USING jORGAN ON THE RASPBERRY Pi

INTRODUCTION

I have had great success in using the Raspberry Pi 3B+ to run jOrgan. This tutorial has been put together to help other jOrgan users do the same, using the RPi 3B+ or a later version such as the RPi 4. I hope that the most of what you need to know can be found here, even if you have to search a little to find it. If there are ambiguities or errors, or glaring omissions, please inform me so that the matters can be remedied.

My installation consists of two RPi's, each mounted on the back of an official 7" touchscreen which itself is enclosed in the Pimoroni LCD Stand. There is then a wooden housing for each, made and stained to suit the console. They have been placed to the left and to the right of the two manuals. Each RPi has a JustBoom audio card sitting on its GPIO pins. Initially only the left-hand RPi is being used to receive MIDI messages from the console encoder and to process and output the audio. The right-hand one is used to for control of the stops displayed on it, and can be used also for audio at a later date. The two RPi's are connected by wired LAN.

SETTING UP

1. I bought the supplier's microSD card with NOOBS or Raspian already installed. Things are easier if you are able to insert it before doing anything else. Its slot is located at the end of the board AWAY from the USB ports, and is actually UNDER the board. It needs to be inserted with the gold contacts facing UP.

2. The price of the official 7" touchscreen is attractive, but its small size will not suit everyone. Using two was an excellent fit to my requirements.

If using the Pimoroni mounting stand, partly assemble it, with due regard to the supplied assembly instructions, before inserting the ribbon cable in the touchscreen cable socket. The first step is to remove the protective film from both sides of the frames. As delivered, this adheres very effectively to the plastic frame, and requires quite some effort to remove it. Be careful to get Frame (2) oriented the correct way around. It looks symmetrical, but in fact is not. If wrongly oriented, it will project slightly beyond one end of the frame assembly, and this is not desirable. If my memory serves me correctly, it is better to delay fitting the locking stand plates (4) until the ribbon cable which connects the display driver board to the RPi board has been inserted in the driver board cable socket. Important instructions about this and other matters is found using this link: https://learn.pimoroni.com/rpi-display and clicking on "Getting Started etc.".

Inserting the ribbon cable can be a bit tricky. Its socket has a locking bar which firstly needs to be opened by pulling it out (not up) before inserting the cable. This can perhaps best be done using finger-nails on both hands in a simultaneous action. It needs some care. Or you may have some small, sharp tool to ease the bar out. You need to pull quite hard, but if too hard, you run the risk of pulling the bar completely out, and damaging it in the process. Insert the cable with the contact surfaces UPWARDS. When fully inserted, the surfaces are still visible for a short length. Then push the locking bar back in. You can then proceed with completing the assembly of the locking stand plates (4).

Place the RPi board on its supports and insert the screws.

Insert the ribbon cable. Its socket locking bar needs first to be pulled UP. You face the same difficulties as with the previous one. After the cable is inserted, the locking bar needs to be pushed down quite hard before it clicks into place.

Two jumper leads are supplied to get power to the screen driver board. Connect them to the pins on the touchscreen driver board and to the GPIO pins. It you are uncertain about which pins, the following description may help:

Arrange the screen/RPi (RPi on top, screen downwards) so that you are looking down on it with the GPIO pins at the right. The +5V. Pin is that at the top, closest to the corner of the board. The second pin (along the line of pins) is also +5 V., but I suggest you use the top one. The third pin is used for the Ground. Now turning to the screen driver board, there are five pins (from memory) located approximately “underneath” the GPIO pins identified as above. The +5 V. one is the first one, closest to the corner. The Ground is the last pin, furthest from the corner. The printing on the board actually identifies these two pins.

The power supply came fitted with the U.K. plug, but other plugs were supplied. How to remove the U.K. plug was initially a puzzle. The answer was to push down on the plastic “tongue”, and slide the fitting in the direction away from the RPi power lead.

3. Plug in a USB mouse and USB keyboard to use in the starting up process. After turning the power on, you should immediately see the various boot-up images appearing on the screen. If you are using the Pimoroni mounting stand, you will find that the images are upside down! Turn the screen around so that you are seeing it in a way suitable for completing the setting up process. As I went through the setting-up procedure, I chose not to insert a password, and I simply pressed ENTER. However, later on, when attempting to install jOrgan, I was asked to enter a password, and the install would not proceed until I put in a simple, memorable password and started the install agin. Putting in this password at this later point did not make my RPi expect it to be entered when booting up each time.

