TECHNICAL NOTE

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SD8 CONSOLE

INSTALLATION OF WAVES ® OPTION

Important Note: These instructions are a guide to fitting the Waves option to an SD8. This option is normally supplied factory fitted and is not considered a user installed option. This note is for the use of factory approved technicians only. The USB key included in the kit includes these install instructions and the operation manual.

Read the instructions carefully before starting as there are several different versions of SD8 over the life of the system requiring different work to be performed. Leave yourself plenty of time to perform the upgrade

You will need to have the following tools to hand:
Pozi screwdrivers no 1 and no 2
M1.5 Hexagonal driver (Allen Key) if the computer requires an update

Before proceeding, first check the version of software and computer hardware in use.
Confirm the version of software presently running on the mixer. See master screen when the mixer is running.
If the existing mixer system is V760 (or below) and it is not intended to purchase Core 2 be aware V760 does not support current versions of Waves and the option should NOT be fitted. Contact local support for advice.

Current mixer versions support Waves only on a separate external control computer. Legacy internal Waves operation using versions up to V929 only is no longer supported by either Digico or Waves.
If new drive is required (see below) this will be set up as Core 2 and external Waves only (V987+).

Older computers hardware need to be updated for use with Waves. However this should ONLY be done if required according to the following checks. If required, additional parts will require to be ordered from the factory (if not ordered alongside the Waves installation kit)

Mixers built and supplied after Mid 2018 do NOT require the update as they are fitted with a different computer processor. For confirmation, the computers used in these do not display “power off now” on the screen at shut down. If this message is seen, it is the older processor.

All the following checks are for older computers and do not apply to later systems (see above).
Older mixers can be checked in software (in Windows Explorer and under Computer system settings).
What size is the D:\ partition? If greater than 4Gb capacity and the RAM is 1Gb, the mixer has up to date hardware and the (flash) hard drive does NOT require to be changed. If either is less, then the updated hardware must be available to be installed before proceeding.

These revised components were generally used after 2012 and so only the oldest systems will require updated hardware. If required, follow the notes the regarding changing the drive and RAM in older mixers.

Important Note: If the Hard drive is changed, any software option passwords will require to be re-authorised and time should be allowed to obtain these before the mixer is to be used.

Next check the version of engine of PCB in use
Refer to the pictures on page 4. Is the engine PCB a P16001 or PA16200?
If fitted with a P16200, the engine normally does NOT require to be removed or moved forward in order to connect the Waves IO cable, which can be installed with the engine in place.

If you are unsure about any part of the upgrade procedure, seek advice before proceeding.

You should also have available:

1) Authorisations for Waves Multirack, Superack, Waves Studio or a PC driver for recording at least, as obtained from Waves (http://www.waveslive.com/html/soundgrid-for-digico.aspx) This will be required to use the installation.
2) To fully test Waves functionality, you will also require a compatible PC to run the Waves software required, also usually a Soundgrid Server, a Waves approved 1GB Network switch and 3 CAT5e/CAT6 network cables. Details of approved switches and appropriate Cables can be found at http://www.waveslive.com/html/soundgrid-switches.aspx
3) If the drive is changed you will also require an overview screen to be available to set this up if required.

Ensure you have taken appropriate anti-static precautions

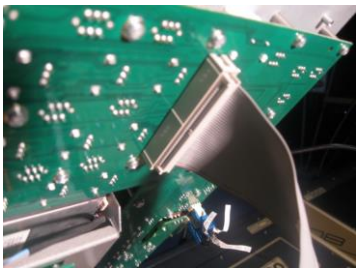
The kit includes a disposable wrist strap and heel strap. Ensure you wear both. The wrist strap should be connected to the chassis of the engine whilst you work on it, in or out of the mixer. The heel strap ensures the skin of your leg is connected to the floor and not isolated by a rubber soled shoe.

Avoid working in areas with synthetic floor coverings or carpet, especially polypropylene material, as opposed to natural materials such as solid wood or wool. Ideally work at a proper workbench with ESD safe features, such as a metal frame. Before work, try to discharge yourself into a mains earth fitment, water pipe etc.

