

# THE WERSI OAS TECHNOLOGY UPGRADE PROJECT

## Part 5 – Installing and Configuring Hauptwerk

### The Hauptwerk Software

The Hauptwerk sample player is specifically designed to reproduce the sound of classical and theatre pipe organs. It produces an amazingly authentic sound by sampling each individual pipe in the organ. It models all of the physical controls and functional details of the instrument including stops, couplers, programmable combination systems, swell pedals, crescendo pedals, shutters, theatre organ second-touch, bass and melody couplers etc., and all these can be controlled in exactly the same way as the actual instrument would be controlled. Up to four touch-screen monitors can be used to access the virtual controls, and a multi-audio output system enables individual ranks of pipes to be separately amplified and fed to an array of speakers. By locating these speakers in appropriate physical positions, the sound field of the original instrument can be authentically reproduced. The software also features a built-in audio/MIDI recorder and the Advanced version offers a comprehensive pipe voicing facility.

A worldwide collection of sample sets is available, ranging from small two manual instruments to large cathedral and theatre organs. Typically these will also include the natural ambience of the recorded location to provide the most realistic reproduction of the original instrument.

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### Installing the Hauptwerk Software

A free copy of the Hauptwerk software is available as a download from the Hauptwerk web site.

For Mac systems:-

<http://www.downloadhauptwerk.com/osx>

For Windows systems:-

<http://www.downloadhauptwerk.com/win>

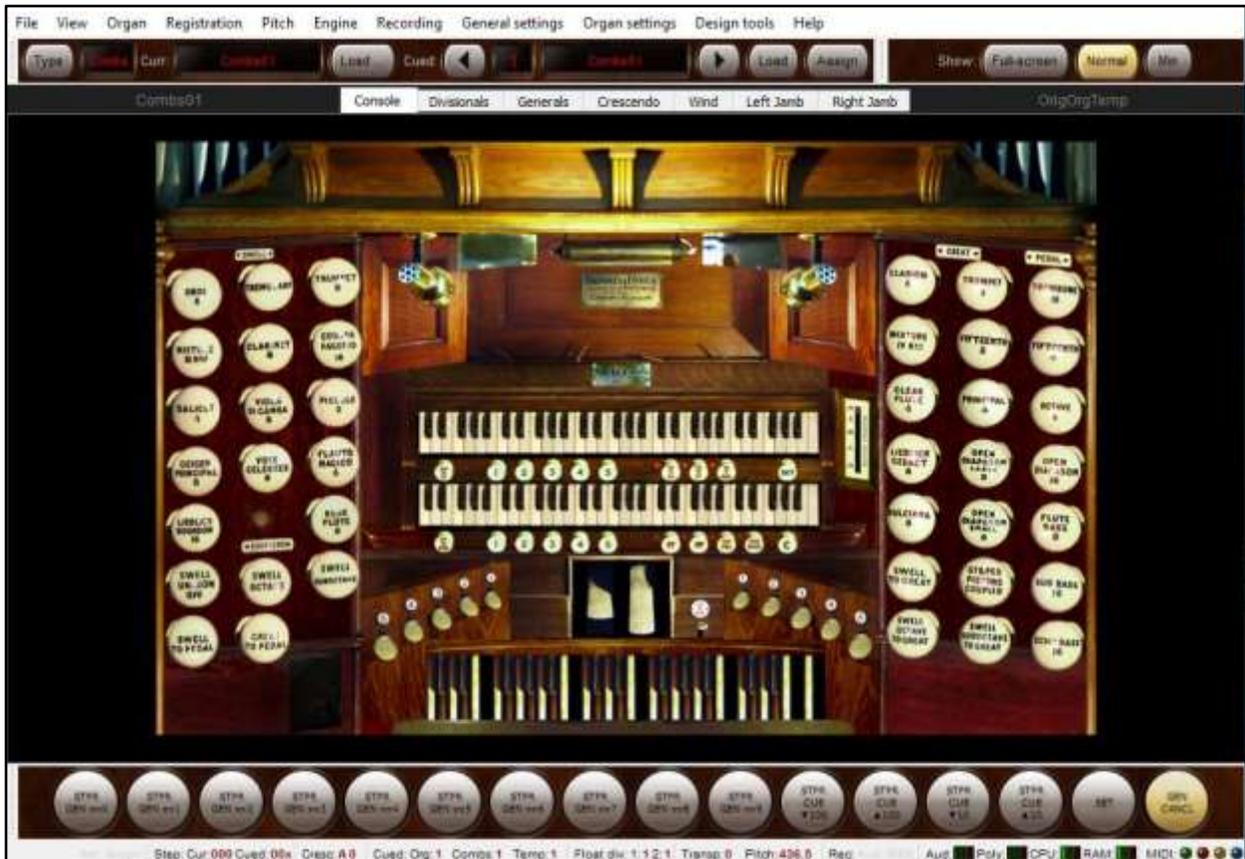
Follow the instructions provided by Hauptwerk to download and install the software.