4. It is suggested that you update the NOOBS or Raspian software before doing anything else. Assuming you have established an internet connection, follow the instructions in the Pimoroni link above, by clicking on the Terminal icon at the top left of the Desktop and typing and entering the following:
curl http://get.pimoroni.com/uptodate | bash

The update process could take quite some time.

5. To get the screen images the right way up (which you will need to do if using the Pimoroni 7” touchscreen), follow the instructions in the Pimoroni link above:

In Terminal, type "sudo nano /boot/config.txt" (without the inverted commas)

- •Add the line "lcd_rotate=2" to the top of the file.
- (To clear a line for this, use the Enter key and the arrow keys)
- •Press CTRL and X
- •Then Y
- •Then Enter.
- •And reboot!

(I should add that at one stage I was planning to use the screen in a “vertical” orientation rather than a “horizontal” one, and although configuration details for this are provided in the above link (see below under “MISCELLANEOUS”), I was not able to get them to work at the time. It seems that at a later stage I did have success in the use of those details – indicating how unpredictable computers or their programs can be.)

INSTALLING THE jORGAN PROGRAM

On all computers, jOrgan needs Java to be installed, and on Linux computers (which includes the RPi) it also needs Fluidsynth to be installed, if you plan to use Fluidsynth as your sound engine, which is what most jOrgan users do. I suspect that Raspian (the RPi Operating System) comes with Java already there, but you should check. When I set up my organ installation, the RPi version of jOrgan 3.21 was the only one available, and it needed any version of Java within the range 7 to 10. An RPi version of jOrgan, known initially as jOrgan 4.0 Beta2, replaces all previous versions, and should be used on RPi 3B+ and RPi 4 computers. This version installs Fluidsynth Version 1 automatically. Although the jOrgan 4.0 series was created to

enable the use of Fluidsynth Version 2, the RPi version of jOrgan 4.0 is not installing Fluidsynth Version 2 until such time as the FS2 reverberation is improved.

To check whether Java is installed, and what version, go to the Terminal and enter

java -version (note the space after “java”)

To download Java, enter sudo apt-get install java

jOrgan 4.0 Beta2 can be downloaded here:

https://sourceforge.net/projects/jorgan/files/jorgan-rpi/4.0/

(Click on jorgan_4.0.Beta2_armhf.deb only.)

To install, after downloading go to the RPi Downloads folder and double-click on the jorgan_4.0.Beta2_armhf.deb file. When I first attempted this double-click on the downloaded deb file, the install process began, but it asked for a Permissions go-ahead involving a password. I have already mentioned in 3. above that it was at this point that I went to Preferences and Raspberry Pi Configuration and created a short password. The install procedure then began a download. However, the Rasbian program for RPi is continually being updated, and this download did not succeed. The solution was to update my RPi if I was to succeed in testing the deb file download. There were no problems once I had done that.

Before giving you the details, I remind you of the warning I gave above in 4.

If you have not yet updated your RPi as in 4. above (but you need to in order to complete the jOrgan installation), you can use these Terminal command lines:

sudo apt update

sudo apt dist-upgrade

sudo apt clean

sudo reboot

I advise you that the update took a lot of time – about an hour. At one point (probably early on), I was asked to give it the go-ahead.

Installing jOrgan in this fashion places the jOrgan components in two separate locations on your RPi. Here are the details, which you should record somewhere, as you may at times need to use this information:

In /usr/lib/ - the main "jorgan" folder containing the "lib" folder and the jorgan.jar file

In /home/usr/share/ - a "jorgan" folder containing a "dispositions" folder and a "skins" folder.

LAUNCHING jORGAN

The standard way to launch jOrgan is to click on the RPi Menu, then on "Sound & Video"and then on "jOrgan". There is also a command line which can be used:

java -jar /usr/lib/jorgan/jorgan.jar

(Type in, and press ENTER)

You may also notice that "Sound & Video" also lists Qsynth, which is the Graphical User Interface for Fluidsynth. Normally you will not need to access this, as the Fluidsynth parameters can all be modified using the jOrgan disposition Property View of Fluidsynth, or (as in some dispositions) the Property View of the Reverb Group.

a. Launching jOrgan from boot-up

This is necessary for people wanting to use RPi's headless (no screen), but it may be convenient for some other users as well. It can be implemented by adding two lines at the bottom of the ".profile" file. This file is located in the "pi" folder, but it is one of a number of files and folders which are "hidden". These can be revealed by pressing CTRL along with the H key, and you then have the hidden contents of the "pi" folder displayed. (I warn you that computer systems have a tendency to change configuration details over time, but the following was correct aat the time of writing.)

