dCS Rossini 2.0 firmware update

dCS is pleased to announce that we have applied the technology developed for Vivaldi 2.0 to our Rossini platform and, like Vivaldi, this performance upgrade is available through a simple firmware update. As with Vivaldi 2.0 this update to Rossini brings significant gains in terms of sonic and measured performance.

Rossini 2.0 includes the following:
- Updated RingDAC mapping algorithm based on the Vivaldi 2.0. This includes user-selectable mapping optimizations to allow for further tailoring of the sonic character of the DAC.
- Addition of a DSDx2 upsampling option adapted from Vivaldi 2.0 and Vivaldi One.
- Addition of DSD Filter 5 from Vivaldi 2.0
- Improved handling of MQA transitions to eliminate dropouts
- New time display modes for Rossini Player
- Support for app control of a connected Rossini Transport (requires update to the dCS Rossini app via the App Store)

We are very pleased with the performance increase that this update has brought to the Rossini platform and are excited to share these gains with all of our customers who have invested in Rossini.

Rossini 2.0 will be available for installation on Wednesday, 2nd January 2019 at 10:00AM GMT. Please contact your dealers and customers to ensure that they are aware of the update availability and that they have the information needed to perform the update. There will be an associated update to the dCS Rossini app available through the App Store. Updated manuals will soon be available from the support section of the dCS website and customers are encouraged to reference these for information on the new features.

Network firmware 406
Along with the Rossini 2.0 update we are releasing an update to our network firmware for Rossini, Vivaldi, and Vivaldi One devices. This release includes a complete re-write of our Roon Ready implementation and brings with it a number of performance and stability improvements. Please see the attached release notes for additional information on the contents of this update. Note that this version of the network firmware will not be immediately available for Network Bridge customers as we are finalizing an update to the FPGA on that device. Network Bridge customers should expect an update for their devices in early 2019.

Update Information
Rossini 2.0 and network firmware 406 will be distributed as an online update via the internet. The process can be initiated from within the dCS app with the following steps:
1) From the main screen of the dCS app tap on the wrench or gear icon in the upper right corner.
2) Tap on the 'Information' button
3) Tap on 'Version'
4) Tap on 'Check for Updates'
5) The user will be prompted to download and install the update.

For Rossini the process will take approximately 15 – 20 minutes and once complete the front panel will display 'PLEASE RESTART'. At this time the device should be power-cycled using the rear panel switch.

dCS Network Firmware Release Notes

dCS products run multiple software components in order to process network streams, apply DSP, and convert them to analog. These notes are specific to the *network firmware* which is common to all of our network-enabled products. This software is responsible for network streaming via UPnP, Roon, Tidal, Spotify, and Airplay; Playback of locally-attached USB flash drives; App control; and MQA decoding.

The *dCS* Digital Processing Platform (including digital to analogue conversion, digital signal processing, input selection, device control, front panel display, front panel buttons, and remote control functions) is part of the *FPGA firmware* which is unique to each device. This software is released separately along with its own release notes.

Unless otherwise noted the features, enhancements, bug fixes, and known issues in this document apply to all *dCS* products on which this software is loaded. For more information please contact your *dCS* dealer or distributor. You are also invited to contact *dCS* directly using the contact details found on our website: https://www.dcsltd.co.uk

These notes apply to the following software versions:

Network Firmware:	406
Vivaldi App:	1.4.9
Rossini App:	1.4.9*
Bartók App:	1.4.9*
Network Bridge App:	1.4.8

* New app release associated with this firmware update.

*Please note that **this firmware will not be available for the dCS Network Bridge** as it's pending an update to the FPGA firmware on that device. We expect to release for the Network Bridge mid-January, 2019.*

1   New Features and Enhancements

- Completely re-written Roon Ready module using independent signal path (see Usage Notes, section 4)
- Finalized support for Bartók DAC and Bartók Headphone DAC
- Finalized support for Rossini SACD Transport control
- Finalized support of Rossini 2.0 new features
- Updated Roon Ready software to version 1.1.32
- Implemented new MQA signaling logic to eliminate dropouts during Roon playback with Bartók and Rossini 2.0
- When using a Vivaldi Upsampler and DAC in Universal Master Mode a resync delay is no longer required in Roon's audio device setup

2 Bug Fixes

- Corrected several long-standing UI issues with Roon metadata display on device front panel and in *dCS* app
- Roon signal path now properly reflects device output in use (digital output, analog output, headphone output)
- Roon grouped playback no longer exhibits issues with playback starting out of sync
- Roon grouped playback properly accounts for DAC buffer setting
- Added device, configuration, and sample-rate specific playback start delays to ensure track starts are not cutoff with Roon playback.
- Refined messaging between network card and DAC to reduce track transition times (especially with MQA content)
- Front panel display of *dCS* device reflects the proper state when Roon queue is played through to the end or Roon playback is stopped (long-press of pause button)
- Network firmware version along with FPGA version are now properly displayed in Roon
- Device recovers properly after a crash of the Roon module
- Proper state is reported back to Roon core when device put into standby
- Changed text associated with Factory Reset option in the embedded web interface to avoid confusion with front panel Factory Reset option
- Various patches, minor fixes, and housekeeping