Note that the software comes in three editions which are *Free*, *Basic* and *Advanced*. For the Basic and Advanced editions you will need to purchase a licence, so when requested make sure that you select the **Free Edition**.

When the installation is complete, a configuration wizard will assist you in defining your MIDI and audio settings. These should be picked up automatically so you can just **OK** these menus.

When requested to load an organ, select the St. Anne's Moseley instrument. Then select **OK** to accept the default sample options. You can change these later if required.

When loading is complete you will be presented with a number of windows. Close all of these (with the top left **X** icon) except the main console display as shown below.



It is recommended that at this stage you familiarise yourself with the operation of the Hauptwerk software before continuing. The user guide is available from the **Help** menu.

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### Testing Hauptwerk from the Hauptwerk Keyboards

Hauptwerk can be tested in stand-alone mode using only the virtual instrument keyboards. Use your mouse, trackpad or touchscreen to select any stop on the St. Anne's organ for the Swell (upper manual), for example the *Geigen Principal 8*, and click on any key on this manual. You should now hear the sound of this stop. Repeat this process for any stop on the Great (lower manual) and the pedalboard and verify that you can also hear the sound of the selected stop.

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### Operating Hauptwerk from the Wersi Keyboards

In Hauptwerk we require two types of external MIDI sounds, one only to enable the keyboards, pedalboard and the MIDI controllers, and a number of others to select the various stop combinations. We shall call the first type an *Enable Code* and the second a *Combination Code*.

To operate the virtual organ keyboards from the Wersi keyboards we need to load the enable code into an OAS selector on the upper manual, the lower manual and the Pedal. The easiest way to load an external MIDI sound is to select the **Quickload** option on the main OAS menu.

Now click on the **Sounds** button, select either **EXTERN 1** or **EXTERN 2** (depending on which MIDI output you are using) from the *Sound Devices* list, and choose any sound from the right hand sounds list.

Click on the **Load** button to load your selected sound into the selectors as shown below. Note that we are using Selector 2 for the upper manual enable code. This is because we are reserving Selector 1 for the combination code.



Now we need to map the keyboards, pedalboard and expression pedal of the Wersi Instrument to their equivalents on the St. Anne's organ. This is accomplished using the Hauptwerk *MIDI Learn* facility.

Right click on any key on the top manual (Swell) of the St. Anne's organ. You will be requested to select the lowest then the highest key on the Wersi upper manual. If this has been captured successfully the **Done** button will light. Click on this button and the keyboard is now mapped. You can ignore the entries for pressing keys gently and hard as these relate to touch sensitive keyboards on theatre organs, not classical instruments.

Repeat this process for the lower manual (Great) and pedalboard of the St. Anne's organ, mapping the Wersi lower manual and pedalboard respectively.

Now right click on the left hand expression pedal of the St. Anne's organ and select the *Auto-detect MIDI/Trigger settings...* option. Move the Wersi expression pedal a few times between its minimum and maximum positions. Again, if this has been captured successfully the **Done** button will light. Click on this button and the expression pedal is now mapped.

Select suitable stops on the Swell, Great and Pedalboard of the St. Anne's organ and you should now be able to play these from the Wersi keyboards.

## Setting the Combination Pistons

The individual stops and combination pistons on the virtual organ can be manipulated manually using the mouse, trackpad or touchscreen, but it is more convenient to be able to control these from the OAS Total Presets. This is implemented by placing the combination code in Selector 1 of the Wersi upper manual. This code can then be mapped to a required stop combination using the Hauptwerk MIDI learn facility. You will need a different combination code for each combination you wish to map.

