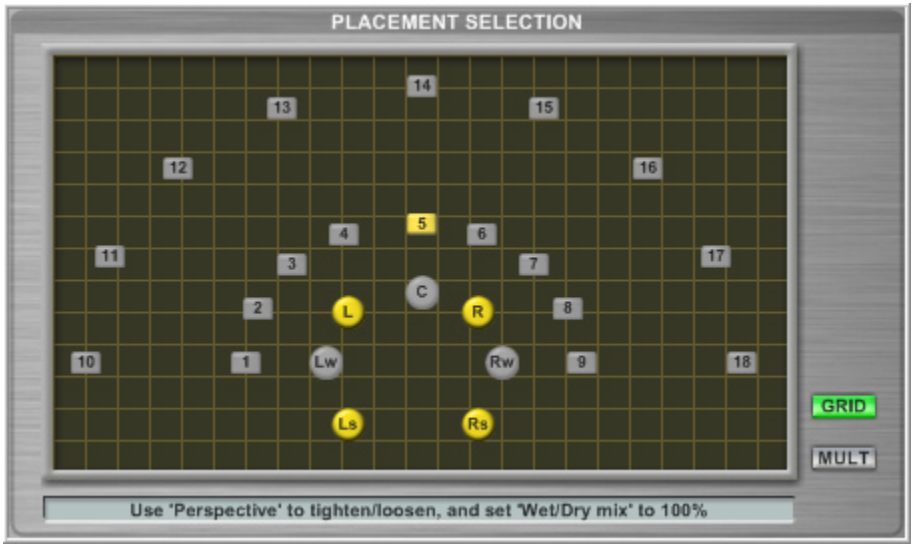
The default arrangement is as shown, with the Front Left Microphone sending it's signal to Output 1, the Front Left to Output 2, and so on, but all seven microphones can be assigned to any output desired.

Notice how numbers from left to right go from 1-7. These numbers literally mean mixer channels 1-7. The mic positions on the left will be routed directly to the mixer channel they are assigned. Just click on the buttons to assign the mic positions. Any mic position can be routed to any mixer channel here. You can also route multiple mics to the same channel.

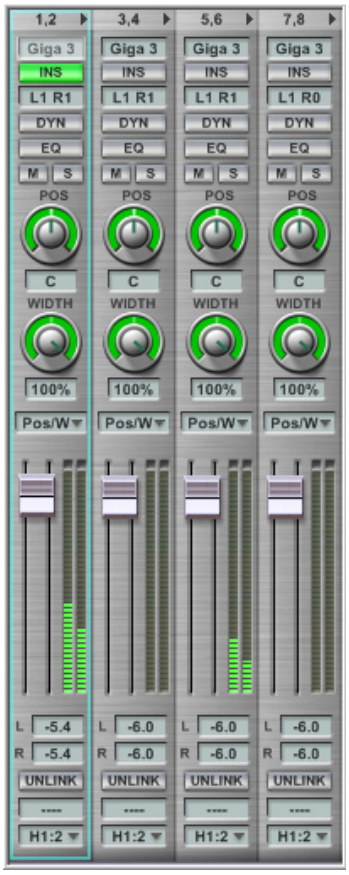
Here are some mic routing possibilities.

Go back to the default setting for now.

Enable the surround microphones.



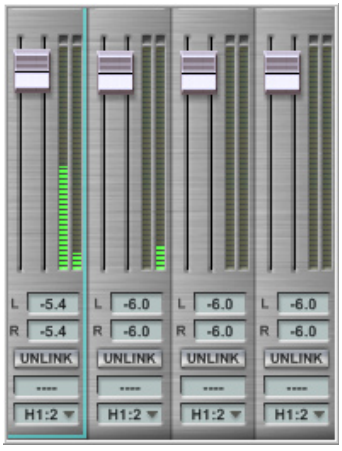
Now close or move the GigaPulse out of the way and watch the mixer channels as you play the instrument.



As you play, you will notice that the levels on mixer channels 5,6 are now lighting up. This is because we enabled the surround microphones and assigned them to mixer channels 5 & 6 in the Mic to Mixer Routing.

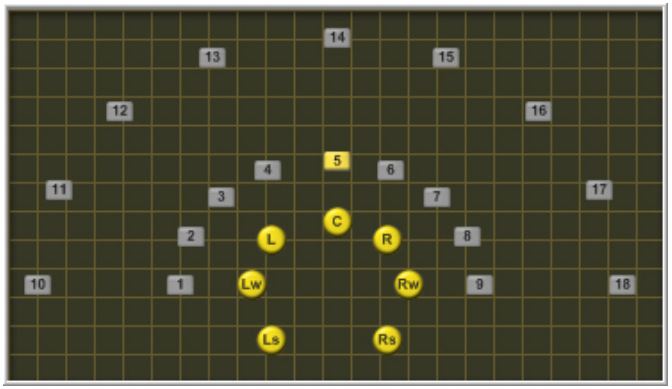
The outputs to which they are assigned are the ones that will be used in the mixer.

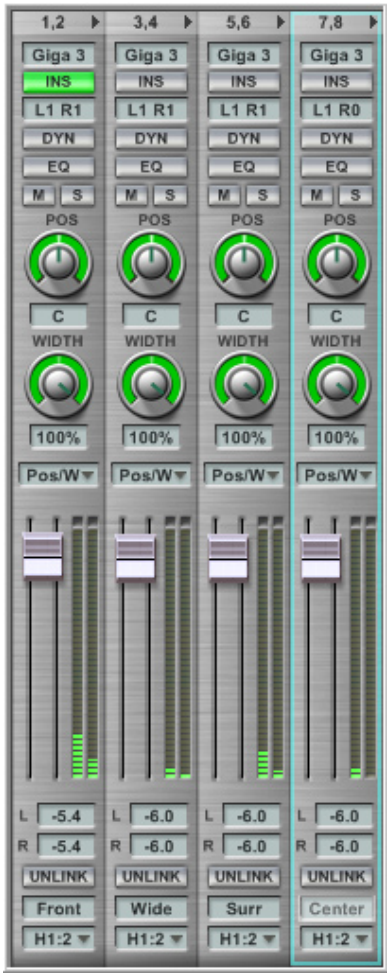
Try assigning the surround microphones to channels 3 & 4 instead.



Now the levels on 3,4 are lighting up instead.

Next try enabling all of the microphone positions.





Now the meters in channels 1-8 light up.

1,2 is the Front L & Front R Mics
3,4 is the Wide L & Wide R Mics
5,6 is the Surr L & Surr R Mics
7 is the Center Channel Mic (Left side)

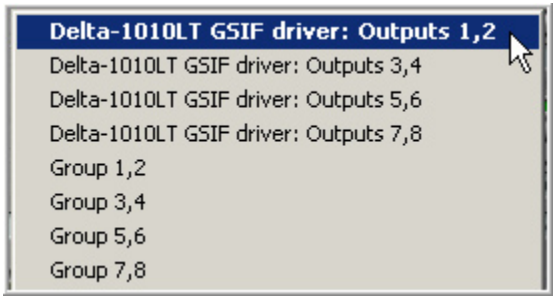
You can even label the mixer channels as we have in this example.

At this point it is not recommended to assign any audio through channels 3-8 since they are occupied with audio routing.

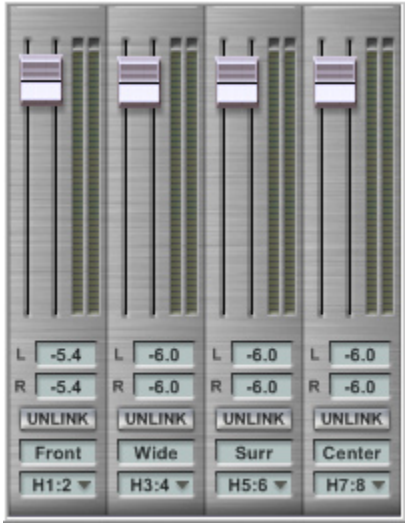
Be sure to experiment with enabling & disabling various mics and test out various Mic to Mixer Routing settings and check the results in the mixer meters.

The last step in routing the audio is to assign the mixer channels to audio outputs.

At the bottom of each mixer channel is an *output assignment dropdown menu.*



From that dropdown menu, you can assign the mixer channel to a mixer group or directly to the audio card outputs.



In this case, assign each channel to a different audio output.

Channel 1,2 to Outputs 1,2
Channel 3,4 to Outputs 3,4
Channel 5,6 to Outputs 5,6
Channel 7,8 to Outputs 7,8

Now the audio will be routed to the physical outputs of the sound card.

7-Channel Audio:

To get a full 7-channel surround environment in the studio you would need 7 speakers arranged similar to the mic positions to reproduce the GigaPulse Halls & Rooms. Other impulse banks in the future could have differing mic setups. The Wide mics could be in between the front and center mics for a wide screen array for example. (Like 7.1 theater cinema setups)

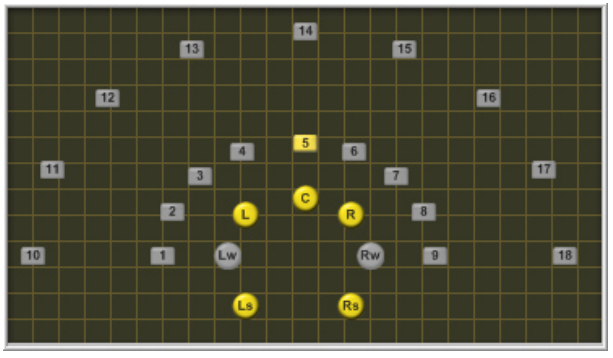
If we were connecting the GigaStudio audio card directly to the speakers, this is how the audio outputs would get assigned.

Outputs 1,2 to the Front Left & Right Speakers
Outputs 3,4 to the Wide Left & Right Speakers
Outputs 5,6 to the Surround Left & Right Speakers
Outputs 7 to the Center Speaker.

The same concept applies if you are using a mixer, rewire or an external sequencer. Eventually, these channels would be routed to these particular speakers.

5-Channel Audio

If you don't have a full 7.1 channel system but instead have a 5.1 system, you could do a couple of things.



Disable the Wide Left & Right Mic positions and just not use them.

Or you could keep them enabled and assign them to the same channels as the Front Left & Right Mic channels.

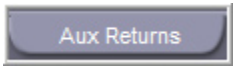
This would then only use 5 channels instead of 7. Those can then be routed to 5 audio outputs.

2-Channel (Stereo) Audio

If you are dealing with a stereo monitoring environment (only two speakers) then set the Mic to Mixer Routing to "True Stereo" This automatically collapses all the mic positions down to two channels.

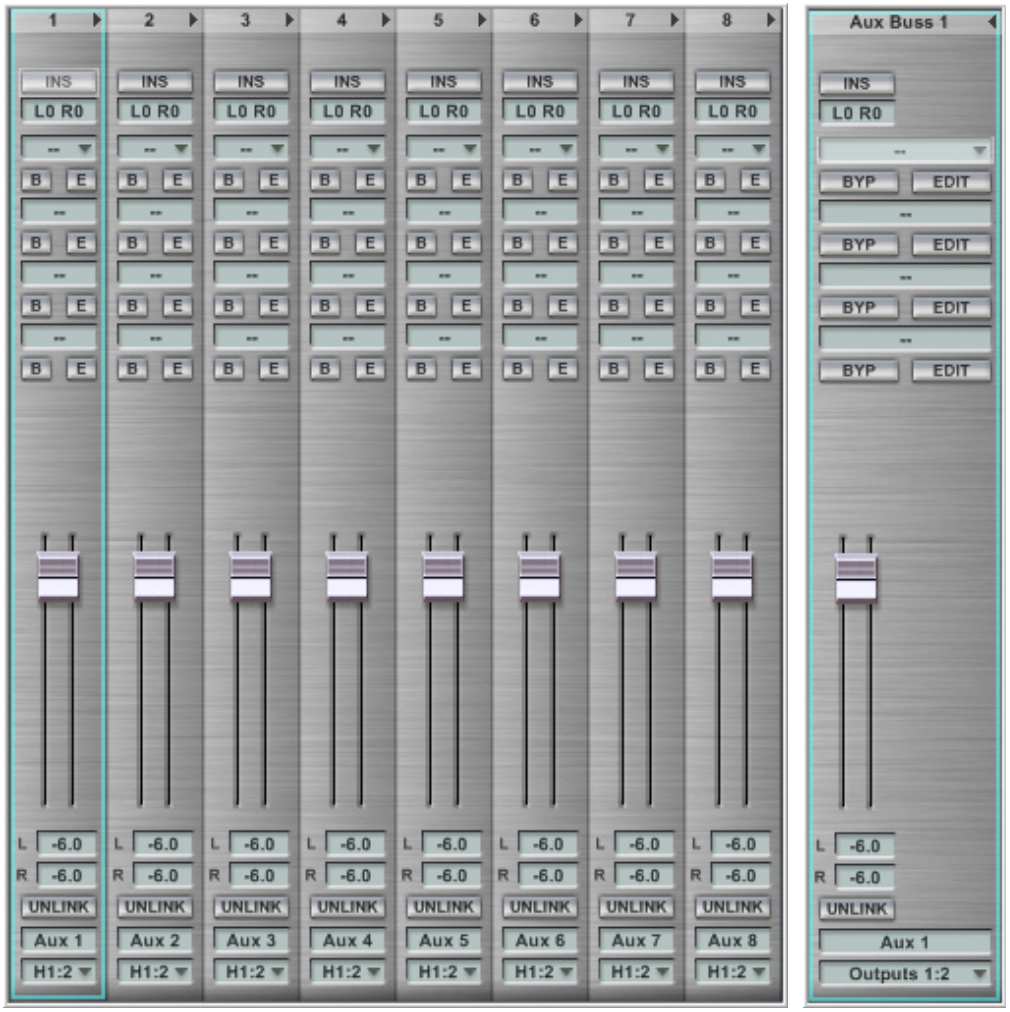
GigaPulse Mic to Mixer routing-Aux Busses

Once you are familiar with how the routing works, you can then more easily move on to using the Auxiliary Sends & Returns. This allows several mixer channels to share a single instance of the GigaPulse or any other effect plug-in.

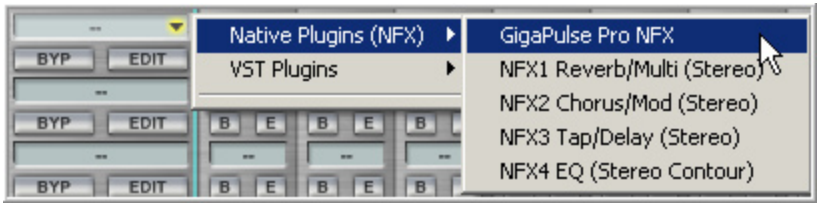


In this case, go to the DSP Station and select the *Aux Returns tab* at the bottom. This will bring up the Aux Returns channels.

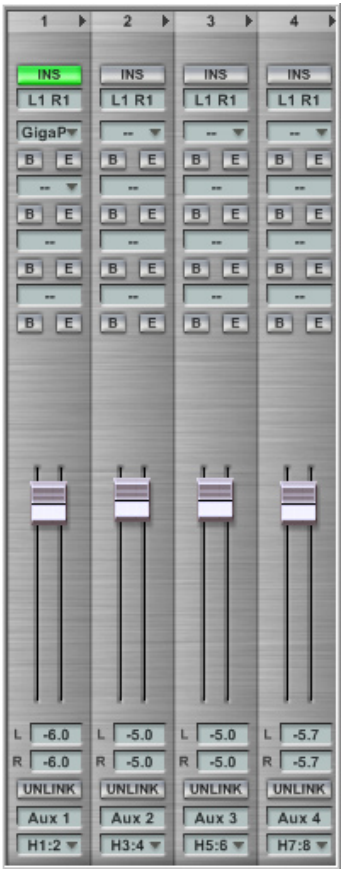
Expand Aux Channel one by clicking on the triangle. (Same as with the mixer channels)



Click on the triangle on the top insert slot and open the GigaPulse.
(Same as before on the mixer channels)



Just like with the mixer channels, you can now assign the Aux Return channels to the audio card outputs.



Now we have the first 4 Aux Return channels assigned to the hardware outputs.

The Mic to Mixer Routing will now spread the GigaPulse audio across these channels the same was as before with the mixer channels.

At this point it is not recommended to assign anything to Aux Returns 2-4 since they are occupied with audio routing.

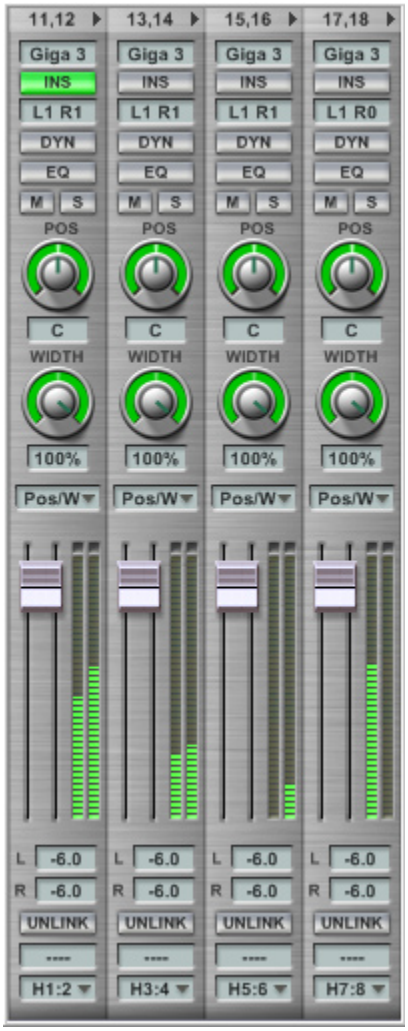
Now go back to the channel inputs and enable Aux Send 1 and crank up the level to hear the result. You can do this with any mixer input channel and several channels can now use the GigaPulse at the same time with custom amounts of effect on each channel.

The GigaPulse audio will be routed to the audio channels.

Mic to Mixer Routing-Different channels

Ok, what if we put the GigaPulse on some other pair of channels. (11,12 for example) What would the Mic to Mixer Routing display then?

This is very straightforward. The numbers would start at 11 and go through 17 instead of 1-7.



Everything still works the same but using channels 11-17 instead.

Keep in mind that in this setup, we don't recommend assigning any instruments to channels 13-18.

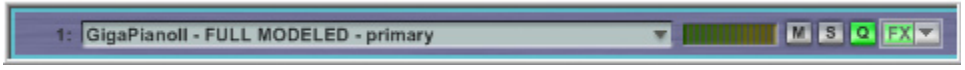
They are being used to route the GigaPulse audio and any instrument assigned to them will also get routed to the channels output and it will interfere with the GigaPulse audio path.

If you use the mixer channels and several instances of GigaPulse in surround (More than two channels of GigaPulse Processing), you will want to assign one instance on every 4 channels. Every 4 pairs of channels would then be assigned to different audio outputs in sequence.

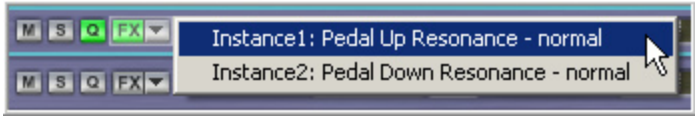
GigaPulse SP

Since not all versions of GigaStudio 3.0 include GigaPulse Pro, a sample playback version called GigaPulse SP is included with all versions of GigaStudio. This allows users of GigaStudio 3.0 Solo & Ensemble to still be able to get the benefit of libraries with embedded GigaPulse settings that depend on GigaPulse for part of their playback. For example, the Piano Libraries and GigaViolin utilize actual body resonance as part of the instrument so it is essential that every Giga user be able to access the GigaPulse features for these instruments. The impulse bank needs to be embedded into the .GIG file for this to work.

Whenever you load an instrument with embedded impulses to a MIDI channel, the FX button will be lit up letting you know that there are GigaPulse effects embedded in that particular file.



Clicking on this FX button will open a drop menu that displays the GigaPulse instances that are embedded into the instrument.



In this example, we have the GigaPiano II FULL MODELED instrument and there are two instances of GigaPulse embedded.

Choosing an instance will bring it up in a GigaPulse window.

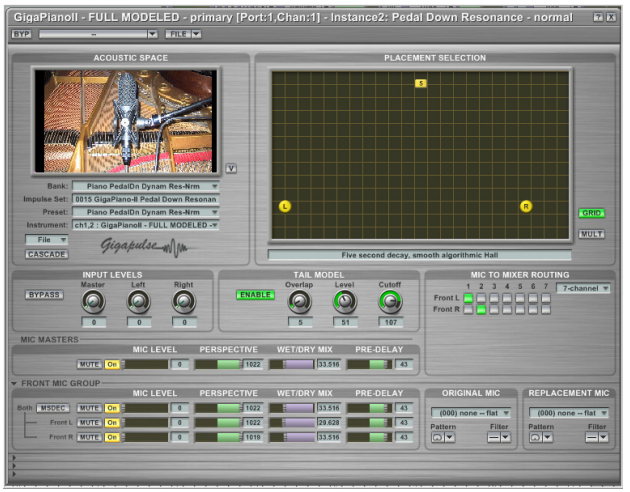
If the version of GigaStudio 3.0 does not have GigaPulse Pro, then the GigaPulse SP window will come up.