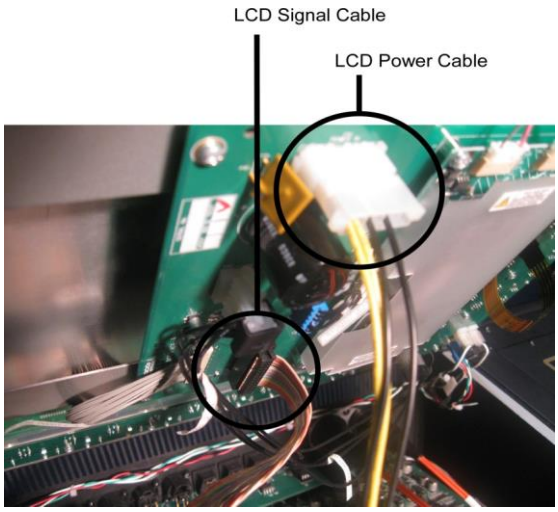
This is important as parts of this kit are static sensitive and even if any damage is not immediately obvious, so called “latent damage” can occur, where a device may be partially degraded yet continue to perform its intended function. However, the operating life of the device may be reduced dramatically, leading to premature failure.

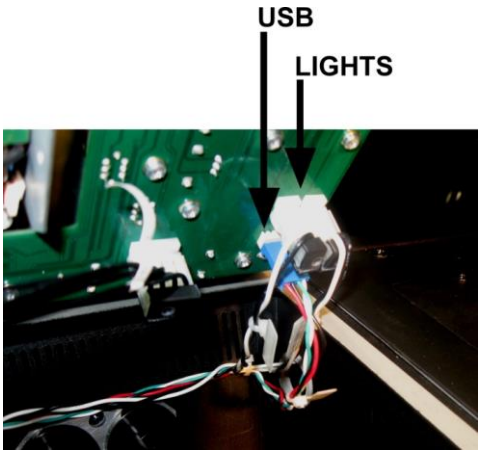
Before you start: Shut the SD8 down, switch off, and remove power leads. Remove all connections [MADI, MIDI, Audio, Keyboard and Mouse, VGA etc. if removing the engine]

Remove the 10 x M3 Screws around the Upper Master Panel (LCD Screen Panel).
Lift the Panel, and unplug the 40 way ribbon cable (shown below)



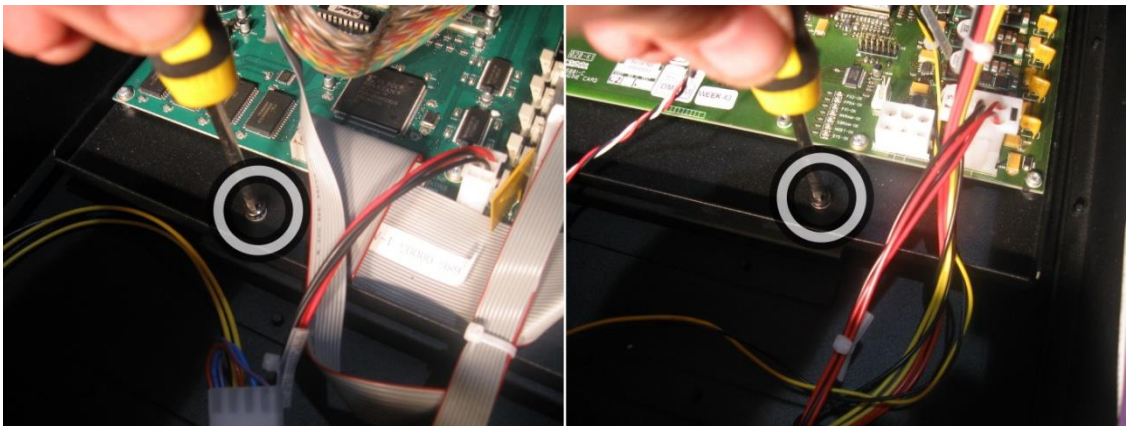
Unplug the Power and signal cables to the LCD Screen, as indicated below.
Unplug the two Littlelite Connectors, and the USB Connector, taking careful note of the location of each cable and connector. If necessary, label the connections before you remove them to aid re-installation later.



