Using Hauptwerk to Control External MID Sound Applications on a Mac

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When I first started using Hauptwerk, it was because I wanted to add a theater organ to my home instruments and I saw this as a way to do so inexpensively. I ended up obtaining a 1960s era Artisan theater organ console which I restored and enlarged into a substantial three-manual, double-bolster monster. I also purchased Neil Jensen's theater organ sample sets to use for this. I really enjoyed these samples – except for the piano sample. This brings me to the topic of this paper.

Hauptwerk was developed to reproduce traditional organ sounds and it does this very well. These sounds generally are of two types:

1. Standard organ pipe ranks – These sounds start in response to a MIDI note-on event and remain stable (using audio loops) until a corresponding note-off is received. They then go into one of several predefined decay sequences and end.
2. Traditional concert organ percussion effects – These are usually things like "organ harps" (actually marimbas) and chimes. These sounds again start in response to a MIDI note-on event, and then decay until they end. The corresponding note-off has no effect.

Unfortunately, the piano rank I was using did not fall into either of these categories. A pipe organ piano, like the traditional percussion effects, starts with the MIDI note-on event, and begins decaying immediately. However, it needs to also respond to the note-off event to enter an accelerated decay from wherever it happens to be at that time.

The Hauptwerk Version 4 system I was using back in those days could not handle the piano well enough for my taste. This is why I investigated using Hauptwerk to control an external software synthesizer. I used KeyRig, a MOTU product I already owned.

My blog on the theater organ project,

http://www.nightbloomingjazzmen.com/Theater_Organ_Project.html

had a short entry explaining how I did this.

However, things have changed since those days.

Hauptwerk is now up to version 9. It can now handle piano ranks pretty well.

KeyRig no longer is supported and does not run on current Apple computers.

However, the same basic technique I used before can be used with the newer Hauptwerk and with current software synthesizers. I will explain how to do this below.

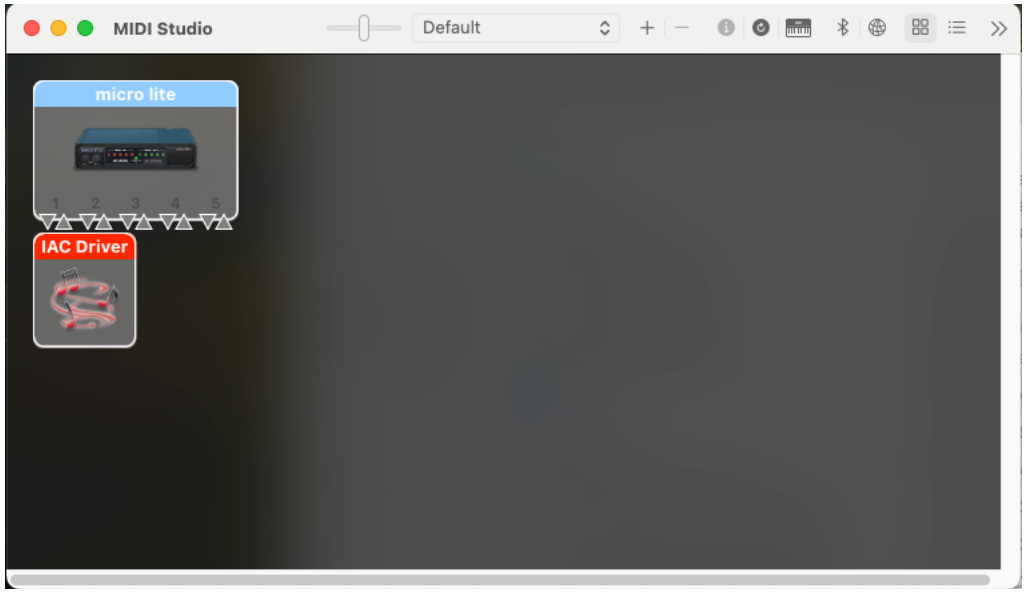
Today, I use Apple MainStage as my software synthesizer of choice, so I will use Mainstage in this example.

There are three basic steps in making this work. Each will be explained in a separate section.