Open the ".profile" file with a text editor, add these two lines at the bottom, and save:

```
# launch jorgan application
java -jar /usr/lib/jorgan/jorgan.jar
```

(Be careful with the spaces). It is probably a good idea to return the "hidden" files and folders of the "pi" folder to being hidden. Simply press CTRL along with H, once more.

In future, whenever the RPi is booted up, jOrgan will be launched. You need to be aware that using this method has the effect that the desktop will not be activated,

even in the background. But this will be of no account to users who are wishing to run jOrgan on the RPi headless. In fact the desktop appears only after you exit jOrgan.

2. Launching particular jOrgan dispositions from the screen

You can launch any jOrgan disposition simply by double-clicking on its disposition file. (You need to find its diposition folder, wherever you have placed it.)
Or you can arrange jOrgan to run with a specified disposition and with Full Screen (click on View > Configuration > jOrgan > tick the box for “Open recent disposition on startup” and click on OK ; click on View > Configuration > Appearance > tick the box for Full screen Start on load” and click on OK).

ADJUSTING THE RPi SCREEN BRIGHTNESS

I found the RPi screen too bright. It is possible to reduce this by means of a Terminal command line, if you are using the latest official 7” touch screen. I have the display Version 1.1 but the earlier Version 1.0 does not allow for this adjustment of brightness. (I can’t comment on the use of other monitors.)

Here is the command line:
sudo sh -c 'echo "128" > /sys/class/backlight/rpi_backlight/brightness'

For full brightness you should use “255”. (I have seen a suggestion that “255” is actually dimmer than “200”, but I haven’t confirmed this. “128” is certainly easier on my eyes.)

Be careful when typing in the command line. There is a conflict between U.S. and U.K. keyboards. When I first typed it, it showed @128@, which of course returned an error. By using SHIFT plus the 2 key, it showed “ on the terminal, which is what I needed.

Another warning: Don’t let curiosity get the better of you, so that you try to see how small a number you can enter. It may work so well that you have extreme difficulty undoing the situation you have caused, as any further command lines you try to enter may be impossible to see! (The solution is to remove the SD card, and adjust the command line using some other computer along with a card-reader.)

USE OF THE KEYSTROKE ELEMENT

John Kuhns has created an Element for jOrgan such that if clicked on, a keystroke message is generated which may be used to perform some desired action.

You will need to use this element, when using the RPi with a touchscreen and without a keyboard or a mouse, if you have brought up the Full Screen View. Otherwise you have no way to return to the "Desktop" View in order to exit jOrgan safely. (The standard way if using a keyboard is to press the Function key "F11"; if using a mouse, to right-click anywhere on the screen and click on "Close".)

At the time this tutorial was written, it could be read about it here - http://jorgan.999862.n4.nabble.com/Keystrokes-extension-td4656444.html

and here - http://jorgan.999862.n4.nabble.com/Keystroke-addon-td4657090.html#a4657091

Here is the link to the download: https://www.dropbox.com/sh/9p7tduvwm5t2e0n/coptRtHMQb.

To use this element, you need to place the keystroke.jar file into the "lib" folder within the main "jorgan" folder of your RPi (i.e. /usr/lib/jorgan/lib/)*. You also need to add it to any jOrgan dispositions you intend to use (it will show up as an element you can add, once you click on the ADD icon - three asterisks in a triangular arrangement - using Construct Mode and the Element View). Give it the name F11 and then reference it to the Console where you want it to appear. Still in Construct Mode, look at its Properties View and add "F11" (without the quote marks) to the cell for "Keys", and press ENTER. You should bring up the Skin View and select a suitable image for the icon. You can use the Zoom function to re-size it if needed. Drag it to a suitable location on the Console. Save the disposition.

*The only way I was allowed to place it into /usr/lib/jorgan/lib/ was by means of a Terminal command line, after moving it from Downloads to the Desktop. This is what I used successfully:
cp -r /home/pi/Desktop/keystroke.jar ~ /usr/lib/jorgan/lib/

(The capital "D" in Desktop was important.)