It is common practice on classical pipe organs to provide combination pistons for each manual on the instrument. These are called *Divisional Combination Pistons* and they enable a group of stops and couplers to be simultaneously activated for the corresponding manual. In addition, many organs also provide *General Combination Pistons*. These enable stops and couplers to be simultaneously activated for the entire instrument. We shall use the *Master General Combination Piston* facility provided in Hauptwerk to implement this latter method as it provides more flexibility in selecting stops, and is universally applicable to all instruments regardless of their particular combination piston provision.

As before, load the enable code into Selector 2 of the upper manual, Selector 1 of the lower manual and Selector 1 of the pedalboard. Now load a combination code into the upper manual Selector 1. In the example below *Extern Midi 2-001* is the enable code and *Extern Midi 2-002* is the combination code.

The screenshot displays the Hauptwerk software interface. At the top, there are tabs for 'Main', 'Selectors', 'Acc', 'Mixer', 'Outputs', 'Effects', and 'Settings'. The 'Selectors' tab is active, showing 'Loops Off', 'Arabic Tuning', and 'Hermode Tuning'. The 'Outputs' tab shows 'Brass Section \*', 'Vibraphone 1 \*', and 'Extern Midi 2-001'. The 'Mixer' tab shows 'Acoustic Bass 2 P \*', 'Strings1 Soft \*', and 'Extern Midi 2-001'. The 'Pedal' section shows 'Split', 'Lower Manual', 'Split', 'Upper Manual', and 'LM Hold'. The 'Easy Preset' section shows 'U-109 / 11 Standard Preset' and 'Tempo Style 101 4/4 '8 Beat 1'. The 'Variation' section shows 'Var A' and 'Harmony C Transpose C'.

Setting a stop combination is implemented in two stages. First we have to programme a Master General Combination Piston in Hauptwerk, then we have to map this to our combination code.

### 1) Programming a Master General Combination Piston

Hauptwerk provides a bank of twenty Master General Combination Pistons. They offer a very flexible, general purpose mechanism for setting up any type of stop combination. They are located on the *Registration* menu as shown below.



To display this menu, select the following from the top Hauptwerk toolbar  
**View – Large Floating Control Panels (for this organ) – Registration**

The bank of Master General Combination Pistons are labelled *Master gen:* on the menu.

To set a Master General Combination Piston:-

Set up the stops and couplers that you wish to include in the combination.

Click on the **Setter** button at the bottom of the menu to activate the setter function.

Click on any **Master gen:** piston button to set the combination into that piston.

Click on the **Setter** button again to deactivate the setter function.

The combination is now programmed into your chosen Master General Combination Piston.

## 2) Mapping a Master General Combination Piston

To map a Master General Combination Piston:-

Right click on the Master General Combination Piston you have set.

Click on the *Auto-detect MIDI/Trigger settings...* option.

Deactivate then reactivate the combination code in upper manual Selector 1

Click on the **Done** button.

The Master General Combination Piston is now mapped to your combination code.

You can now save this OAS selector setup as a Total Preset. Repeat the above two stage process for any other Master General Combination Pistons you wish to set, and any Total Presets you wish to create. Remember to use a different combination code for each combination piston.

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## Virtual Instruments with two or more Keyboards

Most Wersi instruments have two keyboards whereas a number of virtual church and theatre organs available in Hauptwerk have three or more. So we need a strategy for mapping the keyboards of the Wersi onto those of the virtual instrument such that all the keyboards on the virtual instrument can be played in any combination. We would also like to replicate the vertical topology of the virtual instrument on the Wersi keyboards.

This is accomplished in two stages. First we need to configure the OAS selectors to the required topology, then we need to map these to the keyboards of the virtual instrument.

### 1) Configuring the OAS Selectors

The Wersi OAS selector configuration for a three manual theatre organ is shown below.

The screenshot displays the Hauptwerk software interface with the 'Selectors' tab active. The interface is organized into several sections:

- Top Navigation:** Main, Selectors, Acc, Mixer, Outputs, Effects, Settings.
- Selector Configuration:**
  - Loops:** Off
  - Arabic Tuning:** Tuning
  - Hermode Tuning:** Tuning
- Manuals and Keyboards:**
  - Manual 4:** Trumpet \*
  - Manual 3:** Clarinet (C1 to C6)
  - Manual 2:** Hauptwerk Keyboard
  - Manual 1:** Hauptwerk Keyboard (C1 to C6)
- Outputs:**
  - Output 4:** Hauptwerk Keyboard
  - Output 2:** Hauptwerk Keyboard
  - Output 1:** Combination 1
- Bottom Controls:** Pedal, Split, Lower Manual, Split, Upper Manual, LM Hold.
- Easy Preset:** U-301 / 31 Over The Rainbow
- Tempo Style:** 101 4/4 '8 Beat 1
- Variation:** Var A
- Harmony:** Eb Transpose C

As before, we have allocated upper manual Selector 1 for the combination code. In this example both codes have been renamed from their default external MIDI sound names.