Enabling inter-process MIDI communications on the Mac

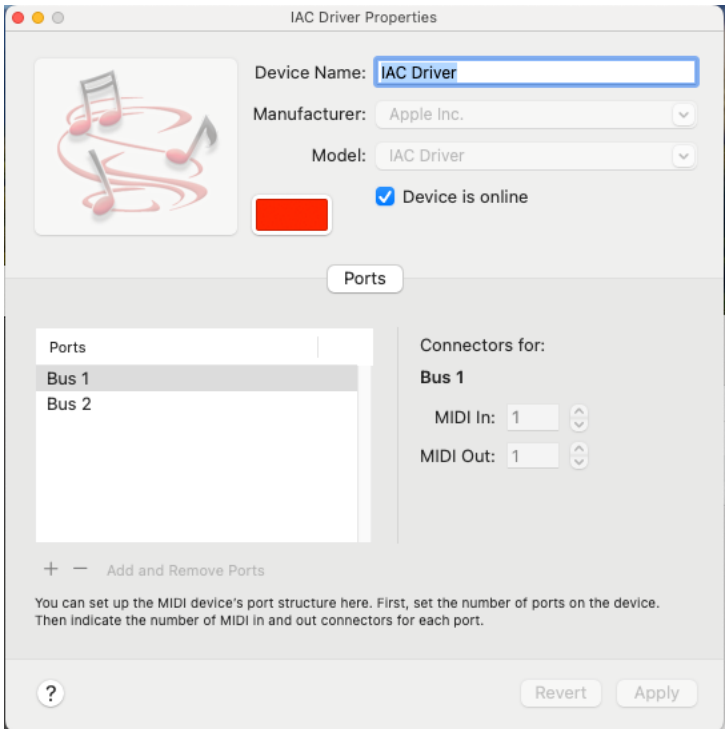
By default, a Mac is configured so as to disallow MIDI signals being communicated among applications. I assume this is to prevent accidental MIDI feedback loops that might crash the system. In any case, if one does not go through this step first, nothing that follows will work.

Open “Audio MIDI Setup”, which is found in the “Utilities” folder, which is, in turn, in the “Applications” folder. Then, in the menus, click on “Window/Show MIDI Studio”. You should then see something like this:



There will likely be at least two items in this window; a MIDI interface that is used with Hauptwerk (in my case, the MOTU micro lite) and the IAC Driver, an internal Apple device. I believe IAC stands for “inter-application communications”. It is the thing that manages MIDI communications between applications.

If you have not used this driver before, it will appear grayed-out in this window. If so, double click on it to see what is inside:



You should click the box labeled “Device is online.” This will both enable the driver and create one “Bus”. These buses are communication paths between applications on the Mac. Each can carry 16 MIDI channels – just like a MIDI cable. I have two such buses on my system – to have lots of room for expansion. If you want extra buses, just click the “+” sign.

You can now close Audio MIDI Setup and move on to the next step.

