dCS Network Firmware Release Notes

Network Firmware Version: 398

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:	398
Vivaldi App:	1.4.9
Rossini App:	1.4.8
Network Bridge App:	1.4.8

Please note that there are no updates to the apps with this network firmware release.

1   New Features and Enhancements

- Added initial support for Bartók DAC and Bartók Headphone DAC
- Added support for Rossini SACD Transport control (feature will be activated with pending release of Rossini FPGA firmware)
- Added support for future enhancements to Rossini DAC and Player
- Updated Roon Ready software to version 1.1.31
- Updated Roon so *dCS* devices properly advertise MQA support (Usage notes 4.1).
- Roon signal path now shows the MQA processing taking place within the *dCS* device (Usage notes 4.1)
- Vivaldi Upsampler now shows in Roon as '*dCS* Vivaldi System' when paired with a Vivaldi DAC (Usage notes 4.1)
- Updated MQA decoder library
- Updated Spotify Connect library
- Added a factory reset option to enable reset of the network card (usage notes 4.2)
- Added the ability to override DNS servers while using DHCP (usage notes 4.3)

2 Bug Fixes

- Fixed track metadata error on front panel display for Roon
- Corrected several issues which would lead to playback failure in Roon when transitioning between formats and sample rates (PCM/DSD/MQA)
- MQA streams from Roon where the Roon core is acting as the MQA decoder are now recognized correctly. Full fix pending FPGA update for Rossini and Vivaldi One (see known issues below).
- Improved playback synchronization when dCS devices are grouped with other Roon endpoints.
- Improved source selection logic between Roon and other streaming sources
- Corrected error where devices would advertise 32 bit support in Roon
- Corrected error where Roon playback start would fail due to device timeout
- Corrected error where Roon pipeline would not be set to the 'Stopped' state when stream closed
- Improved error handling related to the Roon module crashing
- Fixed incorrect device name being sent to DHCP server
- 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
- (Rossini) A momentary audio dropout is experienced at the start of some MQA tracks. This will be corrected in an upcoming FPGA update.
- (Vivaldi Upsampler) When the Vivaldi DAC and Upsampler are paired without a Vivaldi Master Clock (i.e. using Vivaldi's Universal Master Mode) and Roon is used for playback then a resync delay must be set in Roon in order to avoid track start cutoff and playback stability issues. The recommended base setting is 6000ms and this can be adjusted up or down depending on user's preference.

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   Roon and MQA

4.1.1   MQA Capabilities Advertisement

dCS devices will properly report their MQA capabilities back to the Roon core so that device configuration is automatic. With this update MQA support is advertised as follows:

Bartók, Rossini, and Vivaldi One
These devices contain both MQA decoder and renderer capabilities, so they advertise as such to Roon.

Vivaldi Upsampler
The Vivaldi Upsampler has MQA decoder capabilities on its own and adds renderer capabilities when paired with a Vivaldi DAC. The two use cases result in different advertisements back to the Roon core.

- If the Vivaldi Upsampler is connected to a Vivaldi DAC and the serial control cable is connected between the two, then it will be advertised to the Roon core as a "*dCS* Vivaldi System" and its MQA capabilities will be set to decoder and renderer.

- If the Upsampler is **not** paired with a Vivaldi DAC or the serial cable is not connected, then the Upsampler will advertise itself as a "*dCS* Vivaldi Upsampler" and its MQA capabilities will be advertised as decoder only.

Network Bridge
The Network Bridge has MQA decoder capabilities and advertises itself as an MQA decoder to the Roon core.

In some cases Roon may not apply the correct MQA capabilities in the device's audio settings. This is especially true if the user has previously changed these settings manually. For an existing Roon endpoint (one that has already been setup in Roon), it is recommended that the user perform the following operation:

1) Open Roon's settings window and select "Audio" on the left side.
2) Scroll down to the "Roon Ready" section and find the *dCS* device.