There is one further task needed for each disposition. In Construct Mode, click on View, then on Configuration, and then on Keystroke. Click on the box which allows it, if it is not already clicked. Click on Apply and OK. Save the disposition after making these changes.

DISABLING THE BLANK SCREEN

It is a nuisance to have the screen go blank if there have been no mouse or keyboard changes after ten or twenty minutes. This can easily happen while playing the VPO. I found one solution which worked for my older RPi (until I updated it!). It involved editing the autostart file found in the LXDE-pi folder. Open the Terminal and enter

```
sudo nano /home/pi/.config/lxsession/LXDE-pi/autostart
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and then add these lines:

@xset s off
@xset -dpms
@xset s noblank

and then press CTRL X, then enter “Y” (without the quote marks)
and then ENTER.

Then type
sudo reboot

However, later versions of Raspbian have reorganised the files, and the above is not possible. Another Google search yielded the following easy result:

Make sure you have internet connection. In the Terminal, type
sudo apt-get install xscreensaver
and ENTER. This will take some time to download, and you will be asked to approve its completion.

When complete, type
sudo reboot

Go to Preferences in the Desktop Menu, click on Screensaver, and adjust the blanking delay time to something more appropriate. Then close the window. (Since doing this to my updated computer, I have noticed a screensaver pattern appearing momentarily, at all sorts of odd times, and not at all related to a period of time since any mouse changes were made. It disappears the instant the mouse is moved, or even before that, and is not a particular nuisance – just rather unexpected!)

AUDIO CONSIDERATIONS

There has been quite some criticism of the quality of the sound from the RPi audio output socket. Whether the RPi 3B+ has improved things, I do not know know, but I must say that I don’t have a problem with it. There is some hum, which actually may be due to the plug-pack power supply, and could perhaps be avoided with a higher quality supply. In any event, I had the impression that it (plus any hiss) could easily be reduced in level by having the jOrgan sound output as high as feasible along with a high setting of the RPi audio gain, and reducing the gain later in the audio chain.

Because I tend to be obsessive about the quality of the sound, I chose to buy high quality boards which sit on the RPi GPIO pins. My RPi supplier stocks the JustBoom DAC HAT, so this is the one I use. Others are available. If you are using the Pimoroni stand along with the official 7” touchscreen, this particular board presents you with a couple of problems. One is that you lose the ability to plug the two power connecting leads from the screen driver board onto the relevant GPIO pins. I dealt with this by cutting off the clips used for the GPIO pins, and soldering the leads to the relevant

places provided on the DAC HAT board. If your soldering skills are not up to this, I suggest you investigate buying from Pimoroni a “Y-splitter” power cable which they have had made up, to solve this problem. Note that once you have installed the DAC HAT, you need to go to the JustBoom website to discover the small software programming change you need to make to one of the RPi config files. I assume that this has to be done also for the other DAC HATs that are available. The second problem I noticed was that the mounting screws supplied with the JustBoom board are not compatible with the Pimoroni set-up. I improvised a solution using some small solder tags and some tinned copper wire, to ensure robust mounting of the board.

I should point out that even with the JustBoom DAC board, I can discern a low-level hum, due almost certainly to the RPi power supply, as already mentioned. This can easily be dealt with by adjusting the relevant audio gains, as already suggested.

Before going down the DAC HAT route, I did try out a good quality USB audio card, but although the sound was good, it did seem to degrade the latency to an unacceptable degree, and I lost interest. It also required a minor configuration file change. (I find that having updated my RPi, I can no longer make that particular configuration change …). However, these remarks should not be taken to rule out the use of such USB soundcards. I think it is possible they may give better latency if used along with “jack” (see the following paragraph).

Note that early in my investigations, I had JACK working on my RPi, in order to look into the possibility of using reverberation software. Note that JACK will work only if “jackd” has already been installed – see the next section.) Confining my efforts to using just the RPi audio output socket, I found that using JACK created much distortion of the sound, and I decided to investigate no further. But whatever that problem was (and it may simply have been inappropriate buffer settings), it was short-lived, because it turns out that I have subsequently been using “jack” as the Fluidsynth Properties audio driver with great success. What is more, it allows the use of an excellent Linux reverberation program, as mentioned in the next section.