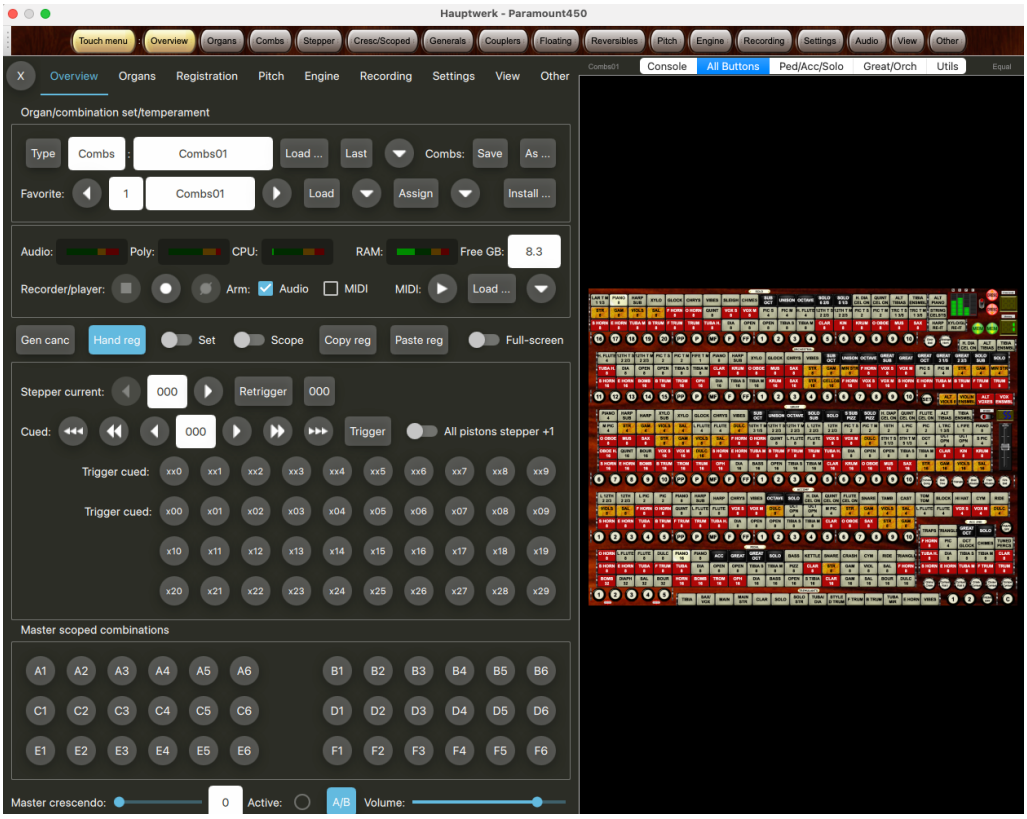
Preparing a Hauptwerk organ to send MIDI to an external software device

The method I use to do this is to sacrifice one Hauptwerk rank for each external device I want to control. Since I create my own Hauptwerk organs, this is a no-brainer. I can simply add extra ranks as needed! However, if you cannot create your own, you WILL need to sacrifice ranks. Carefully chose the ranks you want to use for this, as you will lose their regular functionality in this process.

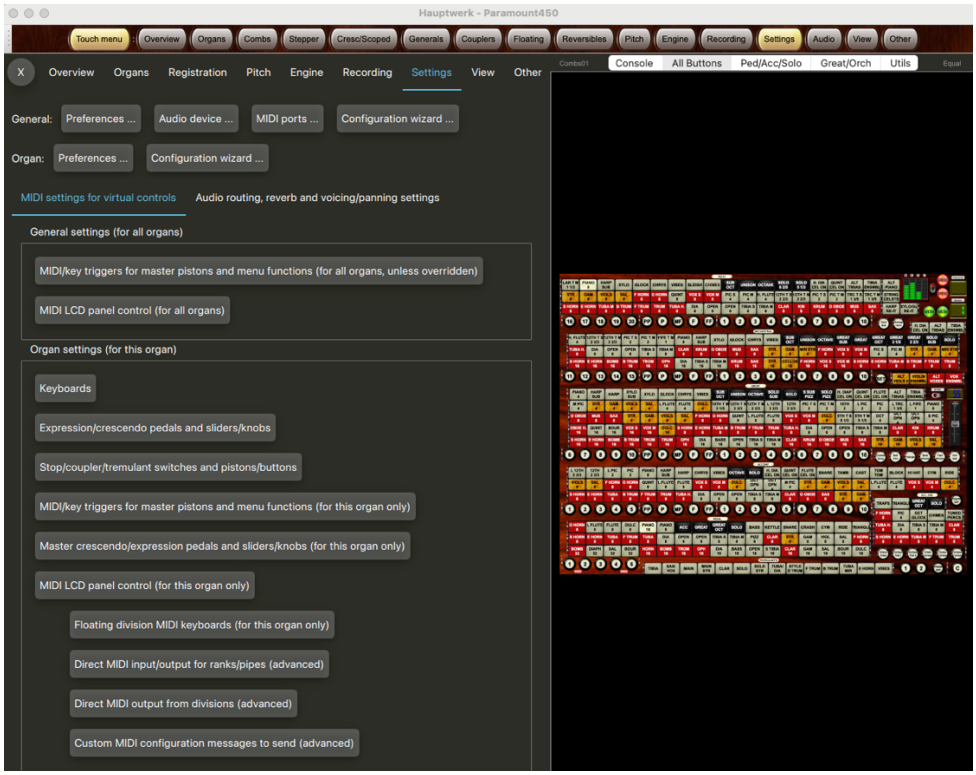
Reload the organ using “Load organ adjusting rank audio…” You will get a menu allowing you to select ranks that will not be loaded. Click your sacrificed ranks and continue loading the organ.