This version of GigaPulse allows you to adjust the input level, and the Mic settings.

Everything else is for display only to see what all is being used in the GigaPulse Bank.

You can make adjustments in here and save them with a GigaStudio Performance file. (GSP File)

If however, you are using GigaStudio 3.0 Orchestra, then the full blown GigaPulse Pro interface will usually come up instead provided the developer enables this when creating the instrument.



GigaPulse Banks

> "Talking about music is like dancing about architecture."
> John Cage (among others)

Mr. Cage's statement explains much about the limitations of the following. Language – any language – fails when trying to fully explain such concepts, and personal experimentation will be required to full understand the room characteristics.

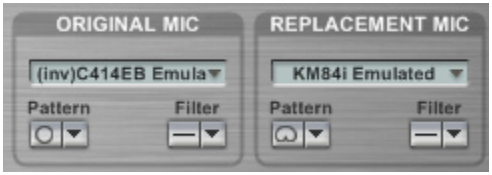
In this section, we will cover the included Banks that ship with the GigaPulse.

GigaPulse VST will ship with some additional banks that are not part of the GigaPulse Pro set. (C.K.D.S.E. set)

GigaPulse Pro users can download these extra sounds from the website. (www.tascamgiga.com)

We'll cover each type of bank and how to use them. For example, a Room or Hall works in a completely different way than a Piano Soundboard Pedal resonance or a Guitar Amp.

0000-Mic Model Only Mode (7ch-1p)



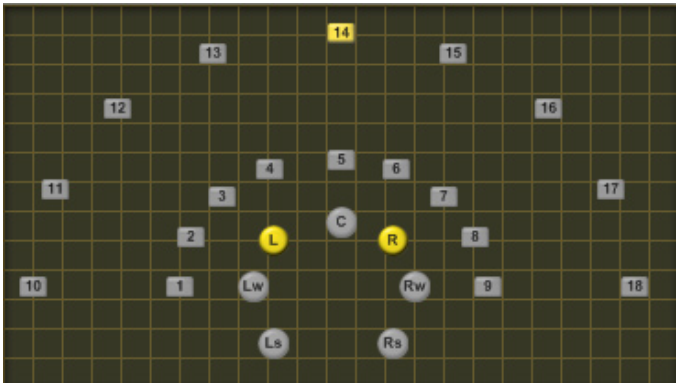
Allows Mic Replacement without imposing an environment to the signal. This is particularly good for auditioning the different models of microphones included in GigaPulse or to simply change the microphone characteristics.

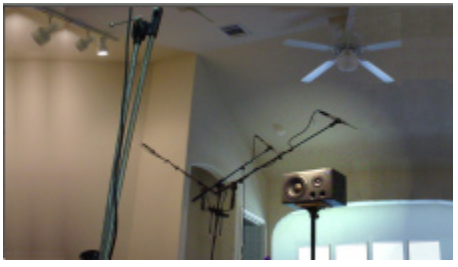
Just use this the same way as you normally would with any Bank.

Halls & Rooms:

0001-Beefy Room (7ch-18p)
0002-Small Hall (7ch-18p)
0003-Medium Hall (7ch-18p)
0004-Large Hall (7ch-18p)
0005-Hardwood Live Room (7ch-18p)
0006-Empirical Room (7ch-18p)
0007-Large Room (7ch-18p)
0008-Medium Room (7ch-18p)
0009-Small Room (7ch-18p)
0010-Brightwood Live Room Short Decay (7ch-18p)
0011-Brightwood Live Room Medium Decay (7ch-18p)
0012-Brightwood Live Room Long Decay (7ch-18p)
0013-Media Ventures Live Room (7ch-18p)

The Rooms & Halls all work the exact same way. Each Room or Hall bank has 18 stage positions and 7 microphone positions to work with. See the chapter "Simple Loading & Configure Tutorial" to learn how to work with Rooms & Halls. This chapter is a complete and detailed step-by-step tutorial on how to use these complex and beautiful sounding environments.





Piano Resonance Models:

GigaPulse is capable of more than just emulating environments, microphones and DSP gear. It can also be used to emulate the actual resonance of acoustic instruments. The next two Banks were designed for the GigaPiano II, which ships with the GigaStudio 3.0 software package. The Pedal Up Resonance offers two microphone position choices including a Mid-Side mic. The Pedal Down Dynamics Resonance is the actual soundboard resonance of the actual piano that occurs when the sustain pedal is pressed down. Although it is a recording of the GigaPianio II (A Kawai Acoustic Grand) the pedal down resonance can be used on other piano samples to emulate the pedal down soundboard to great affect. Of course the ideal is a matched set of resonance for each piano. New Piano libraries are utilizing this technology so there will be more matched impulses in the future.

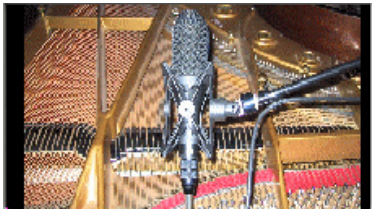
These impulses are automatically loaded with the GigaPiano II .gig files. All you have to do is load & play and switch between the two microphone positions. You can however tweak the GigaPulse settings if you wish.

0014-GigaPiano-II Pedal Up Resonance (2ch-2p)

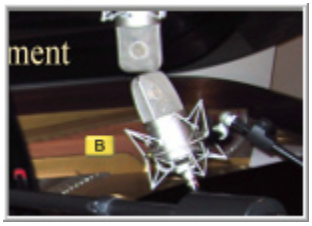
This bank solves one of the long time problems in sampling pianos. Do we record close to the soundboard for a wide left-to-right stereo spread (Player Position) or do we put the microphones off to the side? (Audience Position)
Using the GigaPulse technology, we can choose either one without having to record two complete sets of samples. At the click of a button you can instantly switch back and forth between the two positions.

Click A or B to select a mic

Click the A position to get the "Player" microphone position.



The overall image will show a close-up of this microphone position.



Click the B position to get the "Audience" microphone position. (Also a Mid-Side mic pair)

The overall image will show a close-up of this microphone position.

Also, the MSDEC (Mid-Side Decode) button is enabled when this mic pair is selected. This turns on the Mid-Side decoding.

MSDEC stands for Mid-Side DECoding, which is a handy method of recording mono-compatible stereo sound. This technique also offers custom control of the stereo width and volume levels. A Figure-8 microphone (see the section on Mic Replacement) is used with a second, uni-directional microphone to create a stereo signal. MSDEC decodes the signal for stereo output.

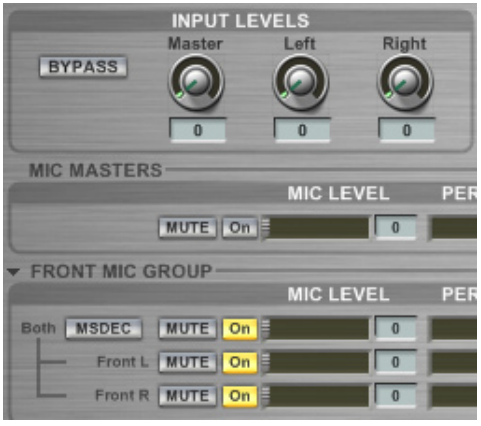
You can then do any of the usual adjustments to mic levels, perspective, wet dry and mic replacement to tweak the sound of the piano.

0015-GigaPiano-II Pedal Down Dynamic Resonance (2ch-1p)

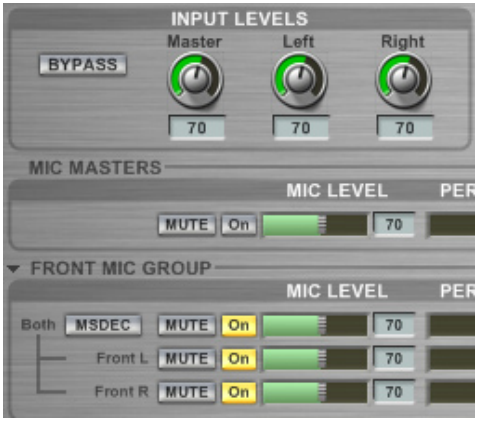
Here we have the actual sustain pedal resonance from the GigaPiano II. In the past, we had to have a complete set of "Pedal Down" samples recorded at several velocities to emulate this important characteristic of a piano. Simply sustaining pedal up samples is not very realistic. On the actual piano, there is real reverberation and string resonance happening that creates the lush sound we are used to. However, sampling the pedal down notes doubles the size of the library (on the hard drive and in RAM) This method also does not allow you to apply sustain ambience to notes played before pressing the sustain pedal as you can on a real piano. On the real piano, you can actually hit some notes with the pedal up, then press the pedal and hear some of the soundboard resonance applied to those notes. This is not doable with simple samples of the pedal down resonance. However, by turning the actual resonance into an impulse model, we can do this accurately and use only half the samples.

In the GigaPulse, the Sustain pedal has been assigned to instantly turn the input and mic levels on and off, allowing the piano samples to be run through the actual pedal down resonance.

Pedal Up



Pedal Down



You can adjust the lushness of the pedal ambience with the wet/dry mix setting.

Larry Seyer Reverb Banks:

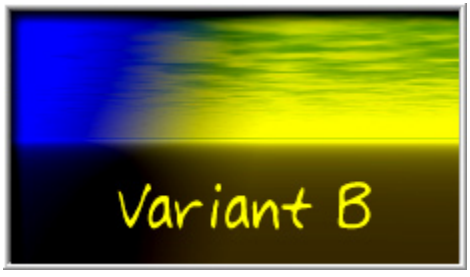
The *Larry Seyer Reverb* selections are designed for specific situations and are self-explanatory. A word here about who Larry Seyer is would be appropriate. To say that Mr. Sayer is a competent recording engineer is the height of understatement. Having a Grammy marks the owner as being above average. Larry Seyer has *nine Grammy awards* for Engineering & Mixing.

0016-Larry Seyer-Dist Power Guitar (5ch-15v)
0017-Larry Seyer-Gorgeous Vocal (5ch-15v)
0018-Larry Seyer-Thunderous (5ch-15v)
0019-Larry Seyer-80s Echo (5ch-15v)
0020-Larry Seyer-Big Ass Toms (5ch-15v)
0021-Larry Seyer-Briter for Strings (5ch-15v)
0022-Larry Seyer-Digital Church (5ch-15v)
0023-Larry Seyer-Room 6 (5ch-15v)
0024-Larry Seyer-Plate 7-Stereo-Default (5ch-15v)
0025-Larry Seyer-Ambience 11 (5ch-15v)

There is a total of ten Larry Seyer Reverb Banks. They all look and work identically. Only the sound characteristics of each will change.

Each Larry Seyer Reverb looks like a brushed metal rackmount piece of audio gear in the placement selection window.

The top section gives you 15 variation buttons. Click on a button to enable a preset.



The overall graphic window will display which variation you have selected.

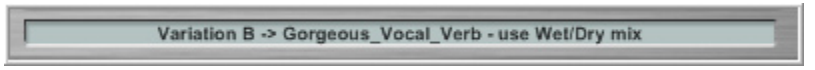
GigaPulse VST Outputs vs GigaPulse Pro (GigaStudio 3.0)

GigaPulse VST is identical except for the outputs section. There are only two outputs instead of five.

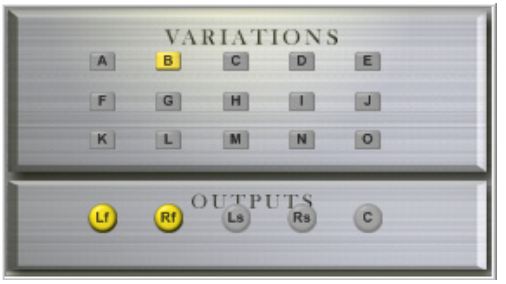
The Output section is where you enable or assign up to 5 speaker positions in GigaPulse Pro for a surround output.

In GigaPulse VST, you get the two front outputs for a stereo pair.

The Description Field displays the variation and the name of the reverb bank.

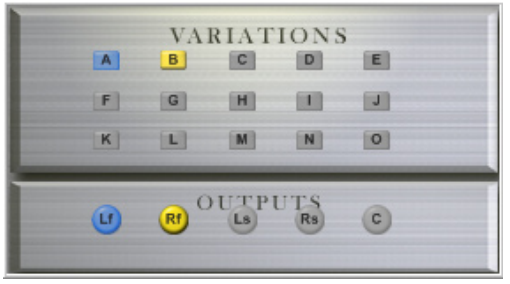


Variations & Output Assignments



These work very similar to the rooms & halls. You can enable and assign the outputs exactly the same way you would the mic positions in the rooms & halls. The variations are similar to the stage positions.
(GigaPulse Pro)

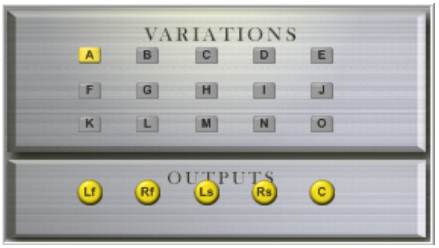
In this example, we have the Left-Front (Lf) and Right-Front (Rf) outputs enabled and assigned to Variation B.



However, we can use the multiple select to assign the mics to individual variations for a wider stereo effect.

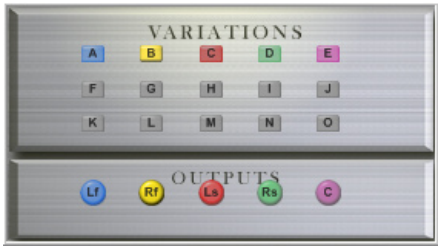
For example, assign the Left-Front (Lf) to Variation A and the Right-Front (Rf) to Variation B.
(GigaPulse Pro)

Remember this is done by holding down the [Ctrl] key while selecting an output and then a variation, just like in the rooms & halls.



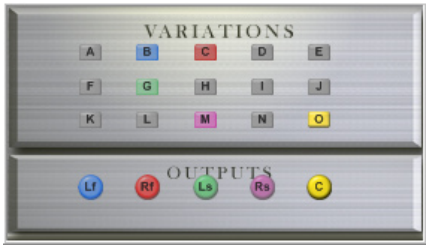
Here we have all the outputs enabled and assigned to Variation A.

(GigaPulse Pro)



In this example we have assigned each output to its own discrete variation using the [Ctrl] key.
This can create a very wide, lush and ambient surround sound environment.

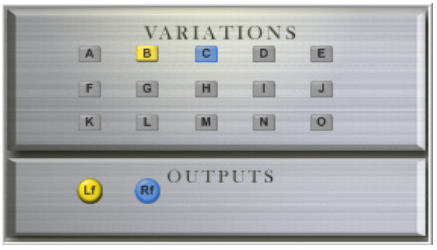
(GigaPulse Pro)



Yet another of the many ways the outputs could be assigned to variations.

(GigaPulse Pro Only)

You can then use the Mic to Mixer Routing matrix to assign those outputs to GigaStudio Mixer channels for processing and for assigning to actual physical outputs.



In GigaPulse VST, you can assign the two outputs Left-Front (Lf) and Right-Front (Rf) in the exact same way.

Long Algorithmic Halls:

0026-Ten Second Smooth Algorithmic Hall (2ch-1p)
0027-Five Second Smooth Algorithmic Hall (2ch-1p)

These are two artificially created halls that are quite long. These are great examples of how well the Tail Model (reverb tail extension) works. The first three seconds of the impulse is put convolution, which elegantly blends into an artificial reverb tail for the rest of the time.

These are simple stereo impulses. (2ch-1p/Two Channels-One Position)

NDB Cathedral:

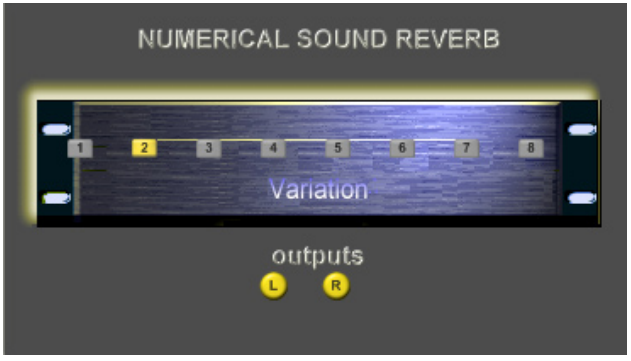
0028-Csaba Huszty - NDB Cathedral (2ch-1p)

The *Csaba Huszty – NDB Cathedral* is particularly good for pipe organ samples. The impulse was recorded at Notre Dame de Budapest!
These is a simple stereo impulse. (2ch-1p/Two Channels-One Positio

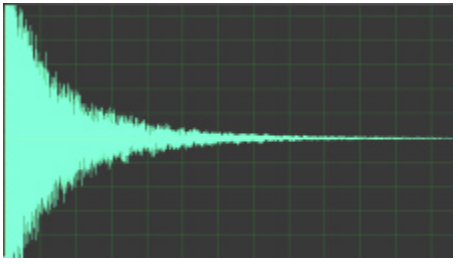
Numerical Sound Reverb:

0029-Numerical Sound Reverb (2ch-8v)

Here we have some impulse variations from Numerical Sounds, one the industries most respected impulse response companies.



The interface emulates a brushed metal rack mount module. It's very simple to use. Just click on any Variation number from 1-8 to switch reverb impulses.



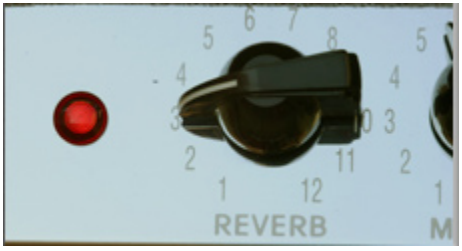
The overall graphic window will change with each variation and display the actual impulse wave form.

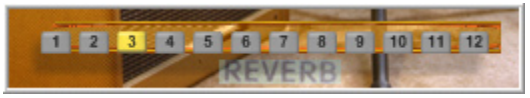
Tweed Guitar Amplifier:

0030-Tweed Amp Impulse set (2ch-12v) created by Jeff Laity.

The *Tweed Amp Impulse Set* was recorded from a live Tweed amplifier.

The first step in using the Tweed Amp is to select one or the other OR both microphones. Experiment with each option to see what works best for the sound you want.





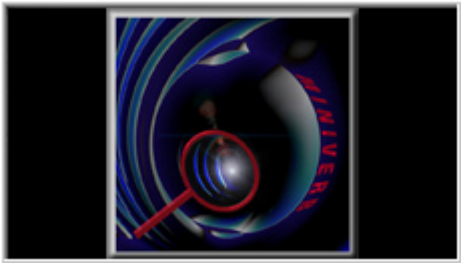
Then click on any of the 12 Reverb settings to increase or decrease the reverb amount.
C.K.S.D.E Cyber Kitchen Sound Design Enterprise

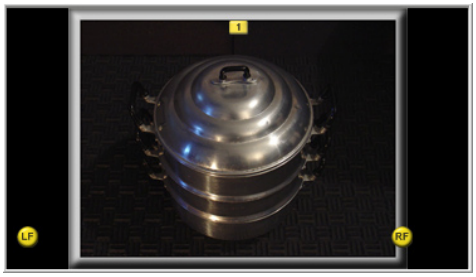
C.K.S.D.E Cyber Kitchen Sound Design Enterprise

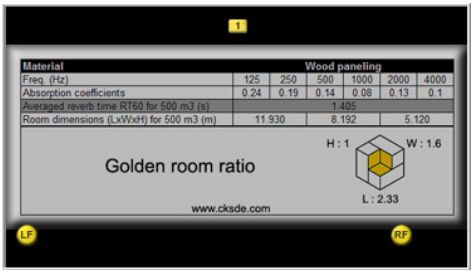
www.cksde.com

C.K.S.D.E. has included 52 GigaPulse Banks from their impulse library.
These include all sorts of objects and environments such as clay pots, plastic tubes, metal and glass rooms and much more.

These are all stereo/single position sets. Just load them up and play.



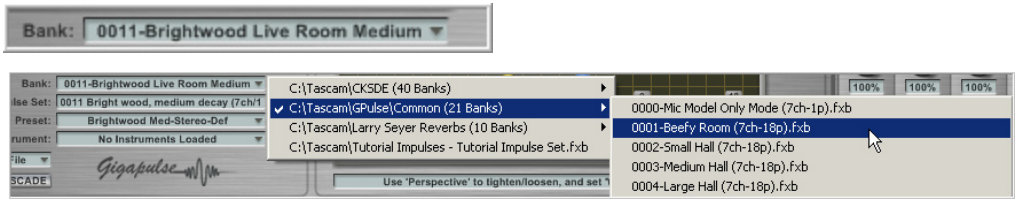




GigaPulse File Formats

A solid foundation on the various file types will be very helpful in using and understanding GigaPulse to its fullest extent.

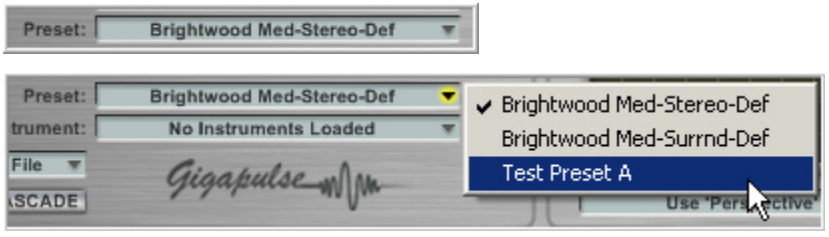
.fxb-Effects Bank



An effects bank is selected from the bank menu in GigaPulse.
A bank file saves all the parameters such as volume, perspective, wet/dry, pre-dely etc. It also references a specific IIS (Impulse Instruction Set) file.