To conclude this present section, I have realised from using the RPi as a desktop computer (using a larger monitor!) that if you have jOrgan installed, this can have a bad influence on the use of other audio programs unless you take steps to avoid this. I found bad break-up of the sound occurring, when using Audacity or even the VLC Media Player or watching YouTube videos, and playing files on SoundCloud proved impossible. There is no problem if the RPi is dedicated for jOrgan use only. The problem arises if you intend to use it for other audio programs such as the VLC Media Player or Audacity (which can be downloaded using “sudo apt-get install audacity” if it doesn’t appear in the Sound & Video menu), or audio/video from the Internet (and especially when listening to files on SoundCloud).

What I discovered for a RPi not dedicated to jOrgan use is that you need to give special attention to the Fluidsynth buffer and audio driver settings when you save and exit jOrgan. I found that “pulseaudio” seems to give the best combination of latency and good sound with jOrgan, along with minimal interference with the use of other programs when not using jOrgan, with buffer settings of 16/4096. I note that “jack” seemed to give the worst interference (although it is my preference if the RPi is dedicated to jOrgan use). If the latency so obtained is not altogether to your liking (if you are using “alsa” that will certainly be the case), you can improve it by reducing both those numbers (starting with reducing the 16 buffers to 12 or 8. In the case of the buffer size, you should keep to the “divide-by-two rule” - 4096 then 2048 etc.).

The advice I am giving here is that in the case of an RPi which you are using for other purposes in addition to jOrgan, you should always save the disposition when qutting jOrgan by firstly setting the Fluidsynth audio driver to “pulseaudio” with the above recommended buffer settings, even if “jack” has been your choice when using that disposition.

REVERBERATION

To satisfy most listeners and players, organ music requires the provision of good reverberation. In my opinion, the reverberation available from the Fluidsynth sound engine used in most jOrgan installations is of unacceptable quality unless set to a low level. Initially I did not explore the use of third party reverberation software for my RPi installation. Instead I began to use a Behringer Virtualizer which I already possessed but had not used for many years. It provides excellent reverberation, along with all kinds of other effects which are not of great interest to me. A similar device, cheaper but easier to use, is the TC Electronic M100 Stereo Multi-Effects Processor, which also should give a very good sound. And there are units available from other makers.

Quite some time down the track, I discovered that it was very easy to get the excellent Linux reverberation program zita-rev1 working on the RPi 3B+. A detailed description follows. However, later still, I found some Fluidsynth reverb settings which did satisfy me, and I abandoned all other reverb methods because of the great convenience of simply using the Fluidynth reverb. The settings I use are:

LEVEL	0.1 or less
ROOM	0.95 or less
DAMPING	0.26
WIDTH	1

I recommend that you that you use these as a starting point, before trying other methods. If you find satisfaction, there is little need to wade through the extensive detail which now follows:

To install zita-rev1, all you have to do is open the Terminal, type “sudo apt-get install zita-rev1” (without the quote marks), and press ENTER. You may be asked for a password.

You also need to have jackd installed. I think it may already be part of Raspian (the Raspberry Pi Operating System), but there is a simple way to check this. Open the Terminal, type “qjackctl”, and press ENTER. If the Qjackctl window appears (it is the Graphical User Interface for jackd, allowing you to control it), then it means that jackd is already installed. You should then close it, along with its Terminal window, for reasons which may become clear to you later in this section. (You may have noticed when opening Qjackctl that one line appearing in the Terminal text seemed to suggest that there was some kind of problem in opening Qjackctl, but you can ignore that.) If you found that jackd is not already installed, you can remedy that by opening the Terminal, type “sudo apt-get install jackd” and then press ENTER.

If this RPi you are using is dedicated to jOrgan use only, then the Fluidsynth Properties audio driver for each disposition you plan to use needs to be “jack” if you wish to use the zita-rev1 reverb. Once you have saved those dispositions with “jack” selected, that selection will remain each time you run jOrgan with any of them. Note that running jOrgan with one of those dispositions will have the effect of starting jackd (at least, once “jack” is selected as the Fluidsynth Properties audio driver. You should check whether it is so selected). Once that jackd is running, you can then run zita-rev1 by typing “zita-rev1” in the Terminal. It will not run unless jackd is already running.