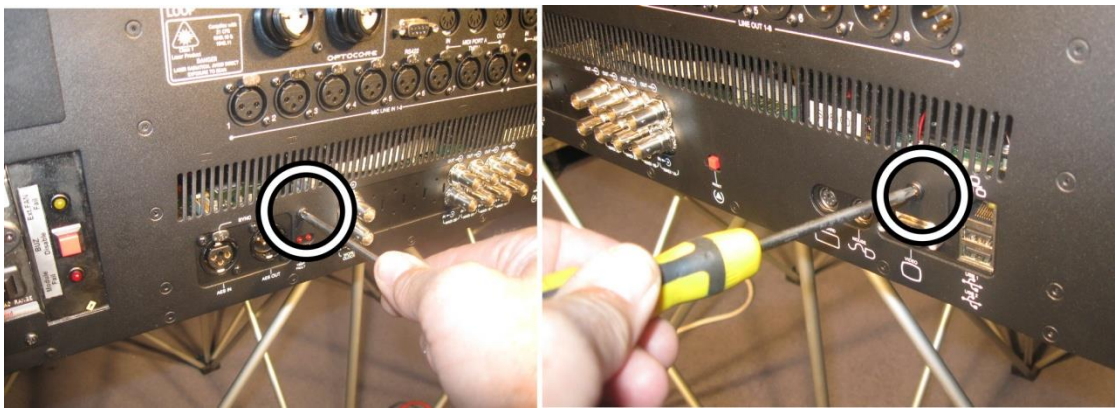


Remove the 10 x M3 Screws around the Upper Right Panel (channel and monitor/solo controls panel) to enable this to be lifted later for access.
Leave the panels in place for the time being

If it is required, the engine tray is released as follows.
Locate the two M4 screws on the internal processor tray, and remove. These screws are located at the front of the Engine / PC Tray, one each side



Locate the two M4 screws on the rear of the SD8 that secure the processor tray. These are located just above the Engine connections, one each side.

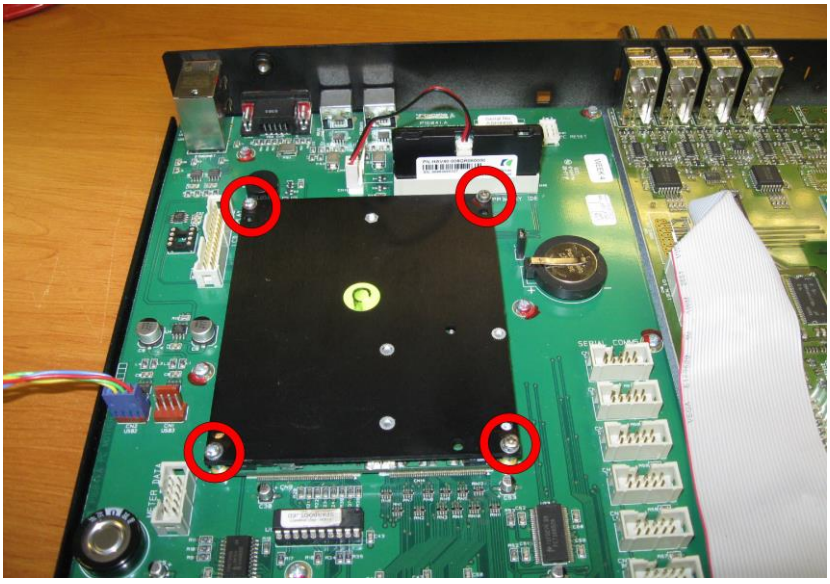


The Engine tray can now be moved forward in the console frame, labelling and disconnecting all cables as they become accessible.

If the Computer is not required to be upgraded and only the PA16001 PCB needs to be accessible, then the engine can be left in the chassis in this forward position.

If the computer requires updating then completely remove the engine tray and take this to a suitable workspace (observe ESD precautions).

Remove the four securing screws for the CPU assembly and remove CPU assembly.

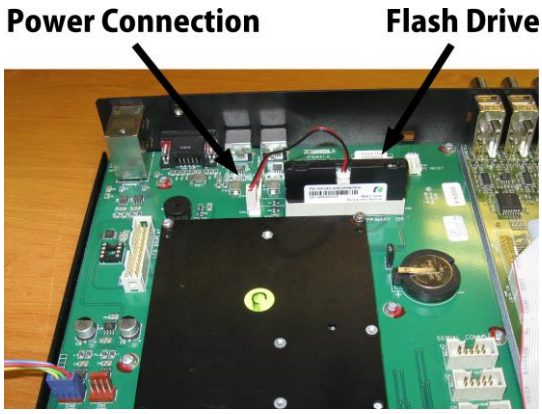


Remove the three hex drive heat sink securing screws and lift off the heatsink to expose the RAM module.

Remove the RAM module by unlatching the clips at each end of the RAM socket and replace it with the RAM supplied in the Waves kit, making sure the RAM is fully secured behind the retaining clips.