Note: Don't mix these up with Steinberg Nuendo2 Effects Banks. (Also .fxb file extension)

Preset



A preset offers multiple sets of parameter settings within a bank. This allows a large number of custom user settings to be saved within a bank. Presets can also be saved separately from the "File Menu" to the hard drive and later loaded into other banks.

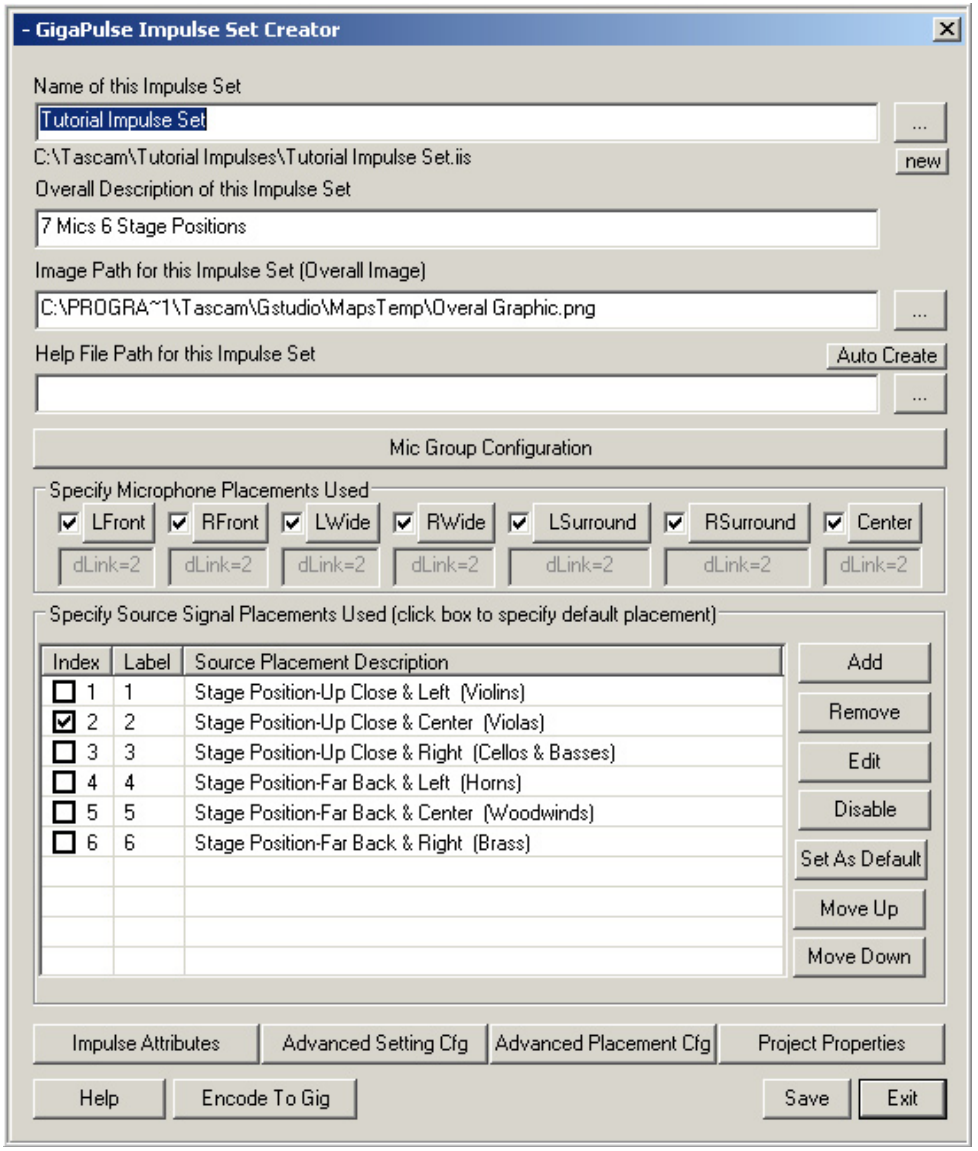
INI.DAT

These are currently used as the file format for the Microphone Replacement impulse model files. They are factory sets and are not editable. (Hardwired so to speak) They are installed into the "bin" folder in the GPulse\Common directory. (As in Mic "Bin") This file type was also the predecessor to the IIS file.

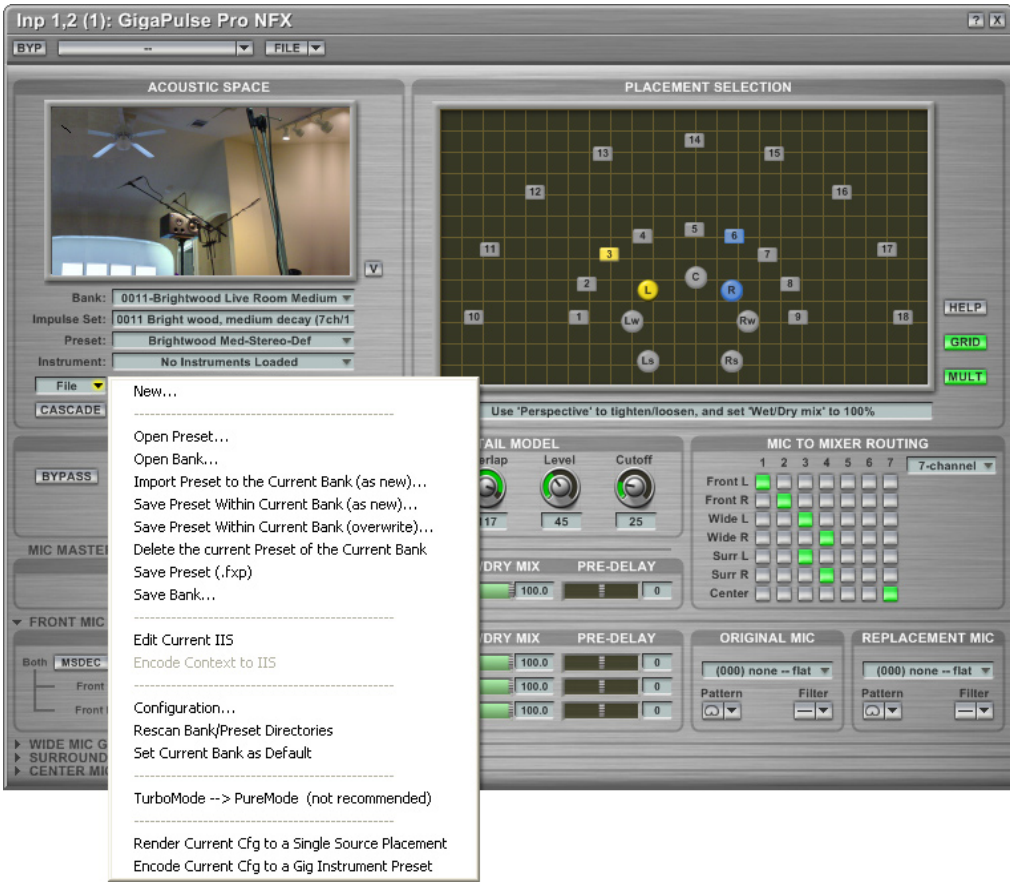
IIS-Instrument Impulse Set

An ISS file contains ALL the impulses, bitmaps, text descriptions, button layouts, channel information etc. An IIS file is created in the Impulse Builder.

ISS files are created in the GigaPulse Impulse Set Creator. (Covered in detail in its own section of this documentation)



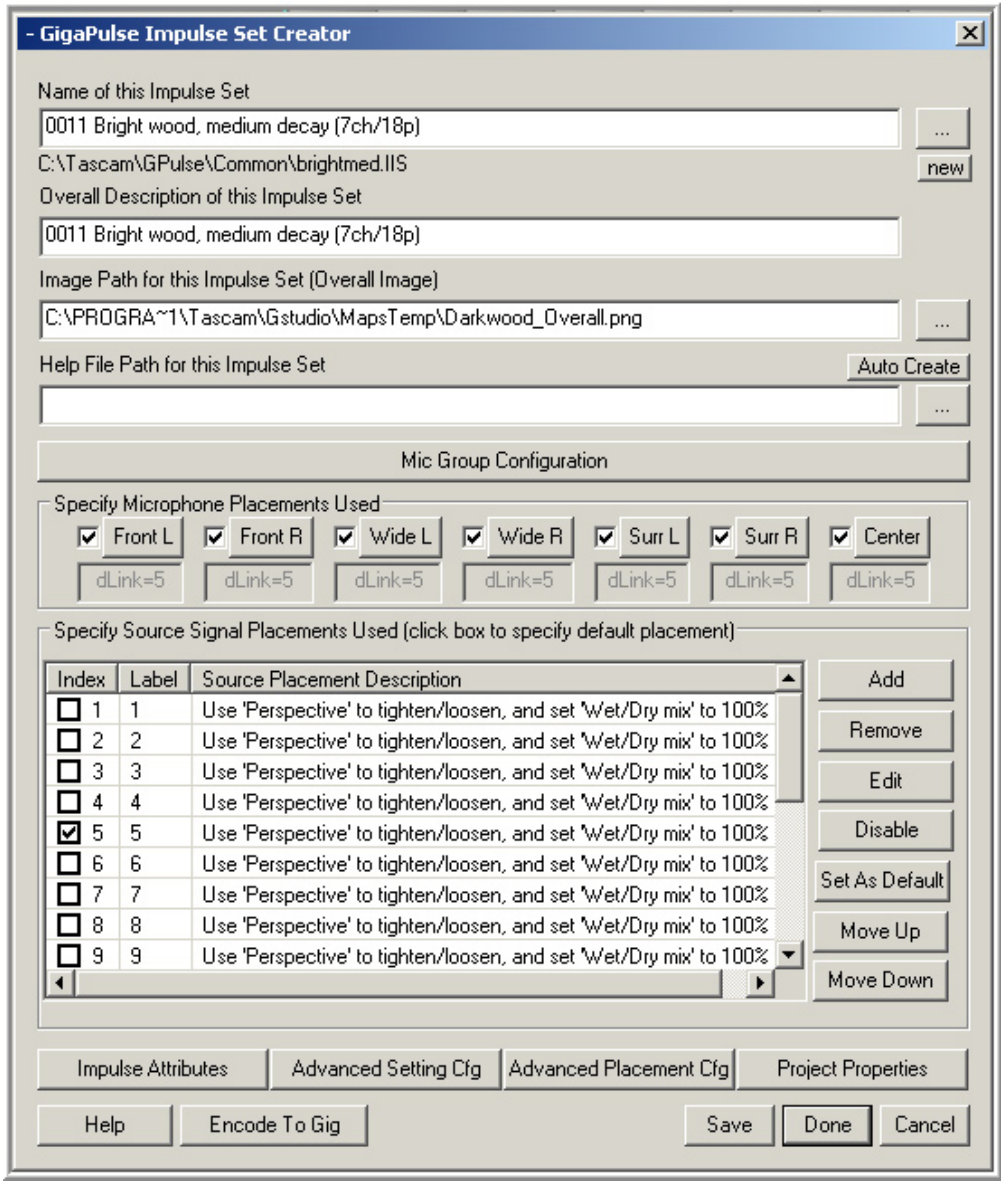
Impulse Builder-Main Window



The GigaPulse Impulse Set Creator Interface is opened from the GigaPulse Pro Interface by clicking *File* under Acoustic Space, and then *New*.

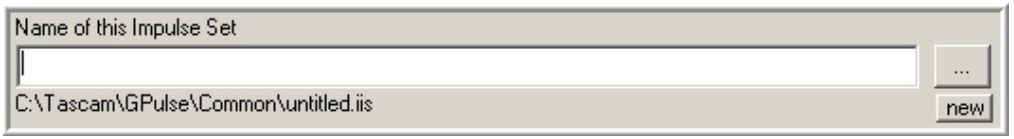
Overview

This tool is designed to help organize and import raw wave data (Impulse Responses) into the native GigaPulse format. This tool will output an .IIS file (Instrument Impulse Set file). An .IIS file includes all the impulse responses as well as the corresponding graphics, labels & names, information and documentation.



Name of this Impulse Set

At the top of the interface is the *Name of this Impulse Set* box. Here a descriptive name is entered, by which this set will be known for later use. Note that the static text below the edit box displays the actual file name of the IIS file and its file path on the hard drive. If the IIS file has yet to be created the static text will display a default path and the name "untitled.iss" Browse Button

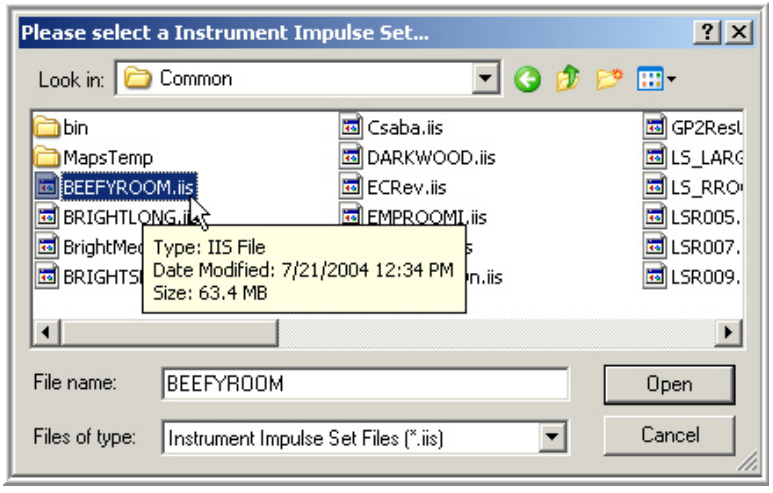


At the right end of the *Name of this Impulse Set* box are the Browse and New buttons.

Browse Button

The upper button is a browse button and it is one of several found in the Impulse Set Creator. Any browse button will open a navigation window that will allow you to browse for files.

In the case of *Name of this Impulse Set* box, the browse button allows you to browse for and load a pre-existing .IIS file. You would do this if you wanted to load an exiting IIS to use like a template.

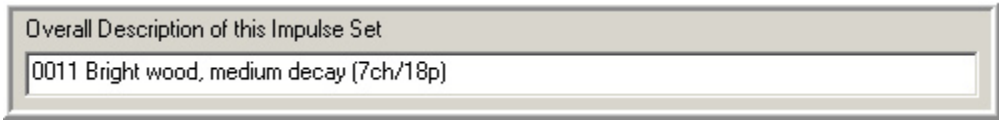


New Button: (Create a new Impulse Set)

The *New* Button allows you to create a new .IIS file and resets all of the tool's fields.

Note that the static text under the edit box will display "untitled.iss" until you press the "Save" button.

Overall Description of this Impulse Set



Just below the *Name of this Impulse Set* box is the *Overall Description of this Impulse Set* edit box, which allows you to provide a description for the .IIS file. If the impulse set is being created now, this box will be blank and you can fill in whatever you like. But if an existing impulse set has been called through a search, then it will be filled in accordingly. (You can still change it to anything you like.) This description does not appear in the GigaPulse interface. It is for the benefit of anyone designing or editing the IIS file.

Overall Image Path for this Impulse Set

Next in sequence is the *Overall Image Path for this Impulse Set* edit box, which provides a place for you to specify the path for the "Overall Image" of the impulse set. Once the iis is compiled, this image is placed in the graphic window of the Acoustic Space pane.

Again, there is a browse button to open a navigation window to make it simpler to find a pre-existing .BMP or .PNG image file.

Note that the image to be inserted needs to be 225x127 pixels in size (Width by Height) and 24 bit true RGB.

Help File Path for this Impulse Set

The *Help File Path for this Impulse Set* edit box provides a place for you to specify a help file for your impulse set. It can be any of a variety of file types:

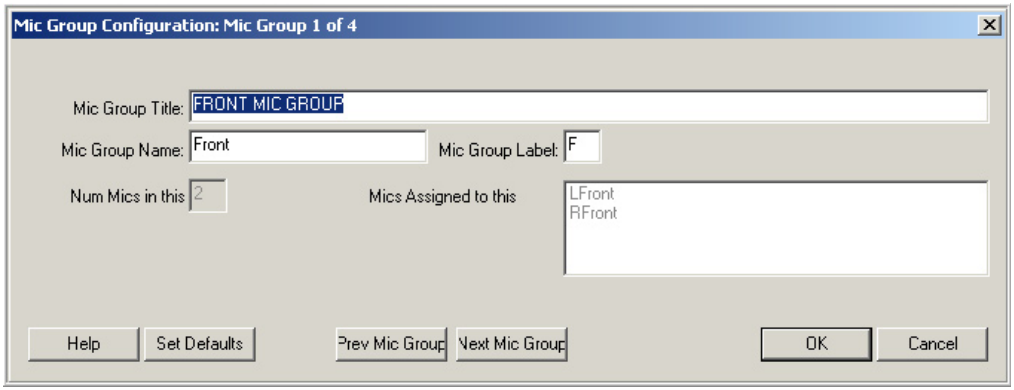
HLP (Standard Windows Help File)
HTML (Standard Web style document)
CHM (Compiled Help File)
TXT (Text File)
DOC (Microsoft Word Document)

As with the last two windows, you can also browse to locate the help document with the browse button.

If you do not have a help file to use, *Auto Create* will generate a Template Help File based on the information entered in the dialogs.

Mic Group Configuration

Clicking on this will launch the Mic Group Configuration Window where the names & abbreviations of the Microphone Groups are edited.



Specify Microphone Placements Used

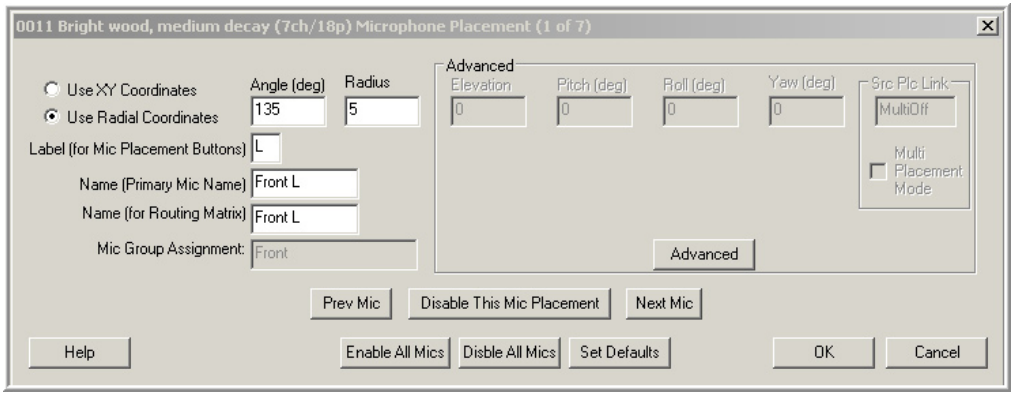
Here it is where you decide which microphones are to be used with this set of impulses. Each Microphone Placement has 3 parts: an *Enable Mic* checkbox, an *Edit Mic* button, and a *Source Placement Link* indicator.

1. Enable Mic Checkbox

When the *Enable Mic* button is checked, the associated microphone placement is enabled and may be edited in the *Placement Editor*. When unchecked, it is disabled and as shown on the right, is grayed out.

2. Edit Mic Button

The *Edit Mic* button is labeled with the associated Microphone Placement Name. Clicking it allows you to edit the associated mic placement in the *Mic Configuration* screen.



3. Source Placement Link Indicator

Finally, the *Source Placement Link* indicators show how Source Placements are linked to Mic Placement at startup time.

There are three possible types of links:

dLink (Default Link)
mLink (Manual Link)
NoLink (Not linked)

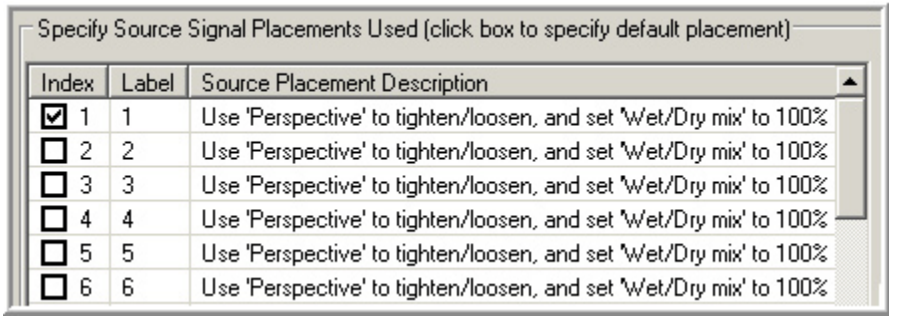
This text field indicates to which Source Placement the Mic Placement is linked at startup time.