If you wish to do this, select **Settings – Edit MIDI Sound** from the main OAS menu and use the **Save** option on the *MIDI-Sound Programming Menu* to save the sound with a different name.

The ordering of the keyboards from top to bottom on the virtual instrument is:-

SOLO

GREAT

ACCOMPANIMENT

The corresponding configuration in the OAS selectors is:-

Upper Manual Selector 3 (MIDI Channel 3) ⇒ SOLO

Upper Manual Selector 2 (MIDI Channel 2) ⇒ GREAT

Lower Manual Selector 2 (MIDI Channel 6) ⇒ GREAT

Lower Manual Selector 1 (MIDI Channel 5) ⇒ ACCOMPANIMENT

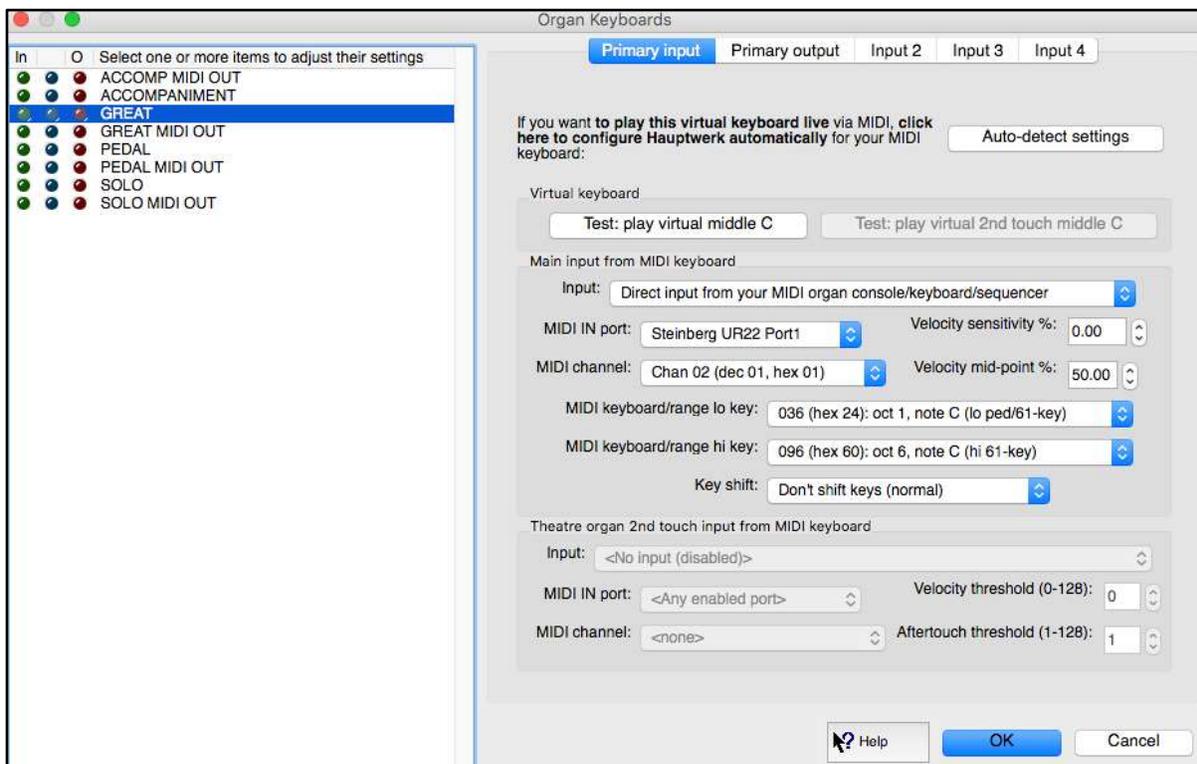
## 2) Mapping to the Virtual Instrument Keyboards

Mapping to the SOLO and ACCOMPANIMENT manuals is straightforward as they both occupy different MIDI channel numbers. Map these as normal using the Hauptwerk *MIDI Learn* facility.