Refit fit the heatsink to the CPU assembly and then the CPU assembly to the PC main board. Replace this ensuring all 4 sockets seat correctly BEFORE using the fixing screws. Do NOT use screws to draw the CPU in.

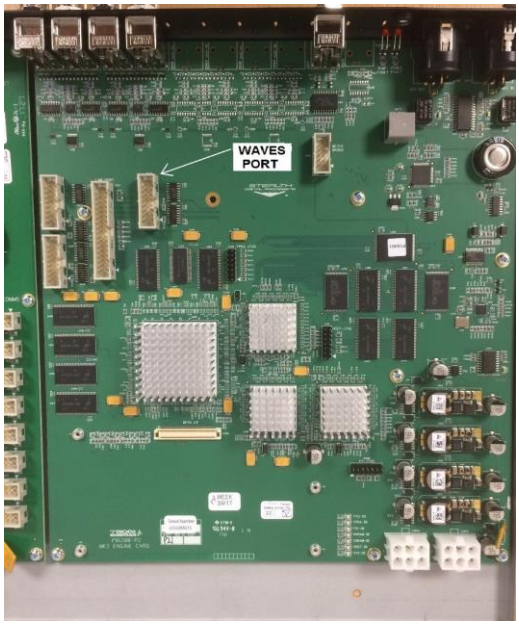
Remove the Flash drive and replace with the Flash drive supplied in the kit. The new Flash drive is supplied with a power cable. Check connector wires orientation when unplugging and refitting, as the plug may differ.



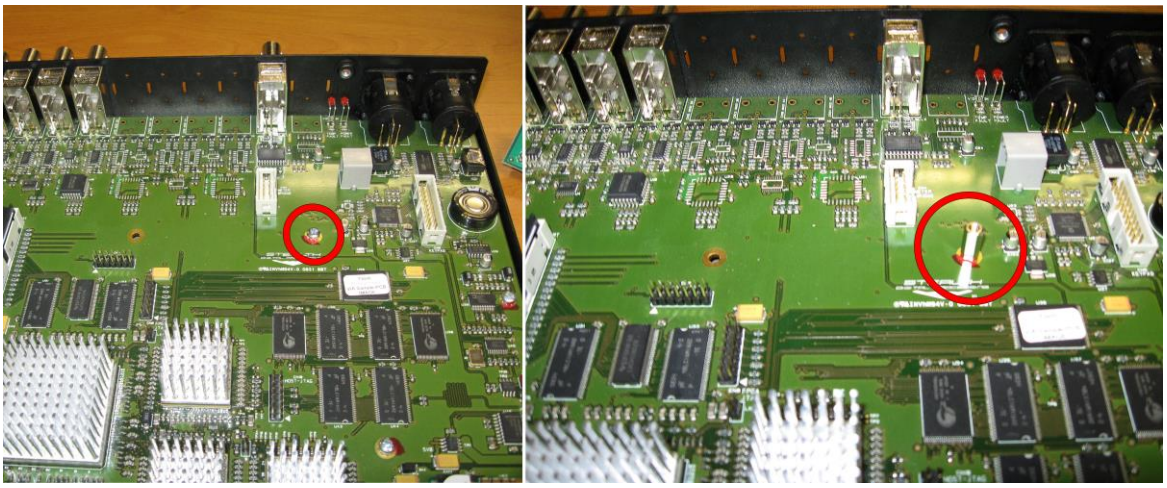
Check the engine PCB type to confirm if the Waves connector sub PCB is required to be fitted:

The additional Waves interface connector PCB is not required for (and cannot be fitted to) mixers shipped after November 2017 or others that have had the engine PCB changed since that date. These have a P16200 processor PCB with the waves interface connector built in as shown in the next picture. Older type with the P16001 require an additional sub PCB to be fitted. The PCB is clearly marked with the type number.