Default Link: (dLink)

Typically All Mic Placements are linked to the *Default Source Placement* as indicated by the checked Source Placement in the *Source Placement List*

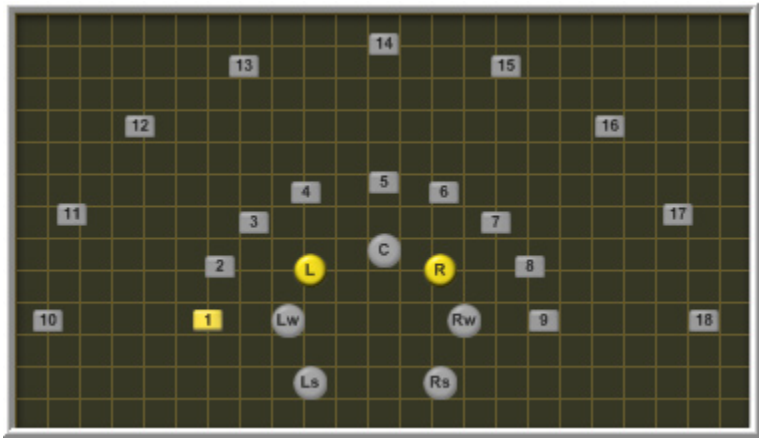
Examples:

Check box 1 is the default placement:

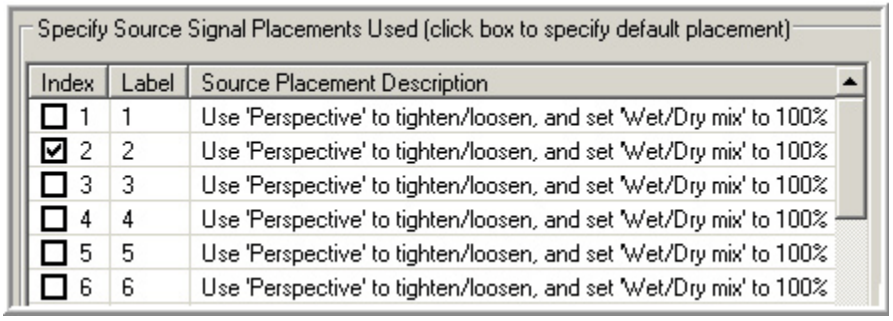


dLink=1 (default Link) is displayed below all the Mic Placements:

This is how it will look in the placement window in the GigaPulse interface when this IIS set is used.

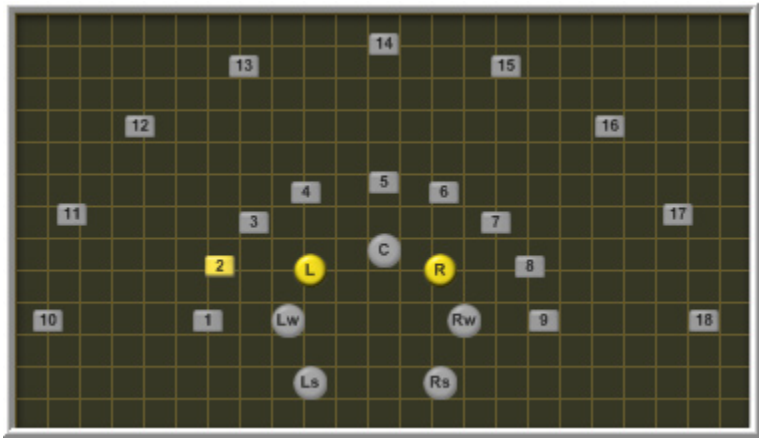


Check box 2 is the default placement



dLink=2 (default Link) is displayed below all the Mic Placements:

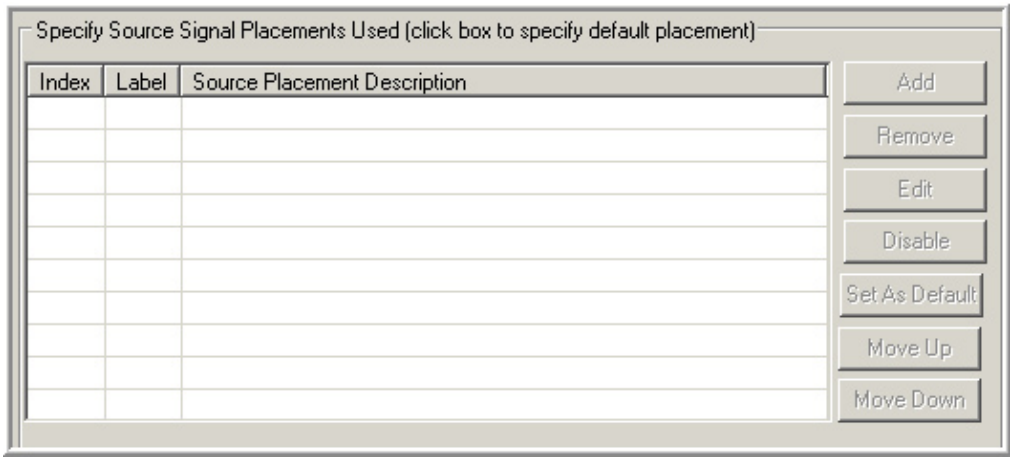
This is how it will look in the placement window in the GigaPulse interface when this IIS set is used.



No Link:

When there are no Source Placements listed, this field will display No Link.

Empty Source Placement List:

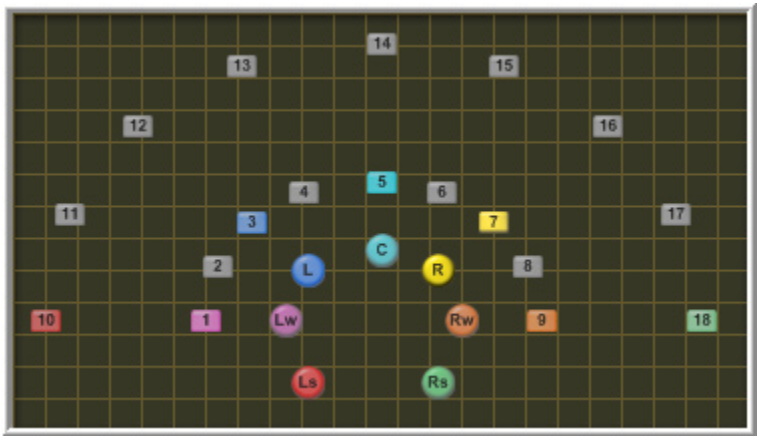


Manual Links:

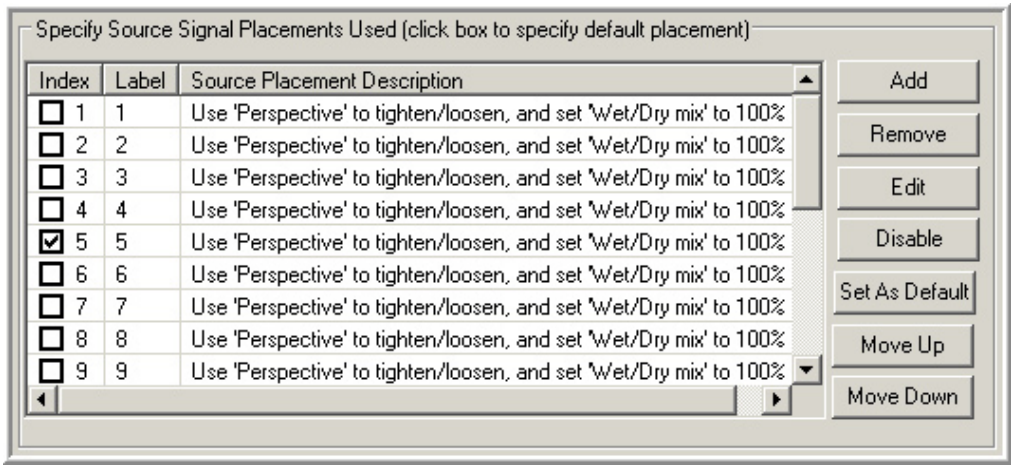
You can also specify a non-default linkage to a source placement for each microphone by selecting the Edit Mic Button. Then select the *Advanced button* and check the *Multi-Placement Mode* checkbox. There you can change the number under *Src Plc Link* for that mic position

In this example we have custom links for each microphone.

This is how it will look in the placement window in the GigaPulse interface when this IIS set is used.



Specify Source Signal Placements Used:



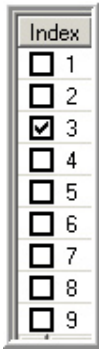
This area allows you to add, remove, and edit source impulse placement data.

NOTE: You must enable the mics for which you have impulse data before these controls will be enabled.

NOTE: All Source Placements must have the same number of Impulses (and thus the same number of Mic Placements enabled)

There are three columns, *Index, Label,* and *Source Placement Description*:

Index Column:



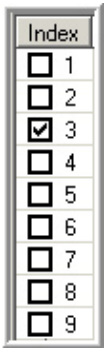
The check boxes in the Index column show which Source Placement is the default.

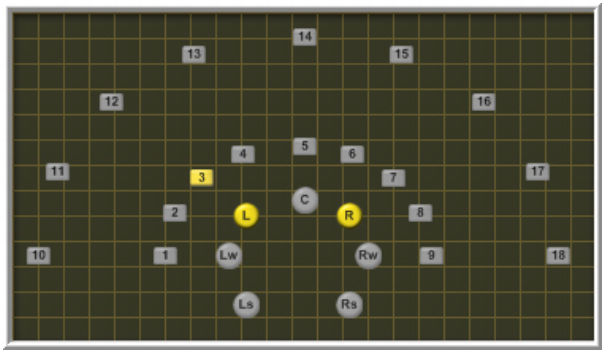
Whenever this impulse set is used later, the default will be what has been selected here.

The Index numbers are completely generic and are enumerated for differentiation only.

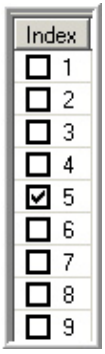
Examples:

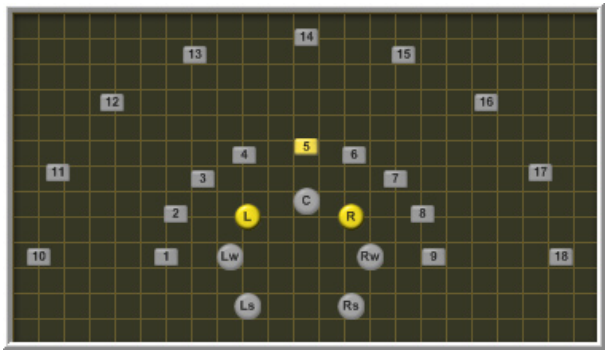
If #3 is checked, then Stage Position # 3 will be selected by default when GigaPulse later loads a bank that uses this Impulse Set.





Here is the result when check box 5 is selected.





Label Column:

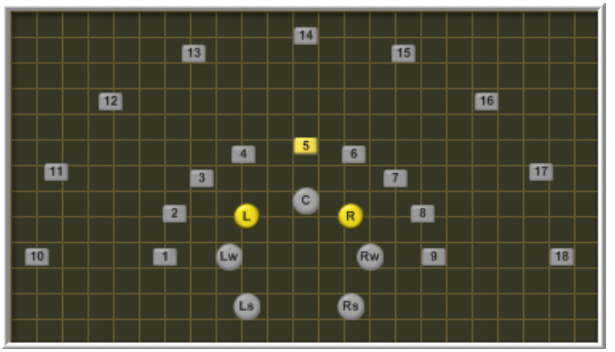
In the GigaPulse interface, each placement is identified by a 2 character label.

These are edited in the Source Placement Configuration Screen.
(See [Add] or [Edit] button).

Examples:

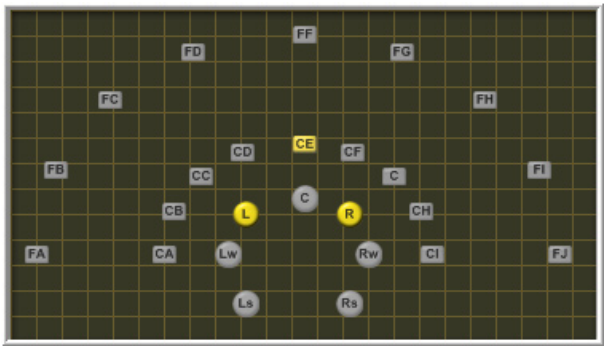
Here we have numerical labeling and the placement screen results:

Label
1
2
3
4
5
6
7
8
9



Here we have two character letter labeling and the placement screen results:

Label
CA
CB
CC
CD
CE
CF
CG
CH
CI



Description Column:

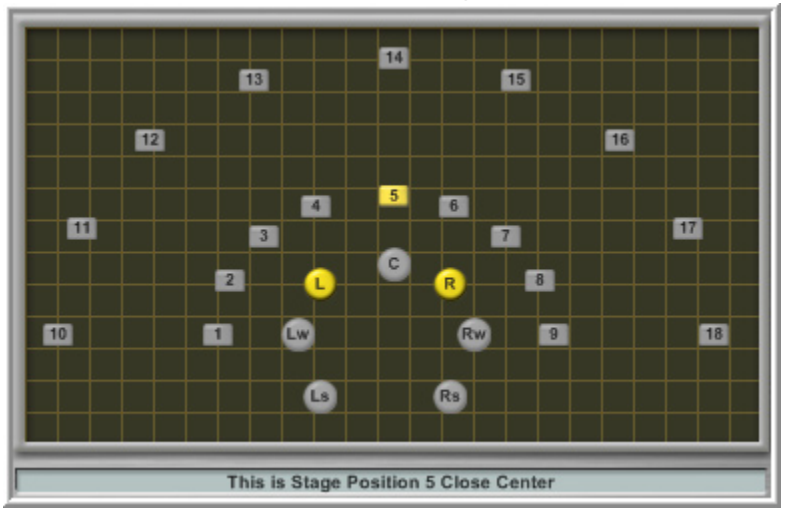
The Description of each placement is the single line of text displayed below the Placement window of GigaPulse. This text is updated for currently selected placement.

This description of each placement is also added/edited when the placement is added or edited. (See [Add] or [Edit] button)

Source Placement Descriptions:

Source Placement Description
This is Stage Position #1 Close Left
This is Stage Position #2 Close Left
This is Stage Position #3 Close Left
This is Stage Position #4 Close Left
This is Stage Position 5 Close Center

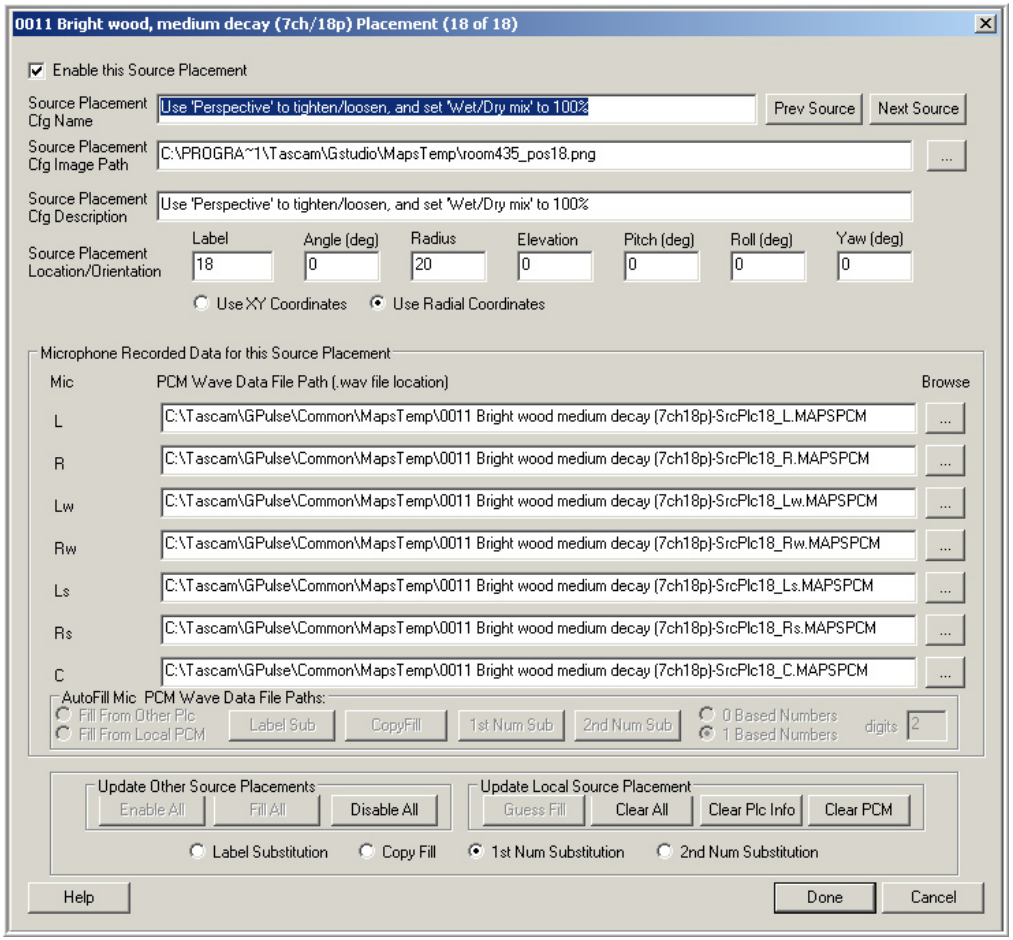
Description as it appears in the GigaPulse Interface:



Add Button & Edit Button:

Press one of these buttons to add a new Source Placement or to edit an existing Source Placement.

Currently GigaPulse allows up to 18 Source Placements.
Pressing the Add or Edit button will launch the 'Source Placement Configuration Page'.
(Picture Below)



When you enable a Source Placement within this page, a new line item will be added to the Source Placement List.

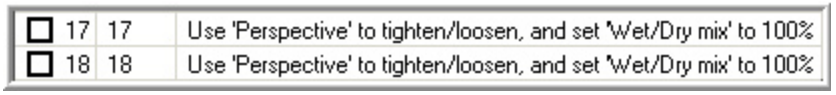
Example:

Source Placement #18 before enabling:

Not in Source Placement List:

Source Placement #18 now enabled:

It now shows up in Source Placement List:



Note that you may enable (add) multiple source placements within this configuration page. Each enabled placement will be added to the list when you exit this page.

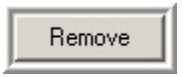
Note: The 'Placement Editor' will allow you to move between placements.

Use the 'Prev Source' and 'Next Source' buttons to cycle through the Source Placements and enable or disable them.

Note: To add microphone data in the Source Placement Editor, you must enable the associated microphone in the "Specify Microphone Placements Used" group of checkboxes.

These are just brief notes for now. The Source Placement Configuration Page is covered in detail in its own section.

Remove Button:



This button removes each selected line item by blanking out source placements info and disabling it. In addition, any enabled source placements that are below the removed source placement(s) are shifted upward to fill the removed placement(s)'s positions.

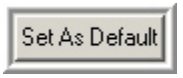
Disable Button:

This button removes each selected line item from the list simply by disabling the source placements(s). The information about the placement is not lost however.

Disabled placement(s) may be accessed again by pressing the 'Edit button' and using Next/Prev buttons from there to get to the disabled source placement. It can then be re-enabled if you wish.

NOTE: disabled source placements are not added to the IIS file.

Set As Default Button:



This button checks the selected line item, making it the default link.

You can also just simply click the 'checkbox" in the index column with the mouse to accomplish the same task.

The checked line item is the 'Default Source Placement'
(i.e. this source placement will be automatically selected when GigaPulse first loads your impulse set).

The 'default' feature is covered in detail earlier in this section.

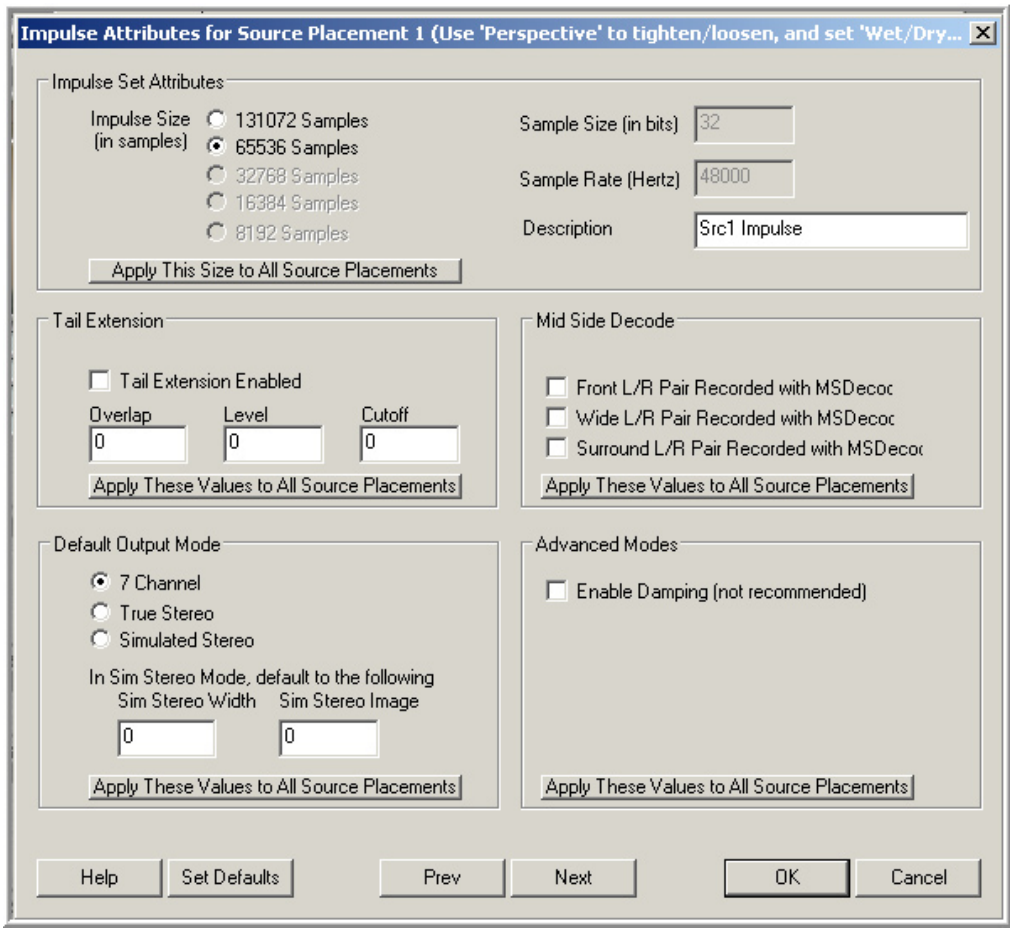
Move Up & Move Down Buttons:

These buttons move the selected line item up or down (causing the information of this line item's source placement to be swapped with the information of the neighboring line item's source placement).