When the organ has loaded, your sacrificed ranks should be silent. This is critical to the process. The ranks have not completely disappeared, however. Stops controlling these ranks still appear and function normally – except that the ranks are silent.

Now, enable the touch menus so you see something like this:

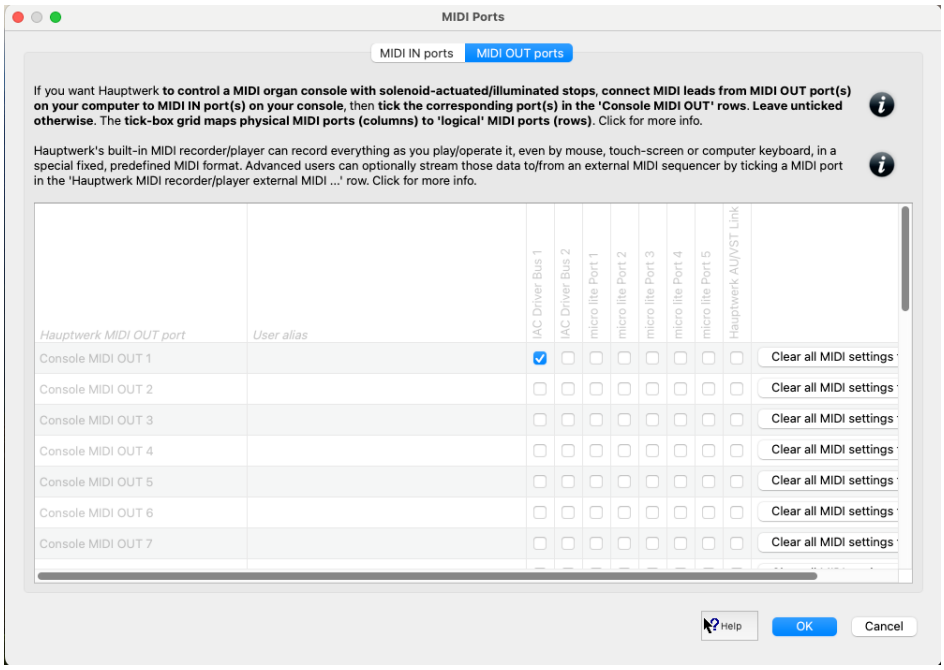


Click on “Settings” to get something like this:



You will now define MIDI paths within Hauptwerk that access the IAC buses you created on your MAC.

Click on “MIDI ports…” and then on “MIDI OUT ports” to see this:

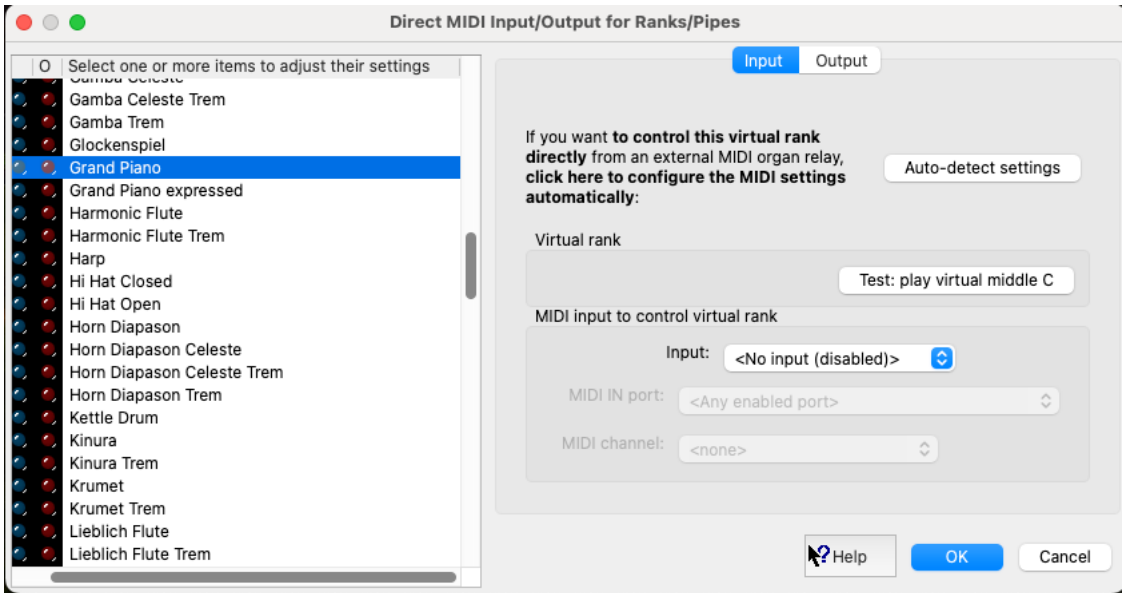


Place a check in the place indicated to associate Hauptwerk’s “Console MIDI out 1” with your IAC bus.

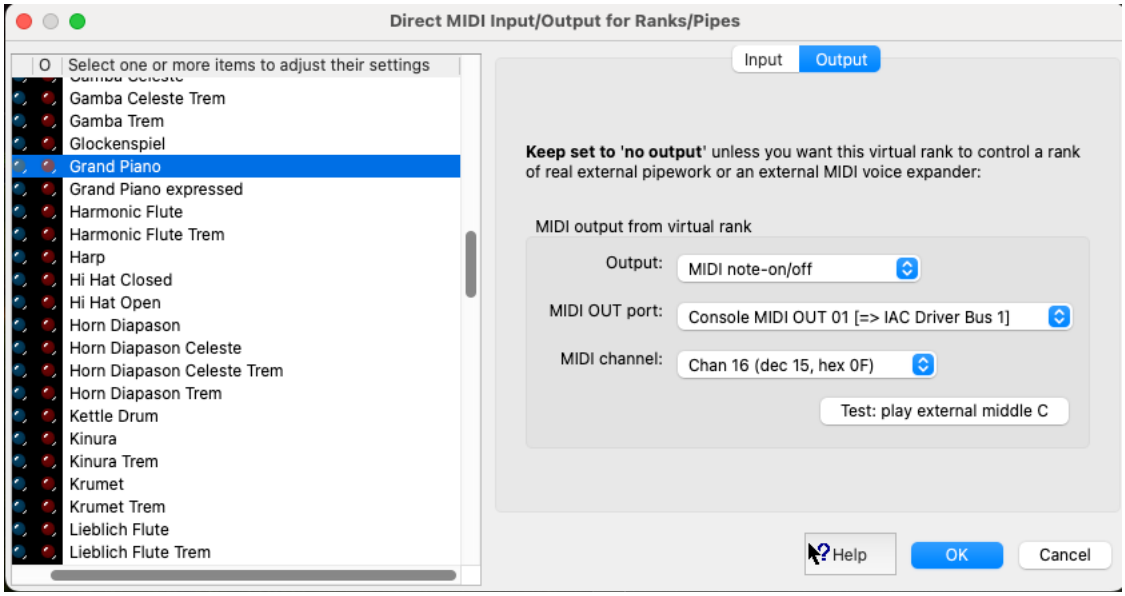
By the way, the order of these steps is critical. Each enables the following step to work – so don’t skip any.

Click “OK” so close the window and save the changes. Then click on “Direct MIDI input/output for ranks/pipes” which is toward the bottom of the “settings” window.

You will now see this:



Find each of your sacrificed ranks in the list. In my example, I chose “Grand Piano” and “Cathedral Chimes.” In this screen shot, I have selected “Grand Piano”. Now click on “Output”:



Select “MIDI note-on/off” for “Output”.

Select “Console MIDI OUT 01” (or another bus…) for “MIDI OUT port.

Finally, select a MIDI channel for your signal. I chose 16 in this example.

Click “OK” to save your data. Repeat this for each sacrificed rank. Be sure you remember the MIDI channels for each rank as you will need these data for Mainstage.