Mapping to the GREAT manual is more problematic since it has to transmit data on MIDI channel 2 when activated on the upper manual and MIDI channel 6 when activated on the lower manual. To accomplish this we make use of the Hauptwerk *Inputs* feature as follows:-

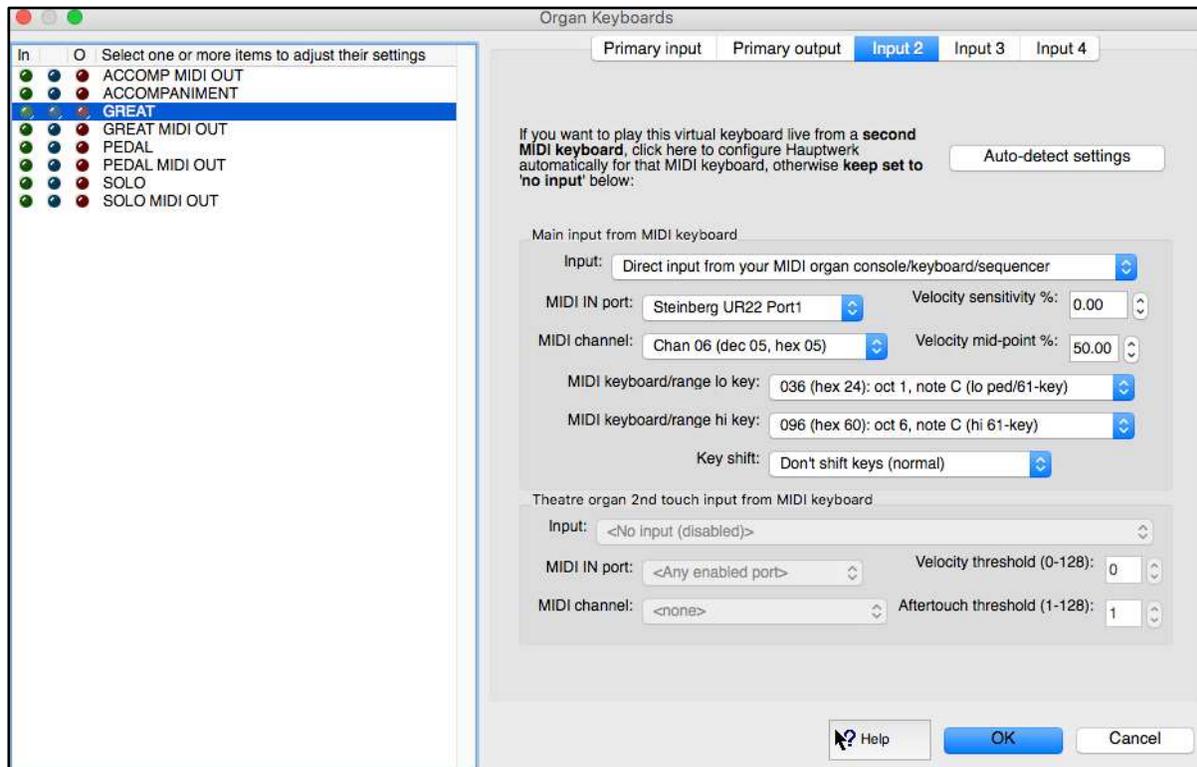
Map the upper manual Selector 2 to the GREAT manual on the virtual instrument using the Hauptwerk *MIDI Learn* facility. This will define its *Primary Input* on MIDI channel 2.

Select **Organ settings – Keyboards ...** from the top Hauptwerk toolbar to display the *Organ Keyboards* menu. Select GREAT from the keyboards list as shown below.



You will see that the *Primary input* is selected by default and, if the previous mapping of the GREAT has been successful, the *MIDI channel* entry will be set to **Chan 02 (dec 01 , hex01)**.

Now we need to use a separate input to also assign the GREAT manual to MIDI Channel 6. Select **Input 2** from the top of the menu to display the *Input 2* menu shown below.



Now whilst keeping the GREAT keyboard selected use the appropriate pull down menus to make the following changes to these entries.

**Input:** Direct input from your MIDI organ console/keyboard/sequencer  
**MIDI IN port:** Steinberg UR22 Port (or your Audio/Midi interface unit)  
**MIDI channel:** Chan 06 (dec 05, hex 05)

The menu should now be as shown above.

Select **OK** to save these settings.