3) Tap on the gear icon and select "Device Setup" from the menu to show the device setup window.
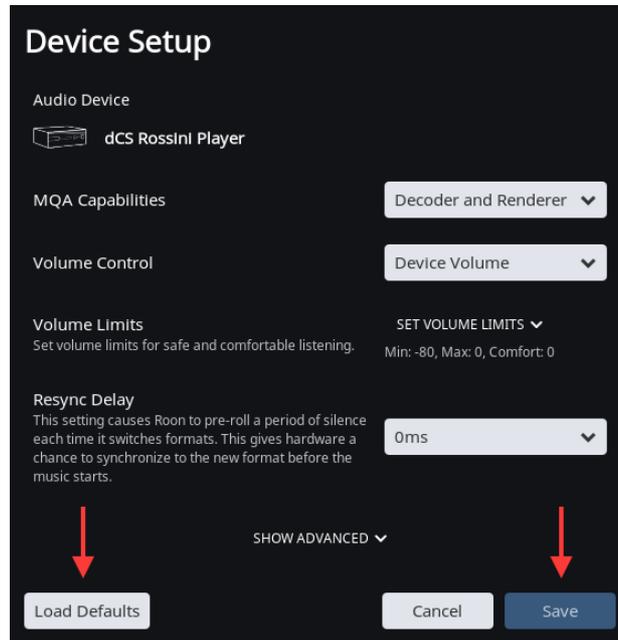
4) Click on "Load Defaults" to reset the device's capabilities to the advertised defaults.
5) Click on "Save" to save these settings.
6) Close Roon's Settings window.

This process will ensure that the settings for your device are correct based on its actual capabilities.

4.1.2   MQA Processing in the Roon Signal Path

When playing MQA content *dCS* devices inform the Roon core of the MQA processing taking place via Roon's signal path display. This information reflects the actual state of the MQA elements in the processing path and is independent of the setting of the device's MQA capabilities in Roon. The three possible states when playing MQA content are:

MQA full decoder

The *dCS* device is performing both the MQA decoding and rendering process. Roon's signal path shows as "Enhanced" due to the presence of the MQA renderer stage.
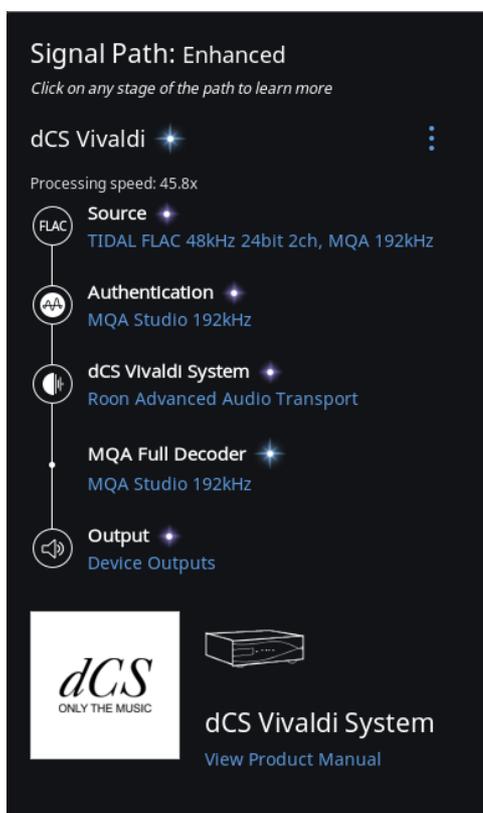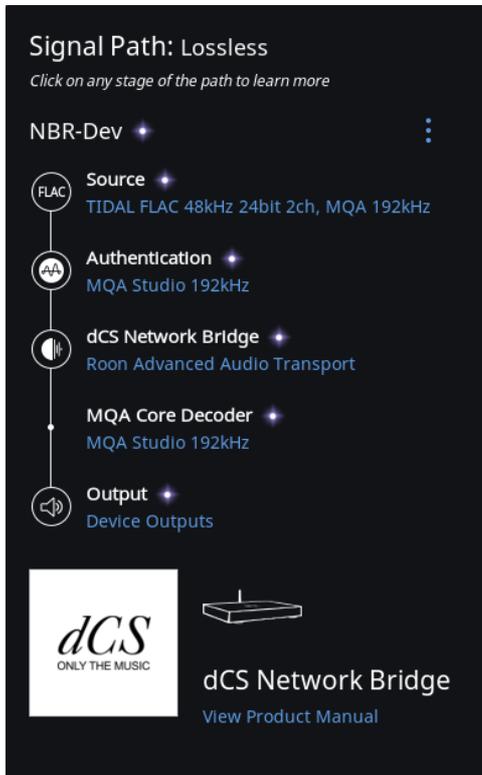
MQA renderer