3 Known Issues

- *dCS* app does not remember position in long lists when browsing back to list
- *dCS* app does not always reconnect to device automatically on resume
- MQA content does not playback gaplessly via UPnP or native Tidal
- Some flac files played back via UPnP or local USB experience a delayed start
- Some MQA files (especially MQA CD rips) are not recognized as MQA when played via UPnP or locally-attached USB storage
- Various Airplay issues: Distortion on some tracks, erratic behavior with YouTube, etc

4 Usage Notes

This release contains new functionality that is not yet documented in the product owner's manual. Until the manuals are updated the usage notes below serve as documentation for these additional features.

4.1 New Roon Ready module information

This release is centered around a completely re-written Roon implementation to correct long-standing issues with the prior version. Usage of this module should require no changes on the part of the user and Roon will continue to function normally with your *dCS* device. The new software brings a number of enhancements with the most notable being:

- Greatly enhanced stability during playback and track transitions
- Shorter overall signal path within the network software which results in reduced command latency and better overall performance
- The use of a resync delay in Roon is no longer required to address stability or track start cutoff issues
  - *Note that Network Bridge may still require a delay depending on the characteristics of the attached DAC*
- Roon's grouped playback functions now work correctly with *dCS* devices (pending an update to Roon's server software)
- Some device-specific parameters (buffer setting, clocking setup, etc) are now taken into account to improve the overall experience with Roon

4.2 Roon-specific update and configuration information

For most users this software will require no additional configuration within Roon, but there are some caveats to be aware of.

- **Update note:** In some cases the Roon module may not come online automatically immediately after the update. It is recommended that you power-cycle your *dCS* device after the network firmware update.

- **Vivaldi DAC and Upsampler:** This module makes a number of configuration decisions based upon knowing the status of certain parameters on the Vivaldi DAC. If you are using a Vivaldi DAC and Upsampler together it is imperative that the supplied RS232 cable be properly connected between the two. You can check to be certain that the communication link is established by checking Roon's Audio Settings page:

  - If your Vivaldi is shown as a *dCS Vivaldi System* then the link is properly established.
  - If your Vivaldi is shown as a *dCS Vivaldi Upsampler* then you should check the connection of the RS232 cable and power-cycle your Upsampler using the rear panel switch.

- **Resync delay:** If you are currently using a resync delay in Roon it is recommended that you set this value to zero with the new module. Having the delay in place should no longer be necessary and will only serve to lengthen track transitions.

- **Grouped playback:** The Roon module takes into account certain configuration settings during grouped playback to ensure that zones play in sync. Due to the number of configuration permutations with Vivaldi Upsampler and Vivaldi DAC it's not possible to take every possible setting into account, especially when playing a mixed rate / format queue. For

the purpose of Roon's grouped playback *dCS* officially supports the following configuration with the Vivaldi separates:

- o Upsampler output setting: **DXD**
- o Upsampler DXD lock: **Enabled**
- o Upsampler DSD pass-through: **Enabled**
- o DAC Buffer: **Enabled** or **Disabled**

These are the settings for which the zone synchronization parameters were established and represent very common configuration settings. **Usage of DSD and DSDx2 upsampling is supported, but only with the DAC's buffer disabled**. If you typically use DSD or DSDx2 upsampling and wish to use Roon's grouped playback feature, then you should either switch to DXD output for the grouped playback session or disable the buffer in the Vivaldi DAC.

PLEASE NOTE: At the time of this release grouped playback functionality is dependent on an unreleased update to the Roon Server software. Grouped playback may not function correctly until the next release of Roon.

- **Roon's signal path:** You may notice the following changes to information displayed in Roon's signal path:

  - o The output will now correctly reflect the configuration of the *dCS* device
    - ▪ **Bartók DAC, Rossini and Vivaldi One** will show **Analog Output**
    - ▪ **Bartók Headphone DAC** will show either **Analog Output** or **Headphones** depending on the output in use
    - ▪ **Network Bridge** will show **Digital Output**
    - ▪ **Vivaldi Upsampler** will show **Digital Output**
    - ▪ **Vivaldi System** (with Vivaldi DAC connected via RS232) will show **Analog Output**

  - o When playing DSD content an additional processing step of "Encapsulation: DSD over PCM (DoP)" will be shown. This is not a change in behavior as our network interface has always used DoP to deliver DSD bitstreams to the DAC.

Once complete the Rossini should be reporting the following software versions:
- Main Board: 2.00
- Network Board: 406