You should now be able to play any combination of manuals on the virtual instrument by activating the corresponding OAS selectors.

You will also be able to use the OAS manual *Split* feature on either keyboard if you wish to assign two virtual instrument manuals to the same Wersi keyboard.

## Automatic Startup for Hauptwerk

As was the case for Kontakt, you can arrange for Hauptwerk to start automatically when the computer is booted up. The procedure is the same as that outlined for Kontakt. The startup file you need is the Hauptwerk executable file.

It's also possible to automatically load a particular organ when Hauptwerk is started.

Select **General Settings – General Preferences** from the top Hauptwerk toolbar. Locate the *Load organ when Hauptwerk starts?* entry and select **Load last-used organ**.

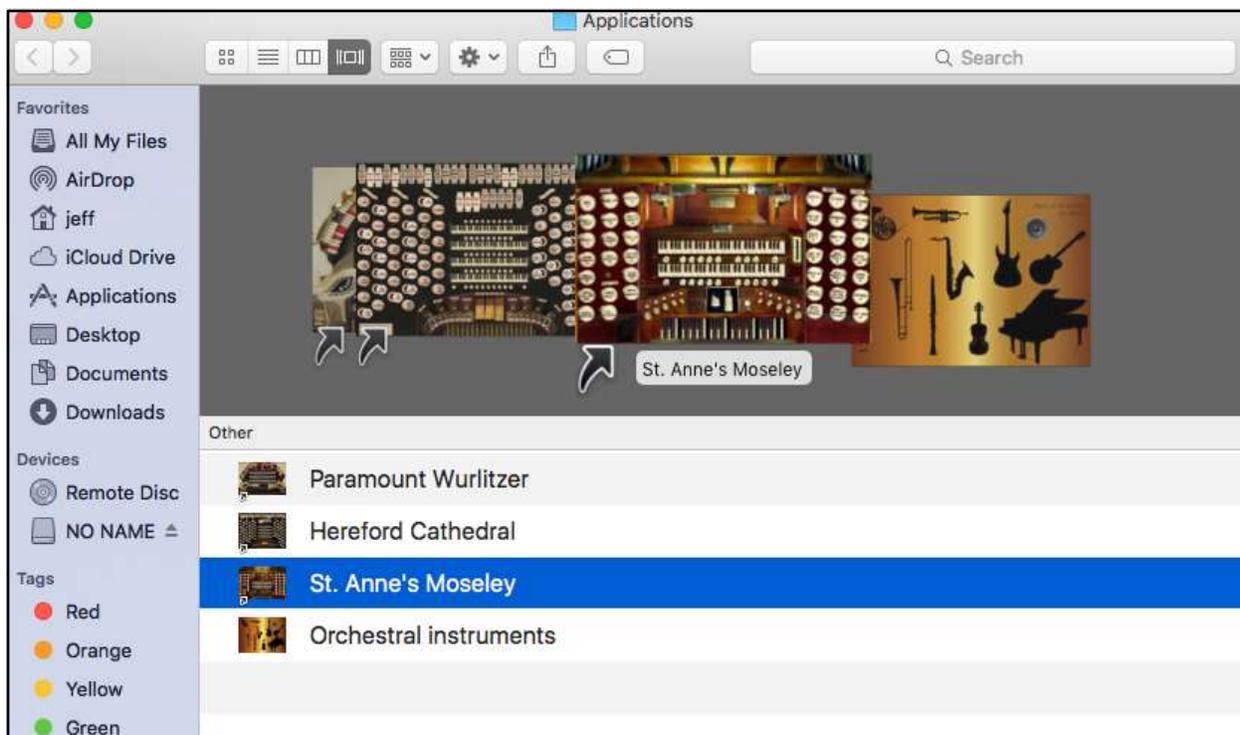
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## Further Enhancements

Having a general purpose second processor on the instrument enables a wide variety of user specified enhancements to be incorporated. Two that are particularly relevant to the upgrade project are an *Applications Menu* and a *Sheet Music Menu*.