Moving the first line item up has no effect.
Moving the 18th placement's line item down has no effect.
Moving the last line item down only has the effect of creating space (with disabled placements).

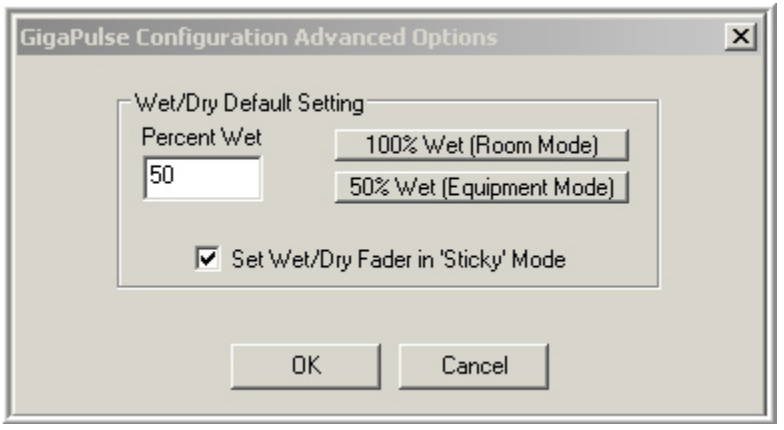
Impulse Attributes:

This button brings up the "Impulse Attributes" page.



Advanced Setting Cfg:

This button brings up the Wet/Dry Default Setting page.
You can set a default Master Wet/Dry setting here.



The "Set Wet/Dry Fader in 'Sticky' Mode" checkbox needs to be enabled first set a default Wet/Dry mix for the IIS file.

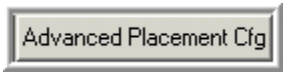
You can numerically enter any amount between 0 and 100 in the 'Percent Wet" dialog box.

For convenience, two of the main settings (100% and 50%) are assigned to the two buttons. (100% Wet-Room Mode and 50% Wet-Equipment Mode)
Just click one of these buttons to quickly set the "Percent Wet" setting.

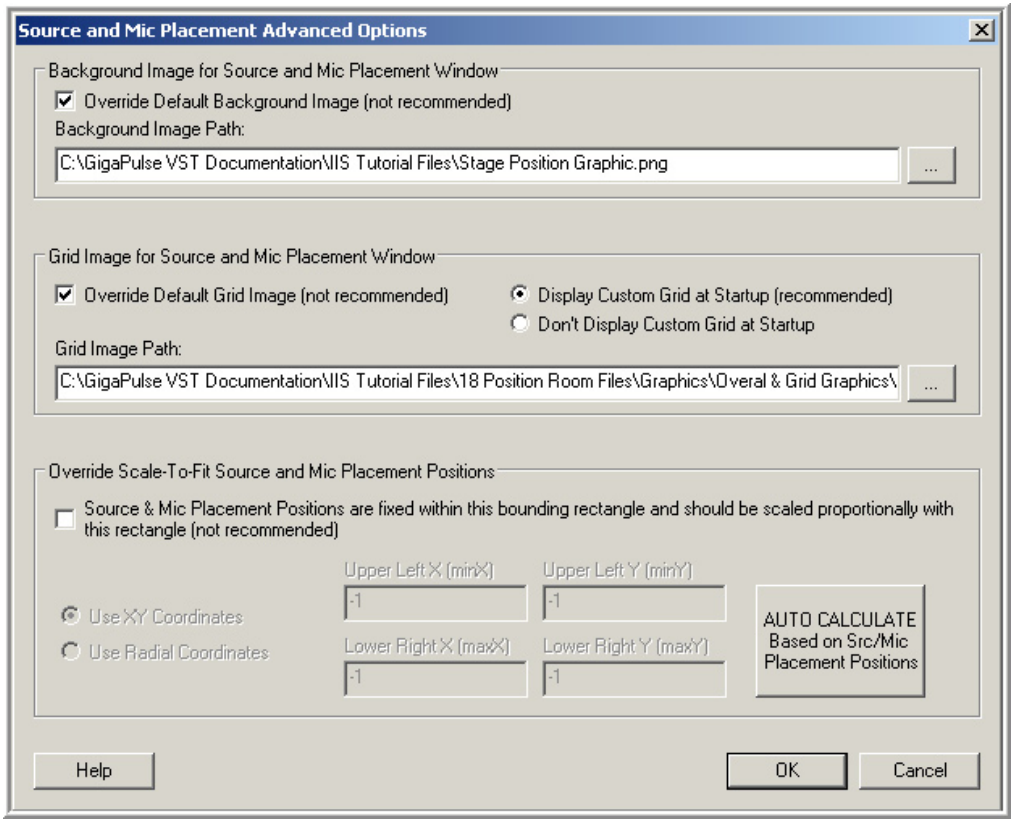
When this IIS File is used, the master WET/DRY Mix will be set to the amount entered in this page.

Uncheck the check box to disable the Wet/Dry default Setting.

Advanced Placement Cfg Button:



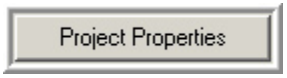
This button launches the "Source and Mic Placements Advanced Options" page.



This configuration page allows you to override some of the default behaviors and bitmaps of the GigaPulse Placement window.

The "Source and Mic Placements Advanced Options" page is covered in its own section.

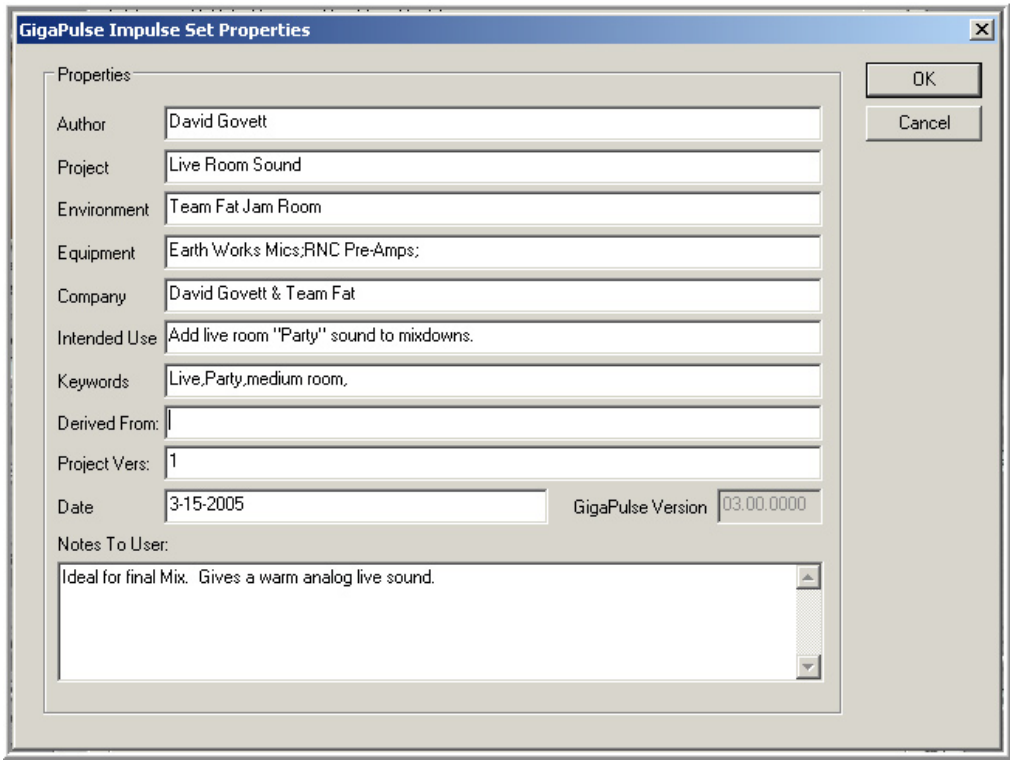
Project Properties Button:



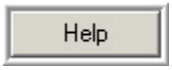
This button launches the "Project Properties" page.

This configuration page allows you to add information to the IIS file for use by Quick Sound and GigaPulse and for reference.

These fields are 'information only' fields of the .IIS file.

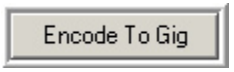


Help:



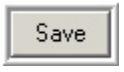
This button loads the help file for this interface.

Encode To Gig:



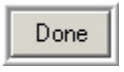
This button launches the Encode To Gig editor, which allows you to specify a single source placement to encode to each gig instrument's preset.

Save:



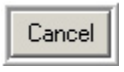
Saves the work without exiting.

Done:



This button allows you to exit this tool (after you've saved your data).

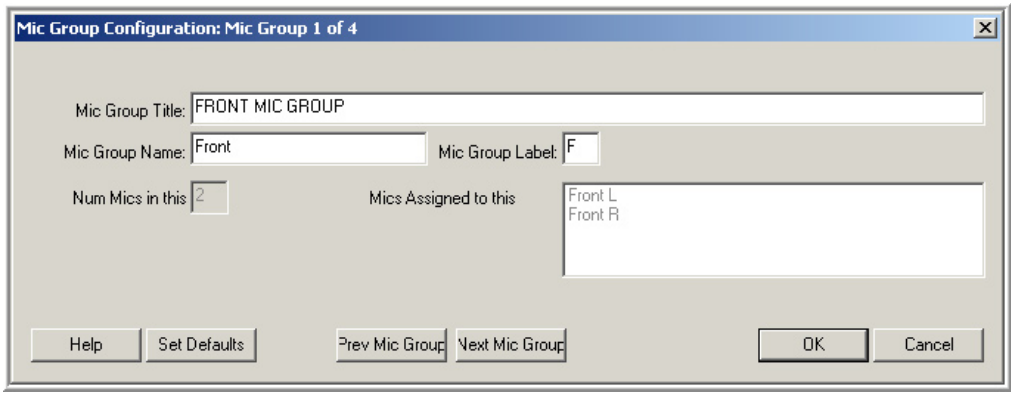
Cancel:



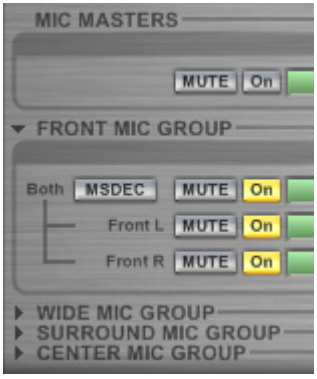
This button allows you to exit this tool without saving your info.

Mic Group Configuration:

In this window, you can name the *Microphone Groups* as they will appear in the GigaPulse interface under the *Mic Master* settings. The *Mic Group Title* is what shows up in the GigaPulse interface. The other labels in this window are mainly for reference and keeping your bearings.



The Mics for GigaPulse can be assigned to various Mic Groups.

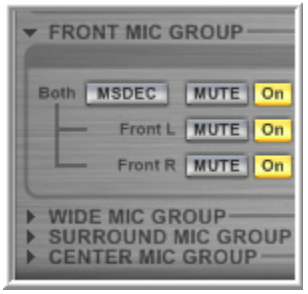


In GigaPulse v3.0, there are four fixed microphone Groups:

- Front, which typically includes Left Front and Right Front.
- Wide, which usually includes Left Wide and Right Wide.
- Surround, which generally includes Left Surround and Right Surround.
- Center, which is the last microphone.

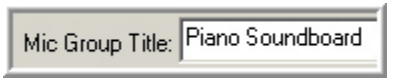
Mic Group Title:

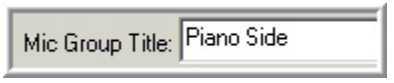
In the *Mic Group Title* box, names can be assigned to the Microphone Groups as they will appear in the GigaPulse interface under the *Mic Master* settings. The *Mic Group Title* is what appears in the GigaPulse interface.These Mic Group names will depend on the microphone layout of the recording session.

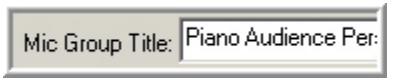


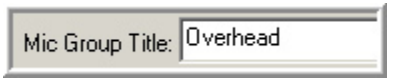
This example shows the default Mic Group names.

However, if we set up the four Mic Group titles in this manner...







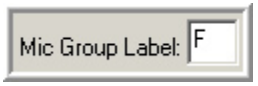


...It will produces these headings on the GigaPulse interface.

Mic Group Name:

The *Mic Group Name* sets the Name of the Mic Group.

Mic Group Label:



The *Mic Group Label* sets an abbreviation for the Mic Group

Number of Mics in this Mic Group:

The box marked *Number of Mics in this* indicates how many microphones are in this group. In GigaPulse Pro, this number is fixed for each microphone group:

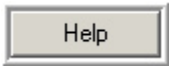
- Front 2
- Wide 2
- Surround 2
- Center 1

Mics Assigned to this Mic Group:

The box marked *Mics Assigned to this* shows which microphones are in the group. In GigaPulse v3.0, these microphones are fixed

- Front (the first 2 mics; typically Left Front and Right Front)
- Wide (the second 2 mics; typically Left Wide and Right Wide)
- Surround (the third 2 mics; typically Left Surround and Right Surround)
- Center (the last 1 mic; typically Center)

Help:



The *Help* button loads the Help file for this window.

Set Defaults:

Use the *Set Defaults* button to set everything in the current page to the original default settings.

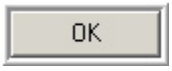
Prev Mic Group:

The *Prev Mic Group* allows you to move to the previous Microphone Group, or the last Microphone if the current is the first Microphone.

Next Mic Group:

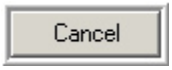
Similarly, the *Next Mic Group* button allows you to move to the next Mic Group, or the first Microphone if the current is the last Microphone.

OK:



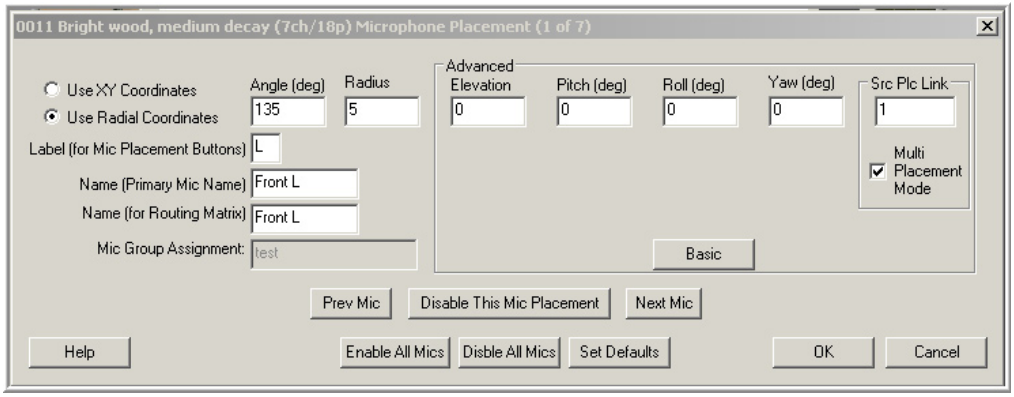
The *OK* button exits back to the main *IIS Editor* screen after saving your data.

Cancel:

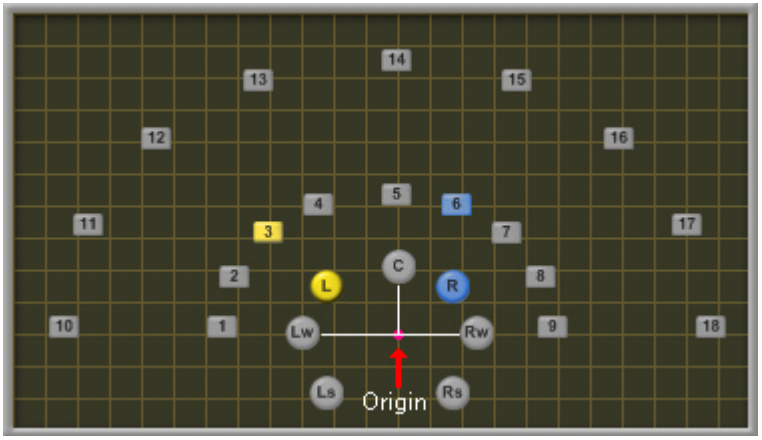


The *Cancel* button exits back to the main *IIS Editor* screen without saving your data.

Mic Placement Position/Orientation:

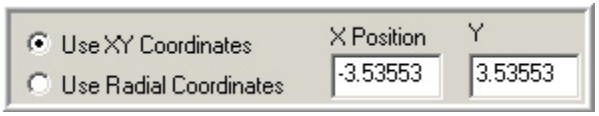


The purpose of this window is to identify where you want your microphones on the stage. These controls allow specific positioning and orientation of the microphones. The three positional controls, X Position/Y or Angle/Radius, assume an origin at the intersection of a vertical line running through the starting position of the Center Microphone and a horizontal line running through the starting positions of the Wide Left and Wide Right microphones.



The first choice is how to communicate the location of the microphones to the program. In most cases a polar system using radial coordinates will be more convenient, but occasionally an XY system of coordinates is provided is better. To choose, use the two radio buttons in the upper left corner of the page.

Use XY Coordinates:



Use XY Coordinates selects the Cartesian coordinate option.

XY coordinates are advantageous when mapping something other than a room or hall where you want the Mic positions to match exact locations on a custom graphic. Some impulse sets are recorded in such settings as inside the piano used to record the samples for the GigaPiano or in front of a Tweed Amp, and for such settings, the Radial Coordinates model is not as effective.

X Position:

Positive values are BELOW the origin.
Negative values are ABOVE the origin.
(Like MS-Paint or other graphics applications)

Y Position:

Positive values are right of the origin.
Negative values are left of the origin.

Use Radial Coordinates:

Use Radial Coordinates selects the radial option.

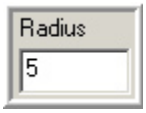
One of the most common uses for the GigaPulse Pro is to give the characteristics of a room or hall. There is an origin about which everything else revolves; in an orchestra, that origin would be the conductor or the audience. Under such circumstances, it is very simple to define the position of anything in the room as being a given direction from the origin, at a specific distance.

Angle (degrees):

Angle (deg): Angles are measured in degrees and begin at 0 degrees (East).

- Positive values increase in a counter clockwise direction.
- Negative values increase in a clockwise direction.
- Any value may be entered, but will be resolved to a value between -179 to +180.

Radius:



Radius: Distance Coordinate of the microphone placement, assuming the origin is at the same elevation as the source placement.

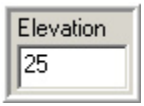
- The Radius assumes no unit of measure, other than it is consistent between the Radii and Elevations of all source and microphone placements.

Any positive value may be entered.

Advanced: Elevation-Pitch-Roll-Yaw

These next few settings are for labeling purposes only and are completely optional. They allow you if you wish to log the elevation & angles of the Microphone itself used during the recording session.

Elevation (advanced mode only):



Elevation: Distance Coordinate representing the height difference between the microphone placement and origin. The Elevation assumes no unit of measure, other than it is consistent between the Radii and Elevations of all source and microphone placements. Any integer may be entered, assumes positive numbers are above the origin, negative numbers are below.

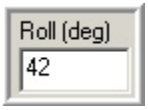
Pitch (advanced mode only):

Pitch: Angular coordinate describing the forward/backward tilt of the Microphone's placement's directional vector with respect to the origin, assuming a Yaw and Roll of zero.

Pitch is measured in degrees. 0° refers to a directional vector passing through the origin.

- A positive Pitch refers to a forward tilt, the directional vector passing below the origin.
- A negative Pitch refers to a backward tilt, the directional vector passing above the origin.
- Any integer may be entered, but will be resolved to a value between -179 to +180.

Roll (advanced mode only):



Roll: Angular coordinate describes the rotation of the Microphone's placement about its directional vector.

Roll is measured in degrees with 0° being 12 O'clock.

- A positive Roll refers to a Clockwise rotation.
- A negative Roll refers to a Counter-Clockwise rotation.
- Any integer may be entered, but will be resolved to a value between -179 to +180.

Yaw (advanced mode only):

Yaw: Angular coordinate that describes the left/right rotation of the Microphone's placement's directional vector with respect to the origin, and assuming a Pitch and Roll of zero.

Yaw is measured in degrees with 0° referring to a directional vector passing through the origin.