If this RPi is a computer which you use with other audio programs, then you should not leave (i.e. close the disposition or exit jOrgan) if the audio driver is saved with the “jack” setting. For this reason, when starting each new playing session, you may need to start jackd yourself, by opening the Terminal, typing “qjackctl” and clicking on “Start”, as already described. Minimize the Qjackctl Terminal window, open a new Terminal window, type “zita-rev1” and press ENTER. The zita-rev1 control panel should now appear. At this point you can minimize it and its Terminal window. We shall discuss any control changes later.

We need to turn our attention to the Qjackctl settings. Click on Connect if the Connect window is not already showing.

You may see that there is already a connection between jOrgan-FS Sound and system. If there is no connection indicated and it is not your intention to use the zita-rev1 set-up for maximum reverberation, select jOrgan-FS Sound on the left, and System on the right. Click on Connect. (But if maximum reverb is your intention, either leave them unconnected, or disconnect them by selecting them and clicking on “Disconnect”. The latter operation will probably be queried.) Next, select zita-rev1 on

the left, and system on the right. Click on Connect. Repeat for jOrgan-FS Sound onf the left and zita-rev1 on the right. Then minimize the Connections window.

If the Qjackctl window is not showing for some reason, click on JACK in the top menu bar and if anything else also appears, move it out of the way. Click on Patchbay. You may see the connections you have already made, and you may be asked to do a snap-shot of the current connections, which you should then do. What we wish to do is to save this so that we do not have to set up the connections each time we use jackd with this particular disposition. Click on New and give it a name – perhaps indicating the disposition. Click on Activate, and then on Save (if it is not greyed out). You will be asked to specify the location for the save. My practice is to select the jorgan folder where I keep the jOrgan VPO dispositions. Minimize the Patchbay window and click on Setup.

Click on Options and then click on the box for “Activate Patchbay persistence”. You should probably be seeing the name you chose for the save. Now click on Options. If “save” is not greyed out, you should click on it. (If it is greyed out, you need to remedy that by finding some item to change briefly, and then change it back to what it was.) After doing the Save, you can now minimize whatever is still showing, and then return to the jOrgan screen and have a play.

It is possible to adjust the zita-rev1 settings. However, because there seems to be no way to save the new settings, you will have to make those adjustments each new time you use it. My suggestion is to restrict any changes to the far left-hand control (Delay) and the far right-hand one (Output control), and also the green ones (Reverberation Time Low and Mid). I have had satisfaction with maximising the Delay to “100” and the Output control to fully Wet if the jOrgan-to-System connection is in place, or to “3 O’clock” if it is not. Also, you may wish to increase the RT times from 3 seconds Low and 2 seconds Mid to perhaps 4/3, or whatever. Changes to those these controls are made with the mouse. Place the cursor over the round control, and drag the mouse cursor up or down the screen, keeping downward pressure on the mouse. The knob will not follow its movement, but the indicator line on the control knob will rotate around to where you want it to go.

When turning off the computer, you should close down the JACK items in the top menu bar (however many may be showing), and then also the zita-rev1 items, before you do anything about jOrgan. If you have any reason to return the Fluidsynth audio driver to “pulseaudio” or “alsa”, you should do this at this point, followed by a save, as you close it down. At the next use of jOrgan, you should revert to “jack” for the driver before doing anything else. The point is that you should never change the Fluidsynth audio driver from “jack” to “alsa” (or vice-versa, I suspect) if jackd is running in the system. If you do, it is likely that not only jOrgan will freeze, but so also will the RPi, and you will have no alternative but to do a “hard” shut down (by turning off the power). While this hard shut down is unlikely to do any harm, it should normally be resorted to only when necessary.

In case all this detail leaves you slightly confused, I am giving you a step-by-step list of instructions for those whose RPi use is not dedicated to jOrgan alone. It assumes that you have set up the Patchbay with the jOrgan-to-System disconnected:

1. Start jOrgan and make any changes you feel are needed to the Fluidsynth Properties audio driver and buffer settings. Do not save.
2. Open qjackctl and start jackd if it is not already running. Then open zita-rev1.
3. Change the zita-rev1 Delay Control to 100 and the Output Control to “3 o’clock” or to wherever you prefer.
4. Minimize all windows except jOrgan. Start playing.

If in the course of using jOrgan you find it necessary to save any changes you wish to retain (or if you accidentally close down jOrgan with a Save, in which case you should re-open it), make sure that you return the Fluidsynth Properties of audio driver and buffer settings to what they were when you first opened the disposition (before you made any changes), and then save that, before closing the disposition or making jOrgan to exit.