The Roon core is performing the MQA decoding stage and the *dCS* device is performing the rendering stage. Roon's signal path shows as "Enhanced" due to the presence of the MQA renderer stage.
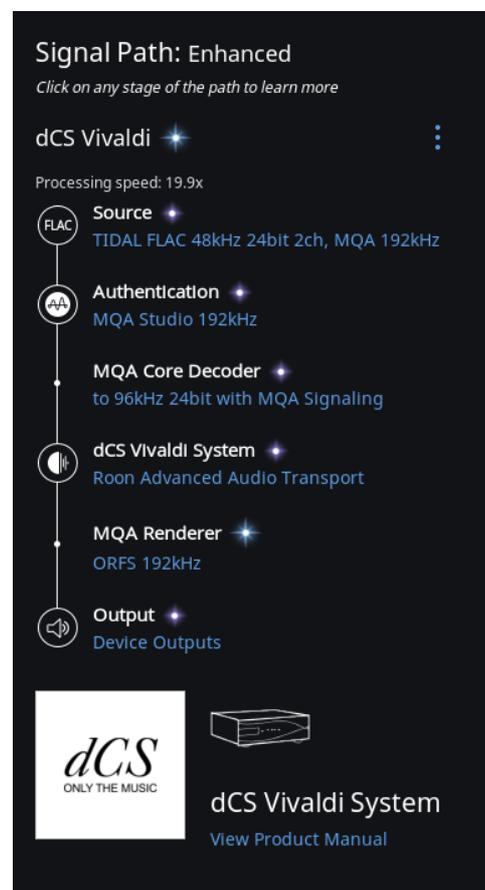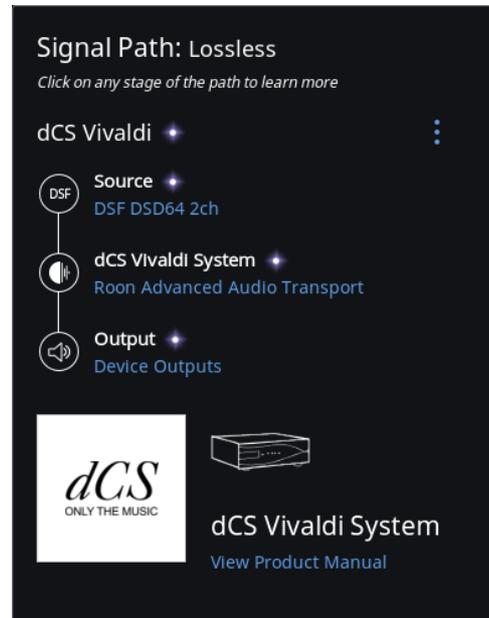
MQA decoder
The *dCS* device is performing the MQA decoding stage only.

Non-MQA
The *dCS* device is playing back content that is not in MQA format.


4.2   New Factory Reset Option

The ability to reset the network card to its factory state is useful in certain troubleshooting situations as well as when a user may wish to completely remove any personal data stored on the device. This option is available via the embedded web page.
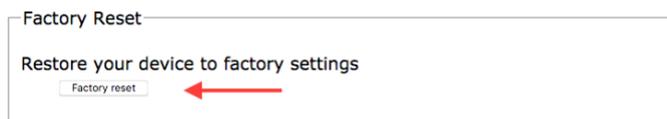
To access the factory reset function:
1) Locate the IP address of your device. This is available via the INFO > UNIT STATUS on the front screen or via the Configuration > Unit Status page in the *dCS* app.

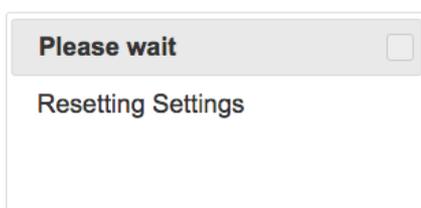2) Enter the IP address into a web browser on a computer or mobile device.