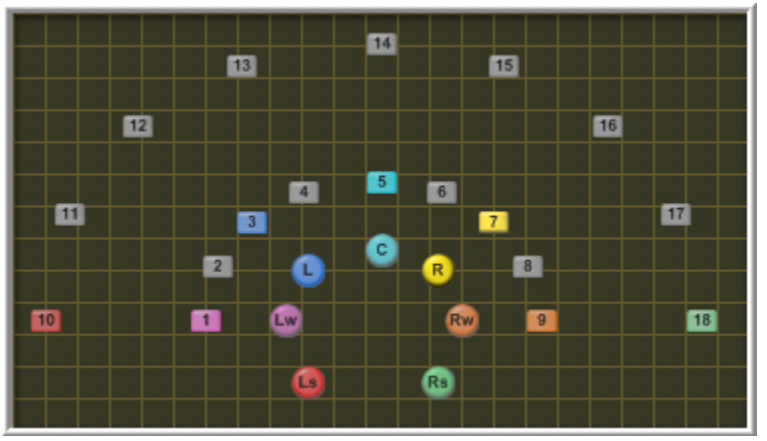
- A positive Yaw refers to a leftward rotation, the directional vector passing to the left of the origin.
- A negative Yaw refers to a rightward rotation, the directional vector passing to the right of the origin).
- Any integer may be entered, but will be resolved to a value between -179 to +180.

Multi Placement Mode Src Plc Link (advanced mode only):

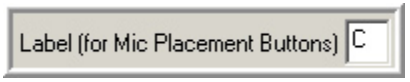
The Src Plc Link (Multi Placement Mode) section specifies this Microphone's *Source Placement Link.* If enabled, this Microphone will be linked to the specified source placement when the impulse set is loaded in to GigaPulse. To enable this mode, be sure the *Multi Placement Mode* box is checked.

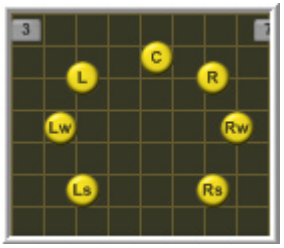
Here is an example with each microphone having its own custom link. (mLink)

Here is the result in the GigaPulse interface.



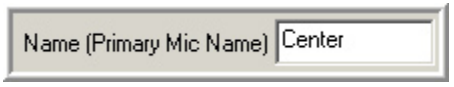
Label (for Mic Placement Buttons):





The *Label (for Mic Placement Buttons)* box accepts the single letter value that identifies each microphone. Whatever is entered in this box will be placed on the appropriate microphone marker in the *Placement Section* of the GigaPulse Pro. (i.e. LF, RF, LW, RW, LS, RS, C)

Name (Primary Mic Name):



The *Name (Primary Mic Name)* box accepts concise text to identify the Microphone placement. Typically this will be a description of the Microphone placement

(i.e. LFront, RFront, LWide, RWide, LSurr, RSurr, Center).
The entered value will be displayed in the Mic Group section of GigaPulse.

Name (for Routing Matrix):

The *Name (for Routing Matrix)* box accepts the name that will be displayed in the *Mic to Mixer Routing* section of GigaPulse.

Mic Group Assignment:

The *Mic Group Assignment* displays the Mic Group to which this Microphone belongs. It may only be modified in the Mic Group Configuration pane.

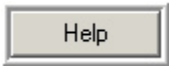
Prev Mic:

The *Prev Mic* button allows you to move to the previous Microphone placement or the last Microphone if the current is the first.

Next Mic:

The *Next Mic* button allows you to move to the next Microphone placement or the first Microphone if the current is the last.

Help:



The *Help* button loads the Help file for this window.

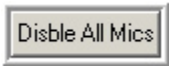
Disable/Enable this Mic:

The *Disable/Enable this Mic* buttons enable or disable the current microphone and have the same affect as checking/unchecking the current microphone's placement's checkbox in the main *IIS Configuration Panel.*

Enable All Mics:

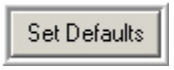
The *Enable All Mics* button enables all Microphones in this IIS file.

Disable All Mics:



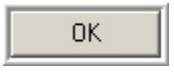
The *Disable All Mics* button disables all Microphones in this IIS file.

Set Defaults:



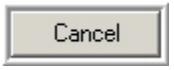
The *Set Defaults* button resets the current Microphone's placement's controls to their default settings.

OK:



The *OK* button saves your changes and then exits to the *IIS Configuration Panel.*

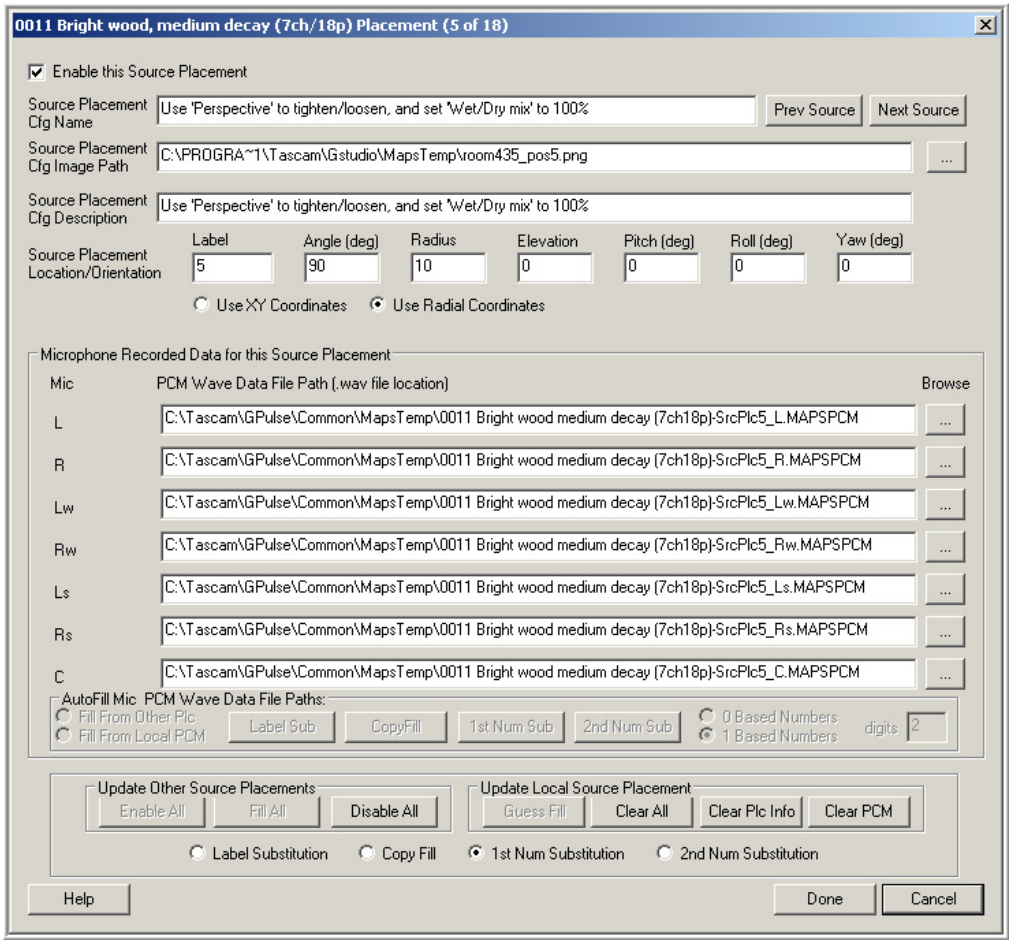
Cancel:



The *Cancel* button exits to the *IIS Configuration Panel* without saving your changes.

Source Placement Editor

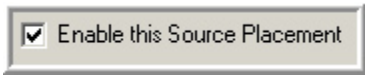
This tool is designed to help organize and import raw wave data for each Source Impulse Position so that the GigaPulse can operate on the data in its native format. In short, this is where you import your impulse response audio files.



Title Bar:

The *Title Bar* of this tool displays the current IIS file name and the current placement number. As you navigate between placements, this title bar will help keep up with which placement you are on.

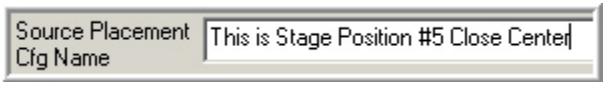
Disable/Enable this Placement:



This checkbox enables or disables the current source placement.

NOTE: Later in this section, the *Enable & Disable All* buttons are covered. Those buttons offer a quick way to enable or disable every source placement at once.

Source Placement Cfg Name:



The *Source Placement Cfg Name* edit box accepts a description of the source. This edit box allows you to provide a description for the placement. This information is for reference only and does not show up in the GigaPulse interface.

Prev Source/ Next Source:

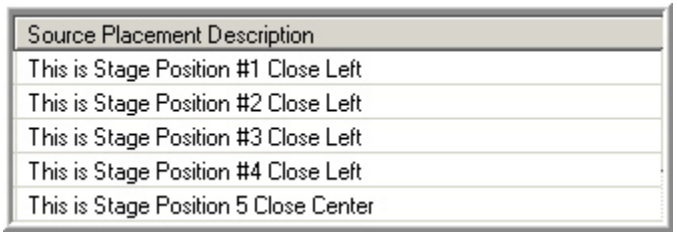
The *Previous Source and Next Source* buttons permit easy cycling through the different source placements available.

Source Placement Cfg Image Path:

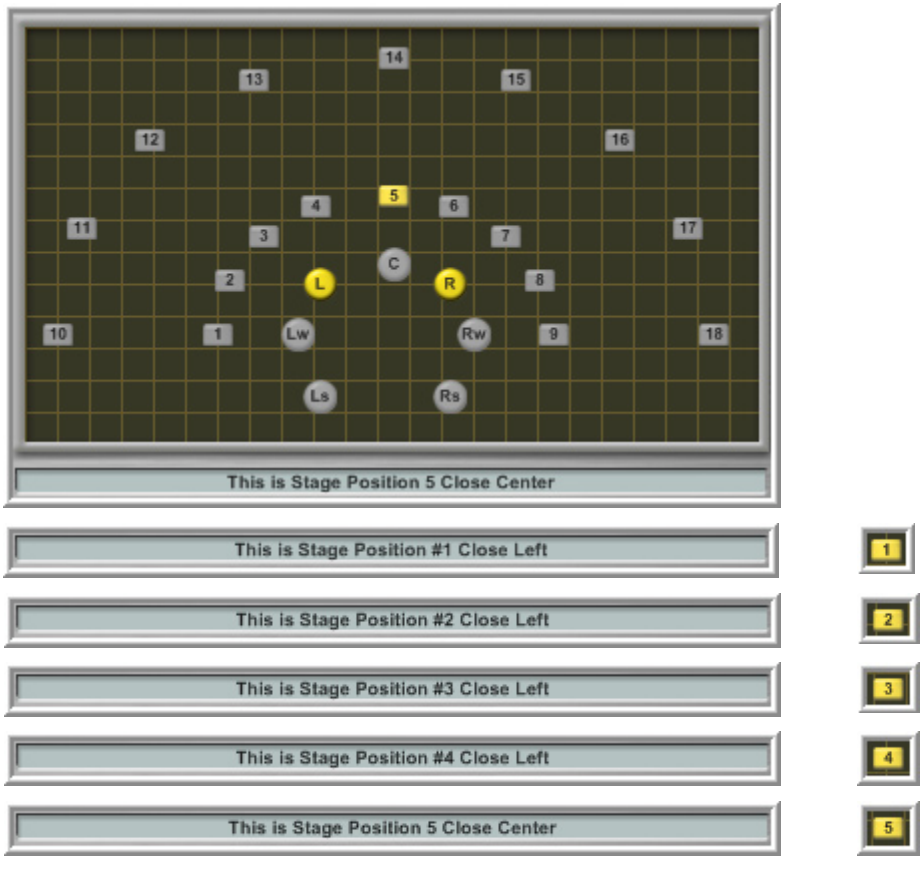
The *Source Placement Cfg Image Path* edit box accepts a data path to an image of the current placement to be shown under the Placement Selection pane of the GigaPulse Pro. Note the browse/search button to the right of the edit box. The image selected can be either in .JPG or .PNG format, and should be 368x207 pixels in size and 24 bit true RGB.

Source Placement Cfg Description:

This edit box allows you to provide a description for the placement which is what shows up in the Source Placement Description in the main screen of this Impulse Set Creator.



The same description shows up in the GigaPulse interface under the Placement Selection screen. Whenever you select a position, its description will show up here.

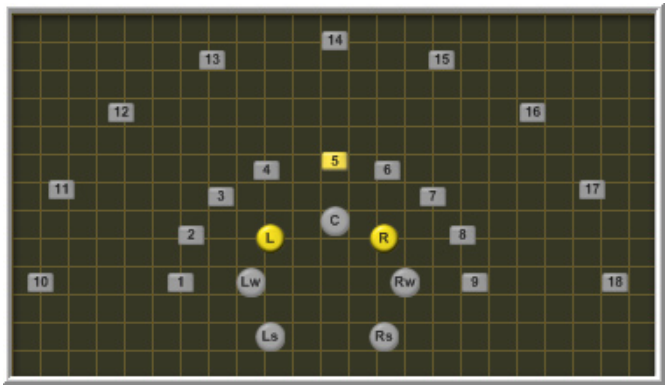


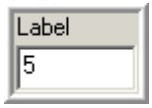
Source Placement Position/Orientation:

The next set of edit boxes control the position and orientation of the Source Impulse Speaker. These settings work the same way as do the Microphone Configuration Settings.

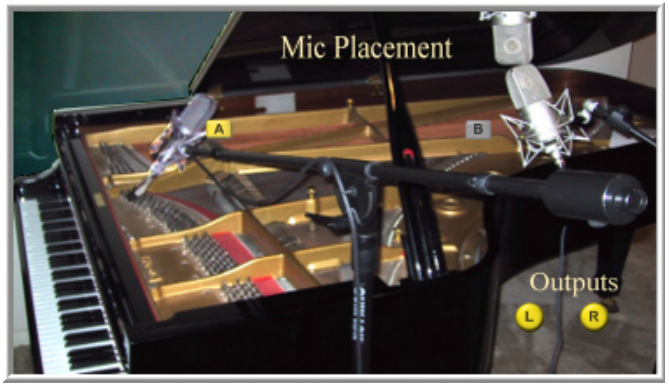
Label:

The *Label* edit box accepts a label to be displayed on the source placement markers in the Placement Selection pane in the GigaPulse interface and the Label Column of the *Specify Signal Source Placements Used* pane of the main Impulse Set Creator screen. The buttons on the placement screen only have room for three characters and will use the first three characters of this label. To keep things simple, its best to just stick with 3 character labels throughout.





Here we have numerical stage position labels. (1-18)



Here we have alphabetical microphone position labels. (A & B)

Use XY Coordinates / Use Radial Coordinates:

Use XY Coordinates / Use Radial Coordinates: selects the coordinate system to be used to control the orientation and direction of the source placement.

Redial Coordinates:

Radial Coordinates are more useful for room applications, in which a conductor might be the center of activity.

Angle (deg): Angles are measured in degrees and begin at 0 degrees (East).

- Positive values increase in a counter clockwise direction.
- Negative values increase in a clockwise direction.
- Any value may be entered, but will be resolved to a value between -179 to +180.

Radius: Distance Coordinate of the microphone placement, assuming the origin is at the same elevation as the source placement.

- The Radius assumes no unit of measure, other than it is consistent between the Radii and Elevations of all source and microphone placements.
- Any positive value may be entered.

XY Coordinates:

XY Coordinates are useful for non-room applications like the resonant characteristics of a given instrument. Remember that *Override Scale-To-Fit Source and Mic Placement Positions* has to be enabled.

X Position:

- 0 is at the left extreme of the screen.
- Positive values ascend toward the right of the screen.

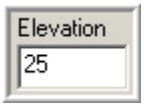
Y Position:

- 0 is at the top of the screen.
- Positive values ascend toward the bottom of the screen.

Advanced: Elevation-Pitch-Roll-Yaw

These next few settings are for labeling purposes only and are completely optional. They allow you if you wish to log the elevation & angles of the microphone itself used during the recording session.

Elevation (advanced mode only):



Elevation: Distance Coordinate representing the height difference between the microphone placement and origin. The Elevation assumes no unit of measure, other than it is consistent between the Radii and Elevations of all source and microphone placements. Any integer may be entered, assumes positive numbers are above the origin, negative numbers are below.

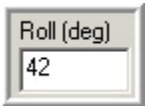
Pitch (advanced mode only):

Pitch: Angular coordinate describing the forward/backward tilt of the Microphone's placement's directional vector with respect to the origin, assuming a Yaw and Roll of zero.

Pitch is measured in degrees. 0° refers to a directional vector passing through the origin.

- A positive Pitch refers to a forward tilt, the directional vector passing below the origin.
- A negative Pitch refers to a backward tilt, the directional vector passing above the origin.
- Any integer may be entered, but will be resolved to a value between -179 to +180.

Roll (advanced mode only):



Roll: Angular coordinate describes the rotation of the Microphone's placement about its directional vector.

Roll is measured in degrees with 0° being 12 O'clock.

- A positive Roll refers to a Clockwise rotation.
- A negative Roll refers to a Counter-Clockwise rotation.
- Any integer may be entered, but will be resolved to a value between -179 to +180.

Yaw (advanced mode only):

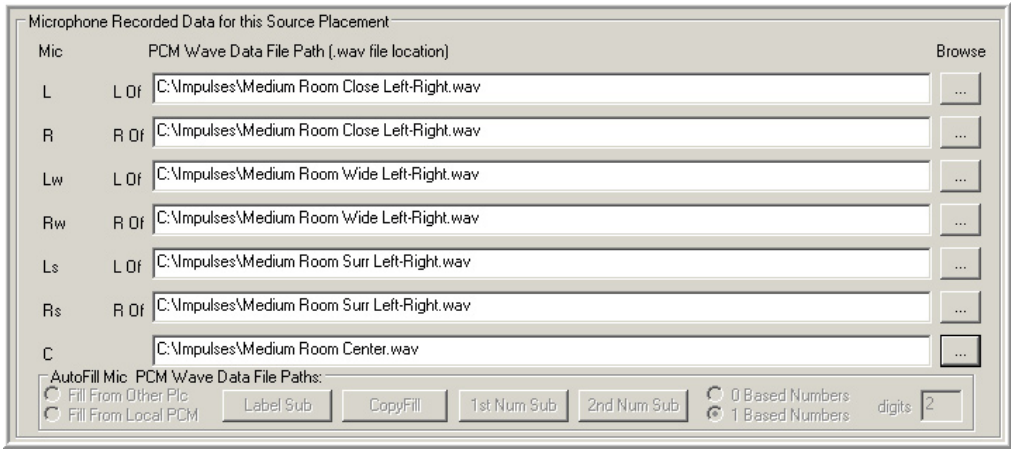
Yaw: Angular coordinate that describes the left/right rotation of the Microphone's placement's directional vector with respect to the origin, and assuming a Pitch and Roll of zero.

Yaw is measured in degrees with 0° referring to a directional vector passing through the origin.

- A positive Yaw refers to a leftward rotation, the directional vector passing to the left of the origin.
- A negative Yaw refers to a rightward rotation, the directional vector passing to the right of the origin).
- Any integer may be entered, but will be resolved to a value between -179 to +180.

Microphone Recorded Data for this Placement:

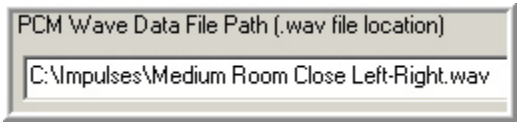
The *Microphone Recorded Data for this Placement* pane allows you to specify PCM Wave Data for each enabled microphone of the IIS file.



Mic Label:

The *Mic Label* column of labels specifies the microphone for which you are providing Wave data.

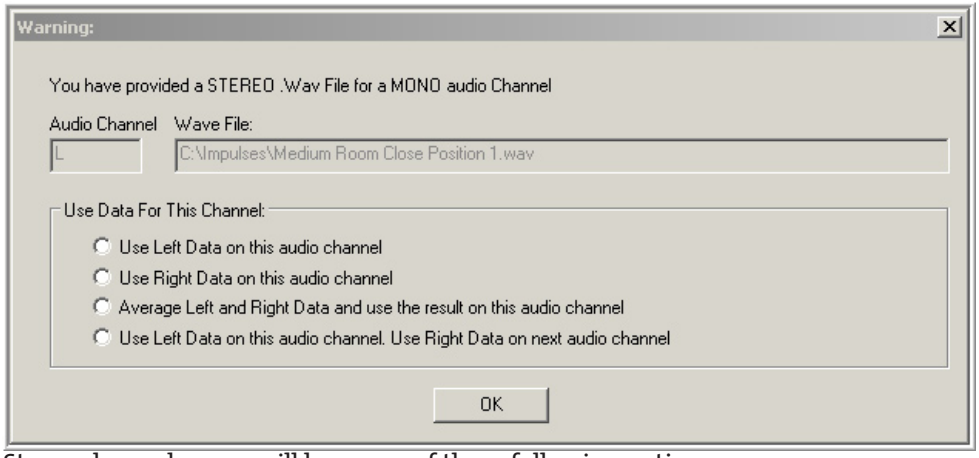
PCM Wave Data File Path:



The *PCM Wave Data File Path* column of edit boxes allows you to view/specify the paths to the .Wav File for each microphone recording of the current placement. To the right is a browse/search button.