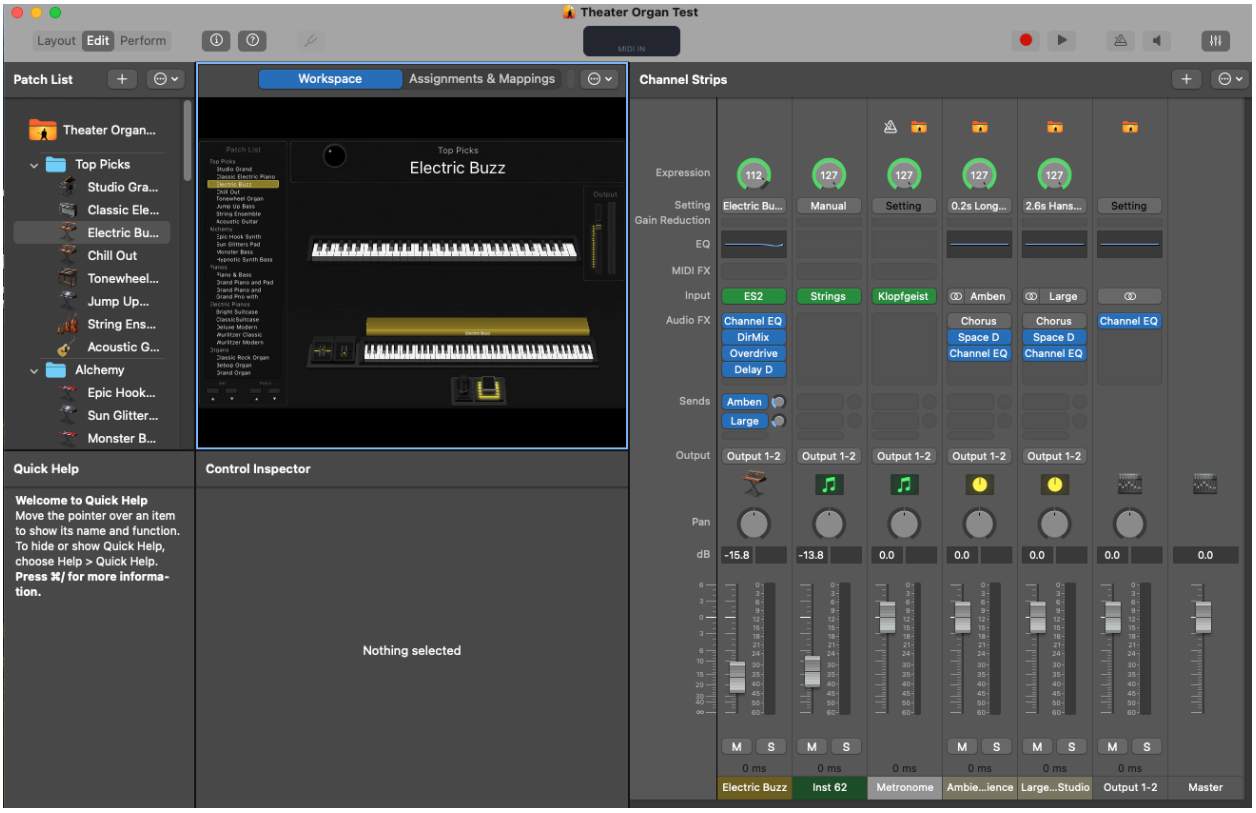
You can now close all the Hauptwerk touch menus. Hauptwerk is now configured to control external sound sources.

Configuring Mainstage to respond to Hauptwerk

Start Mainstage. Chose the keyboard option to open a new window that is appropriate. Chose a sound for your keyboard that you want to assign to one of your sacrificed ranks.

If you only need to control one sound from Hauptwerk, you can move on to assigning MIDI inputs. If not, add other keyboards to your Mainstage project as needed and assign appropriate sounds to them.

I needed two keyboards, so my project looks like this in “Edit” view:



Now switch to “Layout” view:

Select one of your keyboards. In the screen above, I have selected the upper keyboard.

Look in the “Scree Control Inspector.” Under “Hardware Input”, click on “MIDI Port” and select “Bus 1 IAC Driver” (or another bus as needed for your case.)

Select the proper MIDI channel also. In my example, I am using Channel 15 to send signals from the sacrificed “Cathedral Chimes” rank.

Switch back to “Edit” mode and it should all be working. Try selecting the stops in Hauptwerk that call on your sacrificed ranks. They should now play the Mainstage sounds you have selected.