### Applications Menu

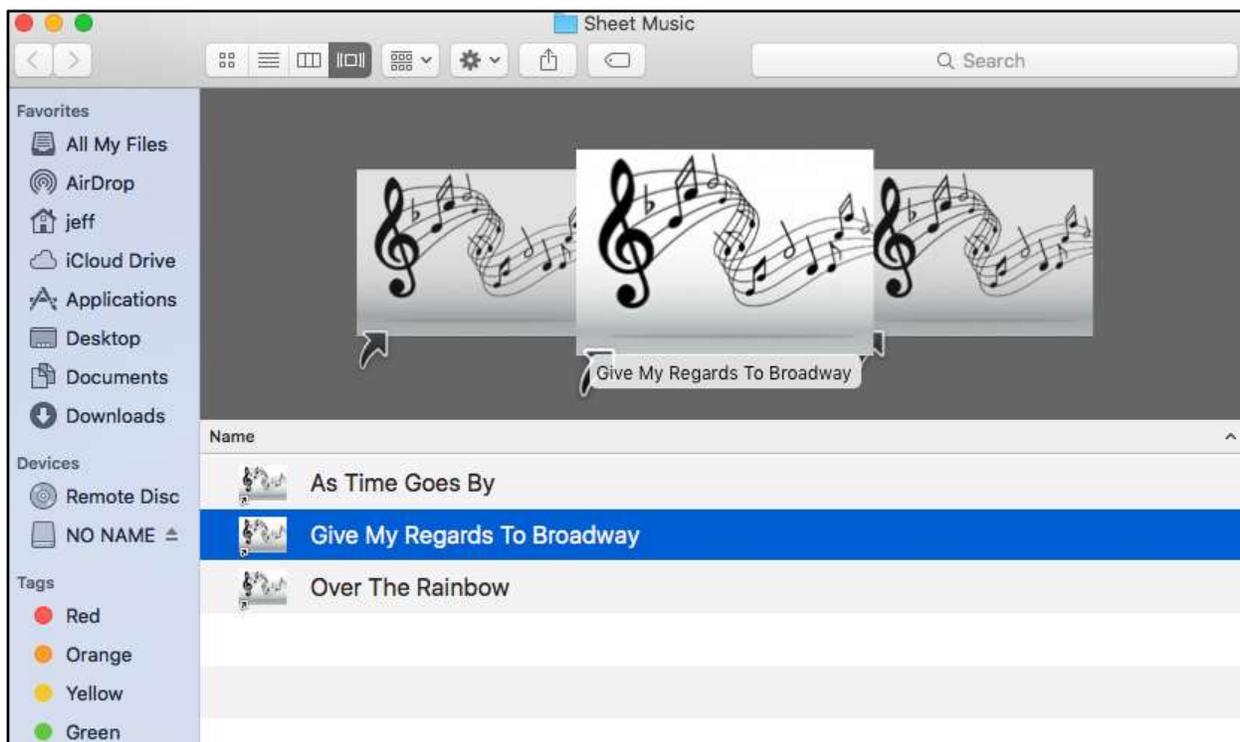
Although all software packages can be started automatically on boot up, it's also convenient to have these individually selectable from an *Applications Menu*. The operating system file manager is an easy way to implement this. Simply place the configuration and/or executable files in an appropriate folder and have this permanently displayed. On a Mac system the required folder can be added to the *Login Items* list so that this always displays on boot up. The Mac also has a facility for changing the image of a file icon and also for renaming a file as an alias. This enables more meaningful information to be displayed. The screen shot below shows how this would look for three separate Hauptwerk executable files, each with a different organ installed, and one instance of Kontakt containing all the required sound sample libraries. The latter is the Kontakt Multi file renamed as *Orchestral Instruments*.



## Sheet Music Menu

There are a variety of different ways to display sheet music electronically. The preferred method would be to display two sheets of music side by side as in the printed form, and to scroll through these horizontally. This can be achieved by constructing a set of simple web pages. Each page contains two side by side sheet music images, and these are configured as hyperlinks to the next web page. The images on the last page are hyperlinked to the first page so that continuous scrolling is possible. By simply tapping the trackpad we can quickly move from one page to the next. A *Sheet Music* menu can be constructed using the file manager. In this instance the displayed folder will contain all the HTML index pages for each of the songs on the menu. Again in the Mac system we can change the file icons and file names.

The screen shot below shows how this would look for a menu of three song items.



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## Conclusion

This completes all the information necessary to implement the upgrade project. There are many variations possible on this setup however, but I hope it will have provided you with all the ideas and inspiration you need to create your own customised instrument. For the first time ever on a Wersi organ you can have an instrument that incorporates all the features and facilities you've always wanted, uses the very latest up to date technology and produces sounds of amazing realism and quality.

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