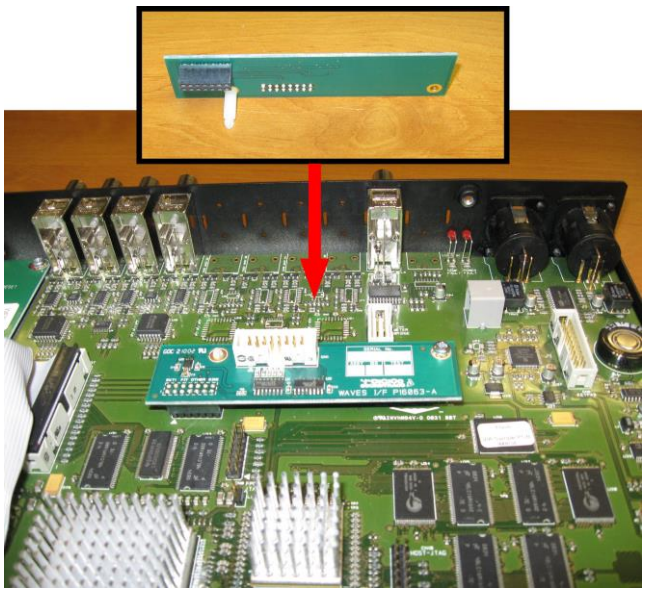
P16200 shown does not Require the sub PCB to be fitted.



For earlier mixers refer to following fitting notes. As above, this may not require the whole engine to be removed but is shown removed for clarity.
Remove the screw indicated and replace with the threaded pillar supplied in the Kit



Fit the nylon mounting post to the Waves interface PCB and then the PCB to the FPGA board and secure to the threaded pillar using the M3x6 screw provided.

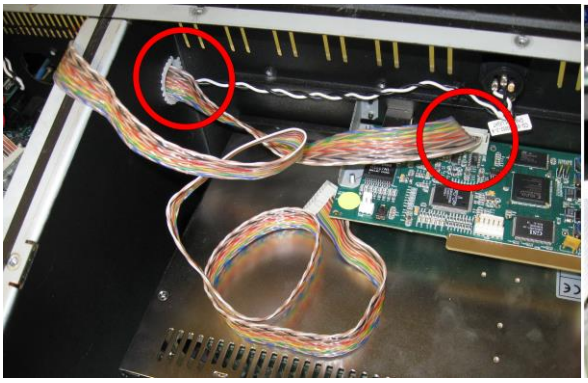
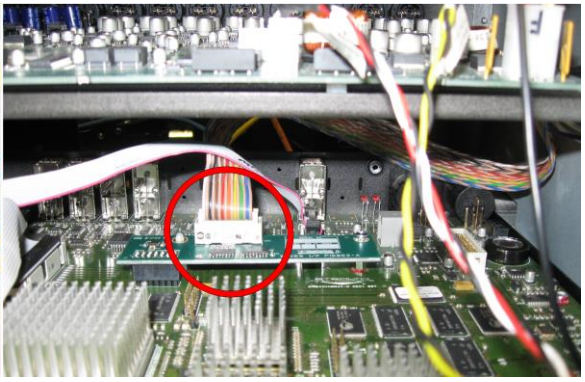


Remove the blanking plate fitted above the console power supplies on the rear of the console.
Fit the Waves module in the opening.

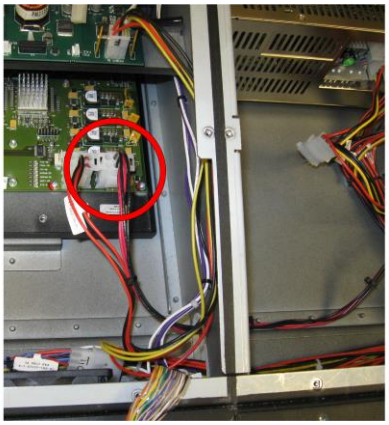
Lift the upper right control panel for access to the newly fitted Waves module.

Connect the multi colored ribbon cable to the Waves IO PCB thread it through the hole as shown in the picture between centre and right sections of the mixer. .

Re-install the engine tray into the console, connecting the Waves interface ribbon cable in the process either directly or to sub PCB (if fitted). Note, the meter data cable plugs into the connector on the FPGA board labeled “Meter Bridge” and not the PC connector labelled “Meter Data”

Fit the power connector loom from the kit to the spare connector of the FPGA PCB, thread this through the adjacent hole in the frame and connect to the Waves board.


Continue to re assemble the console and install the surface panels.

THE FOLLOWING SOFTWARE ADJUSTMENTS ARE REQUIRED ONLY IF THE DRIVE HAS BEEN CHANGED

Set Date and Time
Connect an Overview VGA monitor and the console keyboard and switch on the console. It will boot from the new Flash Drive and will stop in Windows.

Double click the time (clock) in the Windows Task Bar to open the ***Date and Time*** Control Panel. Set the correct Date and Time. Check that Internet Time Synchronisation is disabled.
Close the Panel.