FOOTNOTE: There are other reverberation programs which you may be able to use with the Raspberry Pi, even convolution ones. The stock Linux one is jconvolver, and it certainly can be installed in the RPi if it is not already there. However, for convenient use it requires a Graphical User Interface. Jc-Gui was created for this purpose, but for some reason it seems it is no longer favoured by Linux, and may not work for the RPi anyway. I chose zita-rev1 because it is easy to set up, the sound is very good (admittedly not quite cathedral-type reverberation) and it does not make large demands on the resources of the computer.

MISCELLANEOUS

1. Losing the Views by allowing them to move too low.

If you are using the official 7” touchscreen, it is fairly easy to lose access to the optional Views (Recorder, Keyboard etc., or Views when using Construct Mode), if you accidentally allow a View which is currently being displayed to get too close to the bottom of the screen. If this happens to you, you can retrieve the lost View by changing the rotate number from 2 to 1 or 3 (see earlier in this tutorial) and doing a restart. This will rotate the screen image by 90 or 270 degrees, allowing you to move the View up (actually sideways). You may find that the mouse moves things in a direction you are not expecting, so some concentration is required. If you then restore the rotate number to 2, after a further reboot you should find that things are back to normal.

2. Use of the Configuration View.

It is outside the scope of this tutorial to discuss the actual use of jOrgan, but I shall mention the Configuration view. This allows the user to make various useful settings, such as automatically opening the disposition last used, or showing the Full Screen display when opening the disposition. You should explore other features of the View.

3. Shutting down the RPi after use.

The RPi seems to do a bit of housekeeping for 5 or 6 seconds after you shut it down using the screen. So it is probably better not to turn off the power too soon.

It is usually regarded as bad practice to turn the RPi off by by a hard shut down (turning off the power), as this could sometimes lead to corruption of the data on the SD card. Users who run the RPi headless are able to use a momentary push switch wired to the appropriate GPIO pins in order to effect a soft shut down. A Google search should soon give you the details.

In similar vein, although probably not as important, before exiting jOrgan you are asked if you want to save the disposition. If you have actually made no changes to the disposition which you wish to retain, choosing each time to click on “No” may add to the longevity of the SD card, as it avoids any unnecessary writing to it.

ACKNOWLEDGEMENTS

I wish to record my gratitude to Sven Meier, the creator of this marvellous jOrgan program, and also to those who helped me have success with the RPi: Marc-Paul Allen, Eric Apperley, Graham Goode, John Kuhns, Aaron Laws, Eric De Schrijver and Brian Sweetnam.

John Reimer July 2019
Revised July 2021

APPENDIX

A. MISCELLANEOUS DETAILS

i) Use of LAN.
My successful use of RPi for jOrgan in my situation (two RPi’s) depends on implementing the jOrgan LAN function. It needs to be explained in a separate tutorial.

ii) Moving files or folders to other locations.
This can usually be done by a normal click-and-drag method. It is also possible to do a right-click , then copy, go to the new location, do a right-click on it, and then paste. You may wish to delete it from the original location (a normal click-and-drag will usually achieve this). In some situations RPi will allow a file or folder to be moved only by means of the appropriate Terminal command line. (See USE OF THE KEYSTROKE ELEMENT above.)

iii) Use of RPi 4.
The use of RPi 3B+ with its RAM limit of 1 GB inevitably means that jOrgan dispositions with a very large soundfont may involve some difficulty. I experienced this when I tried to use many stops simultaneously on a disposition where the soundfont size was about 220 MB. Sound breakup began to occur once I exceeded a particular number stops all drawn together. I did not experience this with one where the size was 170 MB. I might add that another disposition with a very large soundfont (about 800 MB?) would not even load.

The RPi 4 obviously does not suffer from this liability. Its only drawback is that it tends to run very hot, although as jOrgan makes very few demands on the CPU, you may be able to put up with this. I installed an RPi 4 in a fanless metal case designed to get heat away from the CPU, and although it was successful in that respect, it did make the RPi a bit marginal in connecting to the WiFi. If the RPi is dedicated to jOrgan use, this will not be a problem. (I was planning to use that RPi 4 as a desktop, but having its micro SD card fail after only a few months had me returning to an RPi 3B+ instead. Thinking that heat may be a factor in that early failure, I plan to investigate the use of a USB-type boot.)