Wave Data Conversion:

When you enter or browse to a wave file path, that wave is checked for stereo data. If it is a stereo wave, you will be give a choice as to how the wave data is to be used. Your choices are displayed in this column.
Mono channel waves will have no specification and you won't see this window.



Stereo channel waves will have one of these following options:

The Use Left Data on this audio Channel radio button will assign the left channel of the wave file to the current microphone position. The signal will remain monaural.

The Average Left and Right Data and use the result on this audio channel will mix together and average both the left and the right channels of the wave file to the current microphone position, thereby returning both as a single monaural signal

This will mix together and average both the Left and the Right channels of the wave file to the current Mic Position. (This is most often used for the Center Channel)

The Use Left Data on this audio channel. Use Right Data on next audio channel radio button will assign the left channel of the wave file to the current microphone position and also automatically assign the right channel of the wave file to the next microphone position.
This will be the most often used method when dealing with stereo samples.

Auto Fill:

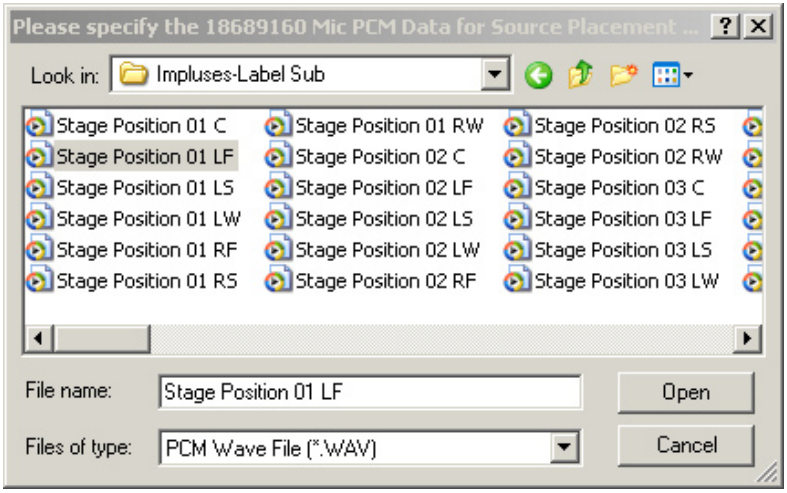
There are seven different microphone positions available in GigaPulse Pro, and each of them can be linked to 18 different source placements. Do the math: that's 126 different *PCM Wave Data Path* edit boxes into which you would have to enter data just to complete one full room. Is this how you really want to spend your creativity time?

We didn't think so.

The *AutoFill Mic PCM Wave Data File Path* directly under the PCM Wave Data Path edit boxes are controls that assist you in filling the PCM Wave Data File Paths automatically. The key is in how the wave data files are arranged and named on you're your disk.

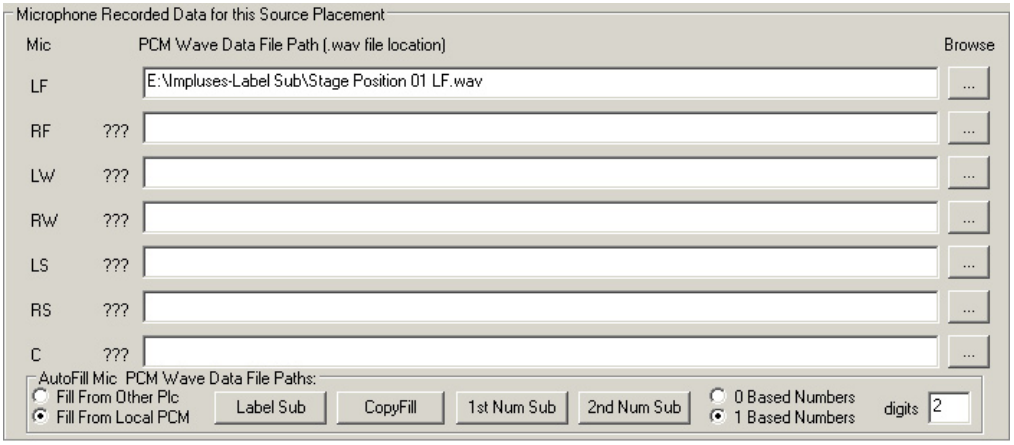
To begin, Check *Enable this Source placement*, and then put a name in the *Source Placement Cfg Name*. Enter a path to an image for this source placement, and then put a description into the *Source Placement Cfg Description* edit box. Fill in *Label, Angle (deg)* and *Radius* appropriately.

Now browse to find a PCM wave data file path. There are several ways to do this, depending upon the results you want.

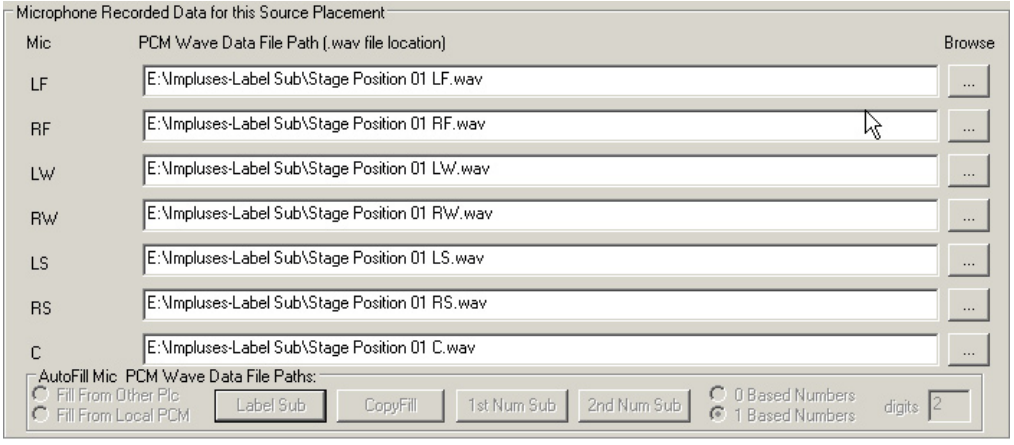


Here we have a set of impulse response files, all titled Stage Position XX YY. XX is the stage position, and YY is the Microphone position. Stage Position is merely for your convenience, so give it a name that works for you, but then remain with if for the rest of this set of files. It is the variables that are of prime importance here. Note that Windows has sorted them all alphabetically, and that's a good thing; the good outweighs the inconvenient.

If you have your files set up in a system like this, it is a simple matter to load a screenful of PCM wave files at a time. For data file path LF, browse to find *Stage Position 01 LF,* which begins the set that goes into the top slot of this particular page.



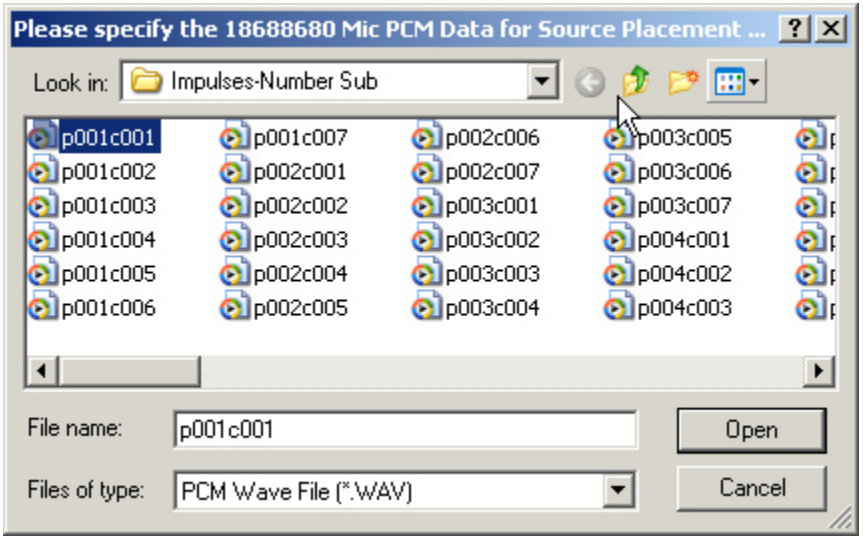
In the bottom left corner, the *Fill From Local PCM* is the default because there are not yet any other Placements to fill from. Now, select *Label Sub* to fill in the rest of the data file paths on this page.



Next Source

The next page will be even easier. Select *Next Source* in the upper right corner of the page – *Fill From Other Plc* becomes the default – and then *Label Sub* to fill in all the data file paths.

Better, but there is a quicker method still. This time a different naming convention is required for the PCM wave data file paths:



The convention now is pXXXcYYY the p indicates that the XXX identifies a Microphone position, and the c indicates a microphone YYY. (XXX and YYY are both numeric.)

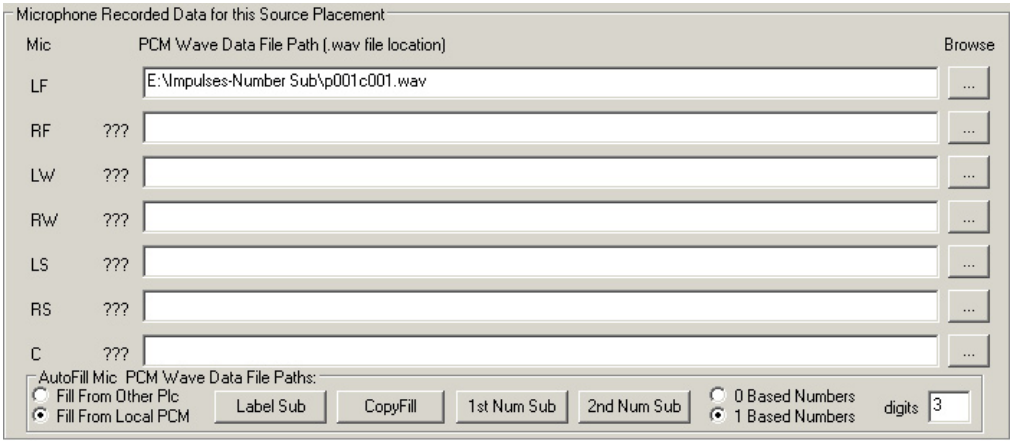
Enable All

This time, start by clicking *Enable All.* All 18 pages are now enabled, so it shows the page for source placement 18.

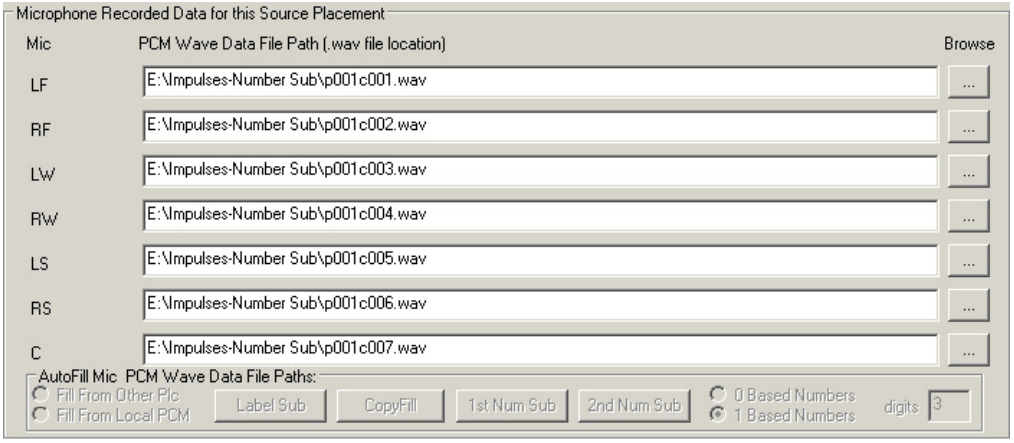
Next Source

Click *Next Source* to return to Page 1, and the fill in the Source Placement information at the top of the screen.

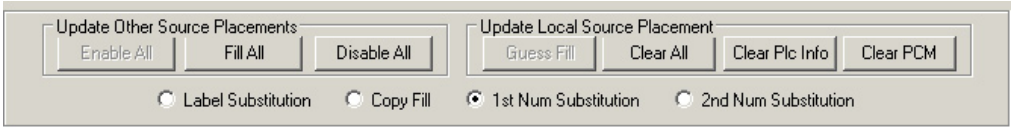
Since the wave data paths are listed on the page in order of microphone placement, that is the first thing to place into the wave data file path slots.



As these numbers, *XXX* and *YYY*, each have three digits, select the radio button marked *1 Based Numbers*, and then since the c001 is the second of the two numbers in our current format, click *2nd Num Sub*. The page fills as before:



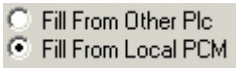
Finally, click *Fill All* at the bottom of the screen to fill all 18 pages.



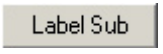
Now as you click through the various pages, you'll find that all 18 have been filled.

The individual controls for the rest of the *Wave Data Conversion* screen are as follows:

The *Fill From Other Plc* radio button causes auto fill to use data from other (nearest preceding) source placements.



The *Fill From Local Plc* radio button causes auto fill to use data from the current source placement.



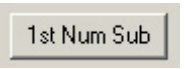
Label Substitution will auto fill the fields with identical data as the *Fill From* source, but it will substitute known microphones labels.

For example, Room6_P4_LF.wav (placement4, Left Front Mic) would have "LF" substituted by

- "RF" (right front)
- "LW" (left wide)
- "RW" (right wide)
- "LS" (left surround)
- "RS" (right surround)
- "C" (center)

(Assuming LF, RF, LW, RW, LS, RS, and C are the microphone labels)

The *Copy Fill* button will auto fill the fields with identical data as the 'Fill From' source, so you may hand edit any required changes.

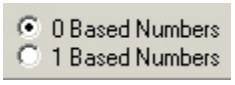


The *1st Num Sub* button will auto fill the fields with identical data as the 'Fill From' source, but will substitute the first numerical value in the field with an incremented value.

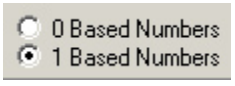
For example: Source01_Impulse03 would be substituted with Source02_Impulse03.

The *2nd Num Sub* button will auto fill the fields with identical data as the 'Fill From' source, but will substitute the second numerical value in the field with an incremented value.

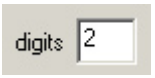
For example: Source9_Impulse11 would be substituted with Source9_Impulse12.



The *0 Based Numbers* radio button auto fills by looking for and substituting numbers in a sequence starting with 0. (0,1,2,3...)



The *1 Based Numbers* radio button auto fills by looking for and substituting numbers in a sequence starting with 1(1,2,3...)



The *Digits* edit box specifies the number of digits to look for and replace

Usage Example:
When recording the impulses for Room 6, label the .Wav files *Room6_PPPMMM.wav* (I.e. the 9th impulse of placement 3 might be in a file called Room6_003009.wav)
Enter the first impulse of the first placement: *Room6_001001.wav*, and then non-specifying
Specify *Fill From Local Plc*, and execute *2nd Num Sub* to fill the wave file and substitute the "MMM" (the impulse/microphone number). Press the Next' Source button. Select Fill *From Other Plc*, and then 1st Num Sub to fill the placement and substitute the "PPP" (the placement number). You would specify, "Fill from local Plc",

The Update Other Source Placements Group:

The *Enable All* Button enables all source placements. This button is grayed out if all source placements are already enabled.

The *Enable/Fill All* Button enables all source placements and auto fills any empty fields in accordance with the radio button options, below.
If all source placements are already enabled and the fields are all filled, then the Enable/Fill All Button

The *Disable All* button disables all source placements. This button is grayed out if all source placements are already disabled.

Update Local Source Placement Group:

The *Guess Fill* Button auto fills any empty fields in the current source placement in accordance with the radio button options, below.
This button is grayed out if the local fields are all filled.

The *Clear All* Button: clears all the fields in the current source placement.
The "Source Placement Location/Configuration" fields will all be set to default values.
This button is grayed out if the local fields are all empty.

The *Clear Plc Info* Button clears all the fields in the top portion of the current source placement. It is grayed out if the top portion fields are all empty.

The *Clear PCM* Button clears all the *PCM Wave Data File Path fields* of the current source placement. It is grayed out if the top portion fields are all empty.

Radio Button Options:

The *Label Substitution* button will auto fill the fields with identical data as the 'Fill From' source, but will substitute known microphone labels.

For example:

- Room6_P4_LF.wav (placement4, Left Front) would have
- LF substituted by RF (right front),
- LW (left wide), RW (right wide),
- LS (left surround), RS (right surround), and
- C (center)

(Assuming LF, RF, LW, RW, LS, RS, and C are the microphone labels)

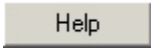
The *Copy Fill* button will auto fill the fields with identical data as the 'Fill From' source, so you may hand edit any required changes.

The *1st Num Sub* button will auto fill the fields with identical data as the Fill From source, but will substitute the first numerical value in the field with an incremented value.
For example, Source01_Impulse03 would be substituted with Source02_Impulse03.

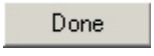
The *2nd Num Sub* button will auto fill the fields with identical data as the *Fill From* source, but will substitute the 2nd numerical value in the field with an incremented value.
For example, Source9_Impulse11 would be substituted with Source9_Impulse12.
Usage Example: If, for placement 1, you entered

- Name: Placement 1
- Image: c:\ImagePlc1.png
- Desc: My Studio - Source Placement 1
- Label: 1
- Mic LF: c:\MyStudio Plc01_LF.wav

You might press *Guess Fill* with *Label Substitution* selected to fill in the remaining waves of this placement substituting LF in the file path for each wave file. Then you might select 1st Num Sub and press "Enable/Fill All" to auto fill all the other source placements' Name, image, description, label and impulse file fields, substituting the "01" or "1" in each case.



The *Help* button loads this .hlp file for reading or editing.



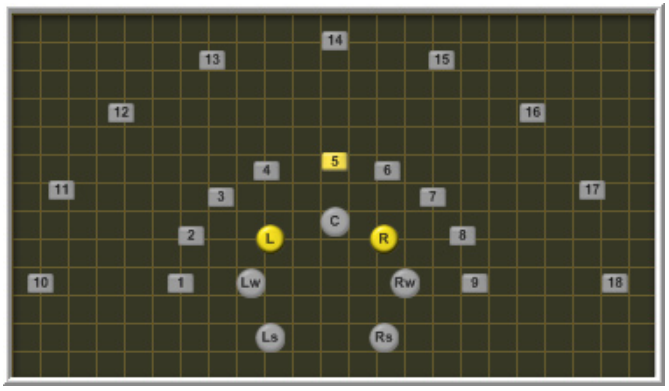
The *Done* button saves your information, and then exits to the main *IIS Editor* page.

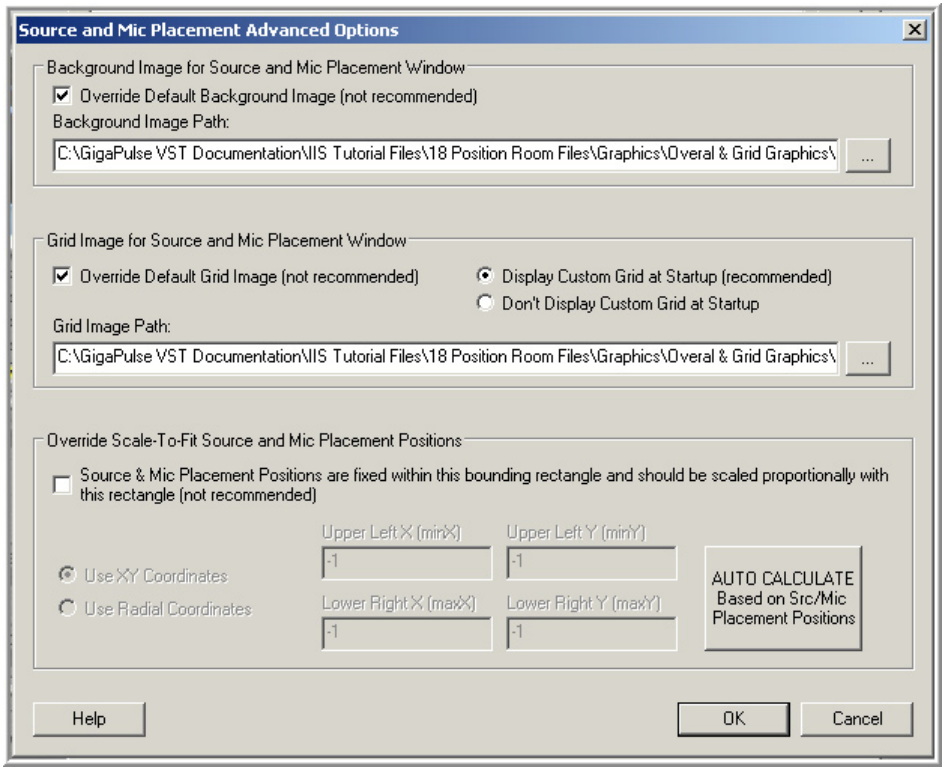
The *Cancel* button allows you to exit to the main IIS Editor page without saving your information.