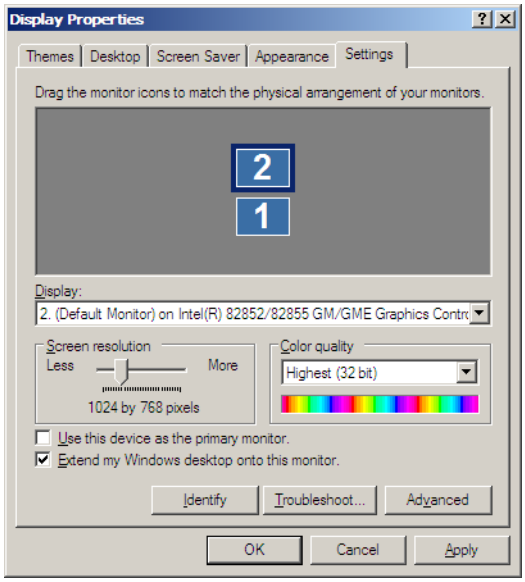
Disable Write Caching
Right Click on the Start Button and choose Explore.

Right Click on the C Drive ***OS(C:)*** and choose Properties.
Select the Hardware Tab, and press the Properties Button
In the window that opens, select the Policies Tab, and ensure that the “Enable write caching on the disk” option is ***not*** ticked. If the option is greyed out (even if ticked) then leave it as it is.
Press OK to close the window and confirm the changes.

You will now have to restart the console. When it restarts, it will stop in Windows.

Set Display Properties
To check and adjust the arrangement of the Overview screen, right-click on the desktop and select Properties (the last menu item).

In the window that opens, select the Settings tab. You should then ensure that the two screens are arranged vertically, as shown below. To adjust the positioning, pick up the 2nd screen box, and drag into position above screen 1.



Click Apply, then OK to close this Display Properties Window.

Update Console Firmware
If the new drive runs a version newer than that which was installed be the associated firmware may require to be updated to match.

Please note that in the unlikely event that any of the serial devices (worksurfaces and local I/O) fail to update correctly, you may be required to reprogram them using an ICD2 programmer. Please consult your local DiGiCo distributor for more information.

Right-Click on the Start Menu, and choose “Explore”.
In Explorer, navigate to D:\SD8\UpdateHardware.exe and run the UpdateHardware.exe application.

For each device, you will see the current running version in the “running” column, with the new version in the “available” column.

Perform each update in the following order, and wait for the green tick to disappear indicating that each update has finished before continuing with the next one:

Host
FPGA
Effects
Device 0 (SD8 Centre).
Device 1 (SD8 Right).
Device 2 (SD8 Left).
Device 3 (SD8 Local IO)

NOTE : If you are updating an SD8-24 Console, there will be no Device 2 (SD8 Left) to update.

Do not update any codes not listed in the update hardware program above.
Do not attempt to update Rack code.

Close UpdateHardware.

Enable Ready On

Shut down and power cycle the console – it will stop at the Windows desktop.

Right-Click on the Start Menu, and choose “Explore”.
Navigate to C:\Program Files\Ardence\ReadyOn, and then run ReadyOn.exe

Close any Explorer windows that are open behind the ReadyOn window, so that the only window open on the screen is the ReadyOn window.

Press the Flush Button.

In the “Command or Application to run at ReadyOn Boot” box, type the following ***D:\SD8\SD8.exe***

Press the Image Button. The screen should show the System Hibernating.

NOTE: If there is an error message at this point, OK the error, close the Ready On program and restart the console using the Windows Start button menu. The console will restart and then halt at the Windows desktop. Now repeat the above procedure.

Once complete, power the console off and then back on.
Confirm the mixer program launches at start up.

SOFTWARE SETUP NOTES

Enable Waves in the Console options page and restart.

The Waves IO port will appear as an option and can be added in the audio IO page.
The option will also activate external Waves control integration features allowing the Waves system to synchronize features such as snapshot firing and the session load and save, via Ethernet.

Connect both the Waves port and the console network port to the Waves compatible network switch.

Ensure the Waves computer is on the current version compatible with the mixer version installed on the mixer. Refer to your Waves Central account to download and install this, following instructions included from Waves.

The Waves port will appear as “Digico IO” in the Waves inventory. Refer to Waves instructions for the relevant Waves software for operation of the integration features.

If required the PC waves audio only driver can be downloaded from Wave Central once an account has been created. This can be created at no initial cost by using the serial number on the Waves licence card included in the kit.

For all further information on the operation of the Waves software please refer to Waves Support