Source and Mic Placement-Advanced Options

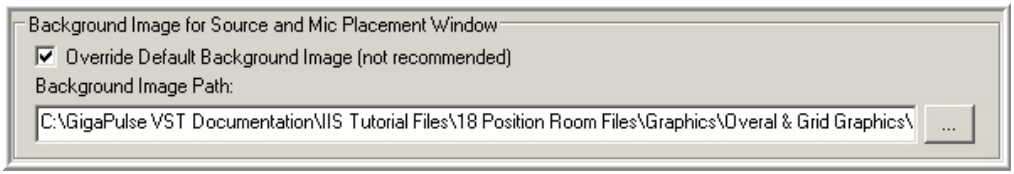
In GigaPulse, the Source Placement Screen shows the relative positions of all your performers positions and all your microphone placements.

This configuration page allows you to override some of the defaults used by this window such as the grid settings and background image and image scaling.



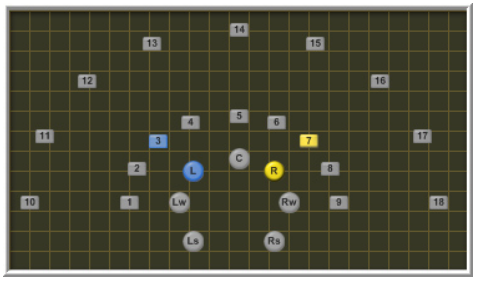


Background Image for Source and Mic Placement Window:

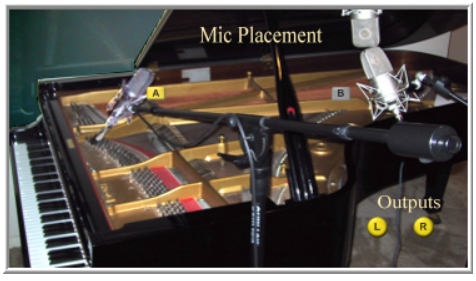


By Default, GigaPulse displays a solid black background behind all the placements.

Solid Background



Custom Bitmap Background



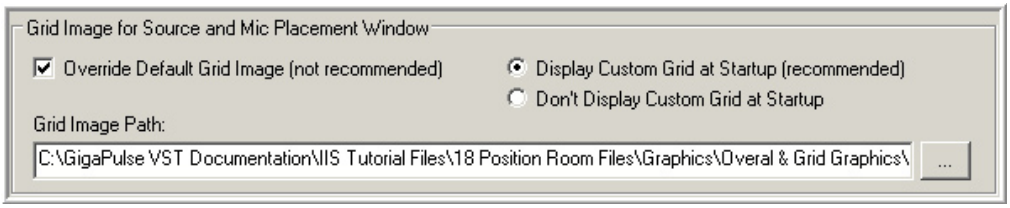
However, you can display a custom bitmap by checking the "Override" checkbox

Then you can enter a path to a valid bitmap.

Use the Browse Button to browse for either a PNG or BMP file.

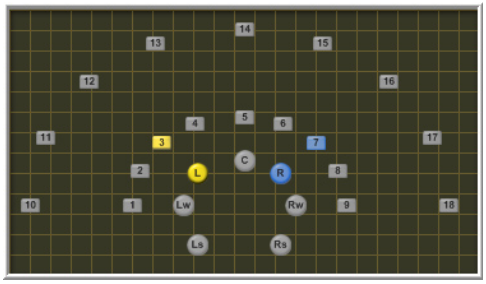
NOTE: This image MUST be 368x207, 24bit true RGB.

Grid Image Configuration:



By Default, GigaPulse displays a Grid over background and behind all the placements.

Background with Grid

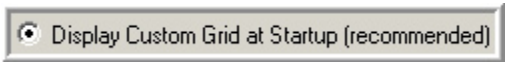


Background without Grid

Users can turn the Grid on and off using the "Grid" button in the GigaPulse app.

However, you can set the default to have the Grid displayed (on) or not displayed (off) when GigaPulse loads your impulse set.

Default Grid display-ON



Default Grid display-OFF

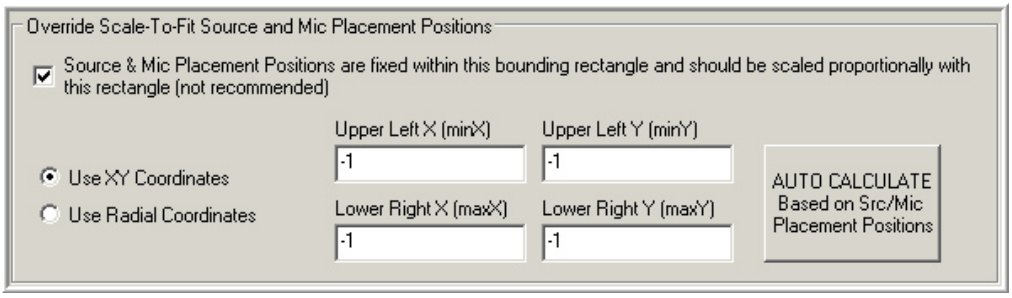
You can also display a custom Grid bitmap by checking the "Override" checkbox

Then you can enter a path to valid bitmap.

Use the Browse Button to browse for either a PNG or BMP file.

NOTE: This file MUST also be 368x207, 24bit true RGB.

Override Scale-To-Fit Source and Mic Placement Positions:



By Default, GigaPulse scans the placement position of your source and microphone placements and then centers and scales them to fit in the 368x207 placement window (maintaining the placements position relative to each other). This way you can use the actual room dimensions and positions when you enter each placement's position in any measurement unit.

In some cases (like when you want the placements positioned in a specific location on your background or grid bitmaps), you don't want the placement positions centered or scaled to fit.

If you supply a 'Bounding Rectangle' that encompasses all of your microphone and source placements, GigaPulse will first scale the bounding rectangle to fit the 368x207 placement window, then scale the placements using the same scaling factor.

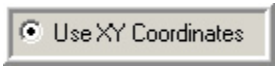
HINT: If your bounding rectangle is 368x207, GigaPulse will not center or scale the placements at all.

In XY Coordinate Mode this might be expressed as:

Upper Left X = 0		Upper Left X = 1000
Upper Left X = 0		Upper Left X = 2000
Lower Right X = 368	or	Lower Right X = 1368
Lower Right Y = 207		Lower Right Y = 2207

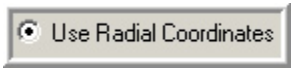
Note that you may enter your bounding rectangle in Cartesian Coordinates (X/Y Positions) or in Radial Coordinates (Angle/Radius positions).

Use XY Coordinates:



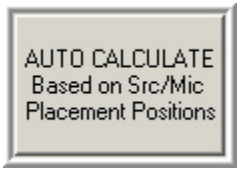
This mode is preferential if you're working from an image editor.
Note that the origin is the upper/left corner in this mode.
Note that down is a POSITIVE Y direction, and up is NEGATIVE Y direction.

Use Radial Coordinates:



This mode is preferential if you're in an actual room and measuring the distances to placements (Radius) from a central location.
Note that the origin is the central location in this mode.
Angle are measured in degrees (not radians) and
0 or 360 degrees is right of the origin
90 or -270 degrees is in front of the origin
180 or -180 degrees is left of the origin
270 or -90 degrees is behind the origin

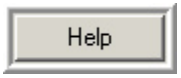
Auto Calculate:



Pressing this button scans the placement position of your source and microphone placements and provides you with the rectangle that bounds these points.

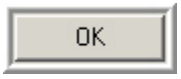
This rectangle is always displayed in XY coordinates.

Help:



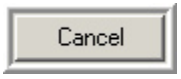
This button loads the .hlp file for this window.

OK:



This allows you to exit this dialog (after saving your changes)

Cancel:



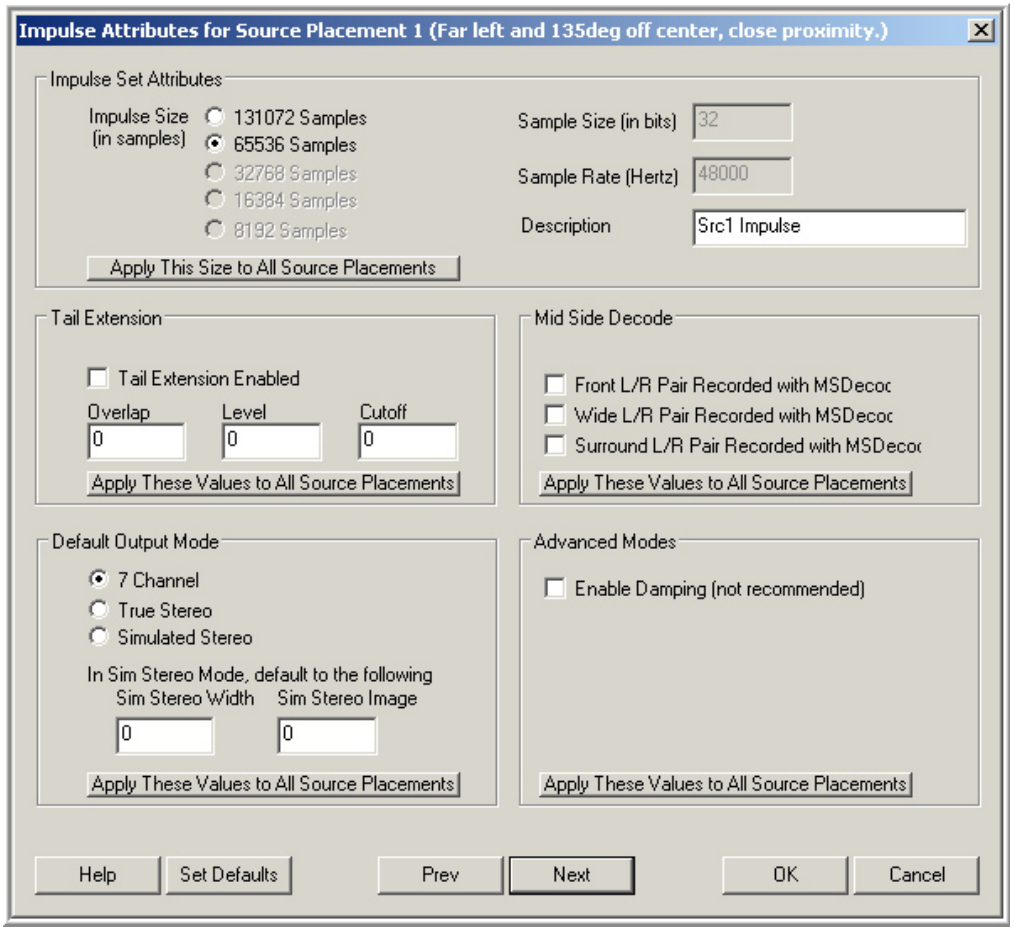
This allows you to exit this dialog without saving your changes.

Impulse Attributes Editor

This dialog specifies the characteristics of the impulses in the current IIS Set and sets up a few default parameter settings in the GigaPulse interface.

Only one Source placement's Impulse Attributes are shown at a time (Selectable using the 'Prev' and 'Next' buttons)

Some of the information can be (and is) extracted from the impulse files you have specified. You must provide the other information.

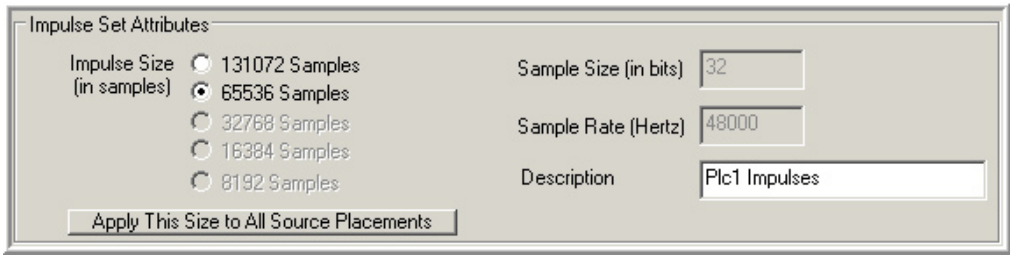


Title Bar:

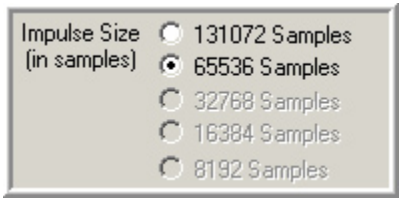
The title bar of this tool displays the source placement number of the current source placement. (Selectable using the 'Prev' and 'Next' buttons)

Impulse Set Attributes:

This information can be extracted from the specified impulse files.



Impulse Size:



GigaPulse works on impulses of the shown sizes.

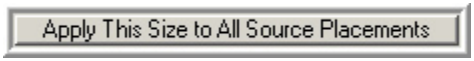
If an impulse length (in samples) is not of one of the shown sizes, it is padded and zero filled to the next largest size - or truncated if it is larger than the maximum size.

By default, the minimum length that covers all impulses in the source placement set is selected.

Sizes below this size are disabled (grayed out) and cannot be selected.
Sizes above this size are enabled and may be selected (maybe to allow tail extensions to be enabled), but this will drastically increase the impulse size with zero filled data.

The final result will be impulses that are all exactly the same size.

Apply this Size To All Source Placements:



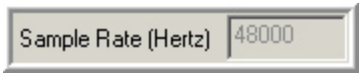
Pressing this button will force the selected size for the current source placement set to all the other placements sets.

If any of the other impulse sets have an impulse length that is larger than the specified size, that specific impulse set's size will not changed. A note to this effect will be displayed.

Sample Size (in bits):

Impulses will always be converted to 32-bit floating-point samples.
Therefore 'Sample Size' always displays 32 bits and is never editable.

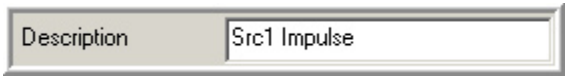
Sample Rate:



The impulse for each Source Placement must all be of the same Sample Rate.
The 1st impulse's sample rate is always displayed, even if there is a variance in the sample rate.

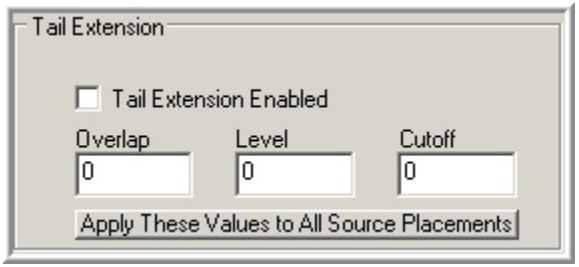
Any variance is noted when this dialog is launched (as well as when the impulse is specified in the source placement editor pane).

Description:



This 15-character field allows a description of the impulse set's impulses.
This description is not displayed in GigaPulse interface.

Tail Extension:



GigaPulse can tail extend impulse of 65536 samples or longer.
(Roughly 3 seconds)

All items in this group are disabled unless your impulse set size is at least this size or larger.

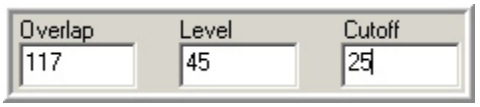
If your sample size is less than this, you can select 65536 and GigaPulse will automatically extend and zero fill your impulse to accommodate it.

These settings will be automatically set in the GigaPulse interface when this IIS set is loaded.

Tail Extension Enable:

You must check this box to enable tail extension

Overlap-Level-Cutoff:

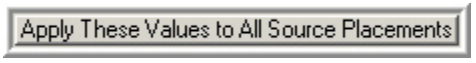


Overlap Control – Has a minimum/maximum span of 0-127. This is a timing offset and cross-fade parameter for the Tail Model signal, convolved with the source material of the original impulse response.

Level Control – The level control allows the Tail Model signal level to be adjusted to the original signal.

Cutoff Control – The cutoff control is essentially a low pass filter. It permits the tonal quality of the Tail Model signal to be matched to that of the original signal.

Apply These Values To All Source Placements:

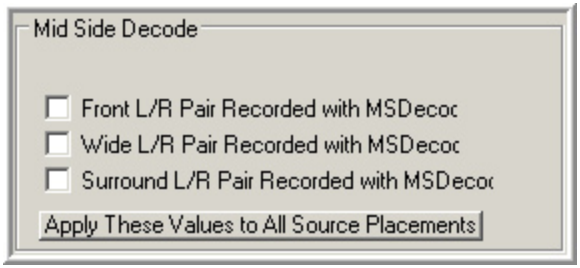


Pressing this button will force the tail extension settings for the current source placement set to all the other placements sets.

If any of the other impulse sets have an impulse length that is too small for tail extension, you will be given the option to skip the setting or increase the impulse set's impulses to the minimum size that supports tail extension.

Mid Side Decode:

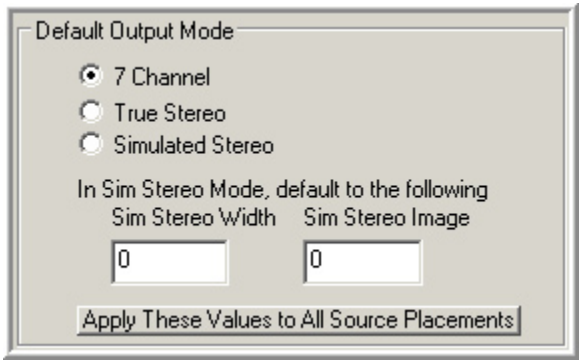
If you recorded this source placement's Mic pairs with using mid side decode technique, check the appropriate mic pair.



Apply These Values To All Source Placements:

Pressing this button will force the tail extension settings for the current source placement set to all the other placements sets.
There are no restrictions on this.

Default Output Mode:

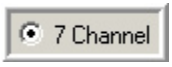


This group allows you to adjust how the output channels are mapped to the GigaStudio's DSP Mixer.

Note: The VST GigaPulse works in "True Stereo" mode all the time. Surround impulse sets will use just the "Front Mic Group" and ignore the other mic positions. These settings won't have any effect on the VST version

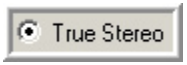
It will set the default settings found in the dropdown in the 'Mic to Mixer Routing" section.

7 Channel:



GigaPulse's seven output channels are sequentially mapped on the DSP Mixer, starting with GigaPulse's first DSP Mixer channel.

True Stereo:



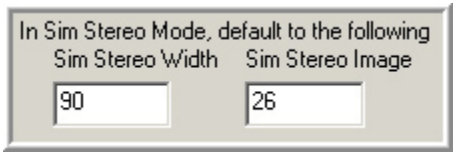
'Odd' GigaPulse channels are mapped to GigaPulse's first DSP Mixer channel.
'Even' GigaPulse channels are mapped to GigaPulse's second DSP Mixer channel.

Simulated Stereo:

Each GigaPulse channel is mapped to GigaPulse's both the first and second DSP Mixer channel.

The distribution of channel's energy is controlled by the Sim-Stereo Image and Sim Stereo Width values.

Sim-Stereo Width/Image:

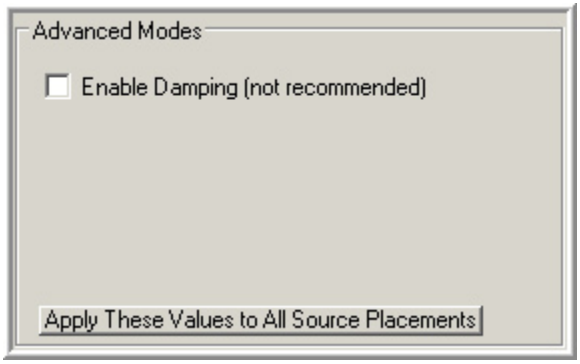


When in Sim-Stereo mode, these will be the default width and image values.

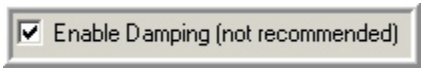
Apply These Values To All Source Placements:

Pressing this button will force the output settings for the current source placement set to all the other placements sets.

Advanced Modes:



Enable Damping Mode:

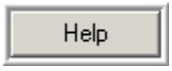


When this box is checked, the GigaPulse will flush the energy out of the system for these impulses when MIDI automation sends damping data.
This mode is normally not recommended unless you are dealing with Sustain Pedal ambience for an acoustic piano. When enabled, this causes a much more realistic pedal down effect. Without this feature, GigaPulse would continue to process the piano audio even after the sustain pedal has been released. Then if the pedal was triggered again before the impulse time dies down, that remaining audio would still be audible and new piano notes would mixed in with that in an unrealistic way. This would also use up a lot of extra unnecessary processing power as well. When "Damping" is enabled however, the audio is flushed out of the signal path every time the sustain pedal is released.

Apply These Values To All Source Placements:

Pressing this button will force the advanced settings for the current source placement set to all the other placements sets.

Help:

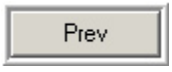


Pressing the *Help* button displays the help file.

Set Defaults:

Pressing *Set Defaults* button will cause the current source placement's impulses to be scanned for impulse size, sample rate, and sample size. The associated source placement settings are then set to the appropriate values. All other values are forced to default values.

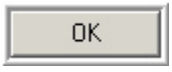
Prev & Next:



These two buttons change the current source placement to the next or previous source placement, skipping over any disabled source placements.

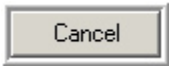
These are only enabled if more than one source placement is enabled.

OK:



This button incorporates all the changes on all placements (made during this impulse attribute editor session) into the IIS file you are creating/editing, then exits the impulse attributes editor session.

Cancel:



The *Cancel* button discards all the changes on all placements (made during this impulse attributes editor session), then exits the impulse attributes editor session.