3) Select the "Device Settings" tab.
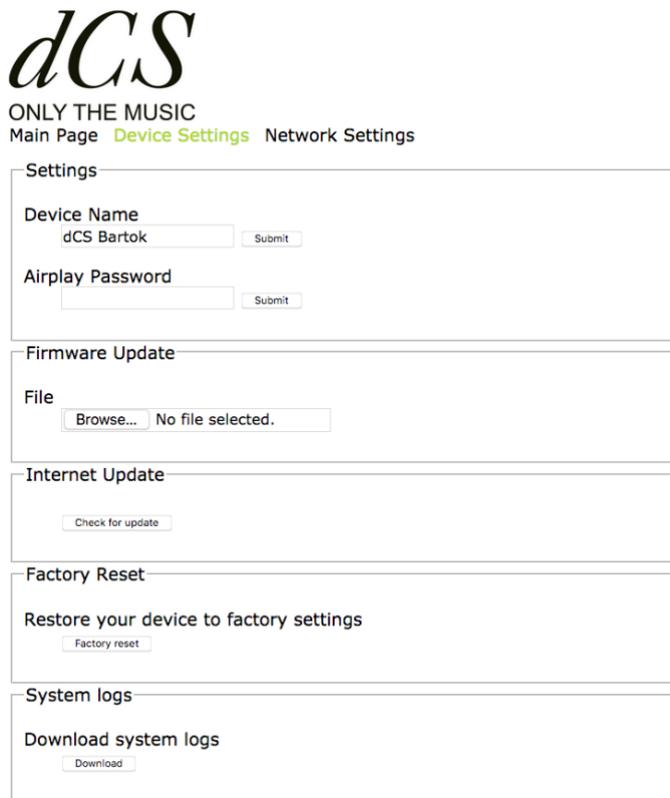
4) Click on "Factory Reset" and select OK when prompted.

5) The network card will reset itself to its factory state and restart. During this time your browser will show a please wait message.

When this message disappears you will be prompted to power-cycle your device. Turn the device off via the rear panel switch, wait approximately ten seconds, and power it back on. The network card is now in its factory state.

Please note the following:

1) This process only resets the configuration of the network card. It does not reset any of the non-streaming-related settings on your device (filters, upsampling settings, input names, etc). To reset these settings, use the CONFIG > FACTORY RESET menu option on the front panel.

2) Some settings are maintained within the *dCS* app itself on your iOS device. These include favourite inputs and servers, bookmarks, default view, pop-up message settings, and current browsing position. These settings can be cleared by removing the *dCS* app and reinstalling it from the App Store.

3) **This process resets the following settings on the network card:**
    a. Saved playlists on the device (does not impact Tidal playlists or favorited artists / albums / tracks)
    b. Network configuration: The device will come back online requesting an IP address from a DHCP server.
    c. Cached credentials: Login information and authentication tokens from streaming services will be cleared.
    d. Device name: Your device will come back online with the name "*dCS Product* (*Serial Number*) [i.e. "*dCS* Rossini DAC (12345)"].
    e. Airplay configuration and password: This will reset the Airplay device name and erase the airplay password (if set).
    f. Other settings dealing with card operation and initialization that are not directly visible to the end user.

4.3   New DNS Override Option

Customers in some markets have experienced reliability issues with Tidal streaming related to the way in which their internet service provider handles internet address resolution (DNS). In the past this could be addressed by giving the *dCS* device a static IP address and specifying a known-working DNS server (such as Google DNS). This approach was prone to error and had some unfortunate consequences. To better address this issue it is now possible to override the DNS server that your *dCS* device uses without having to give it a static IP address.

Please note that this setting only applies to streaming using the *dCS* app. If you use Roon to stream content to your *dCS* device then this setting will have no effect. If you are experiencing Tidal issues with Roon then please consult Roon's technical support via their website.
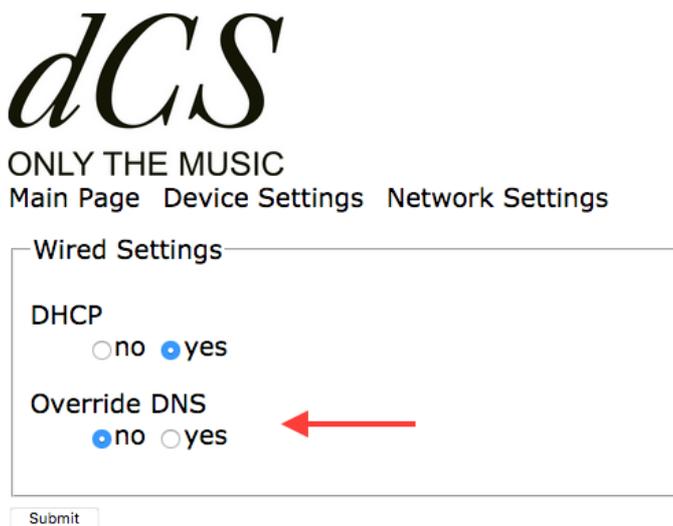
To enable DNS override:

1) Locate the IP address of your device. This is available via the INFO > UNIT STATUS on the front screen or via the Configuration > Unit Status page in the *dCS* app.

2) Enter the IP address into a web browser on a computer or mobile device

3) Select the "Network Settings" tab.
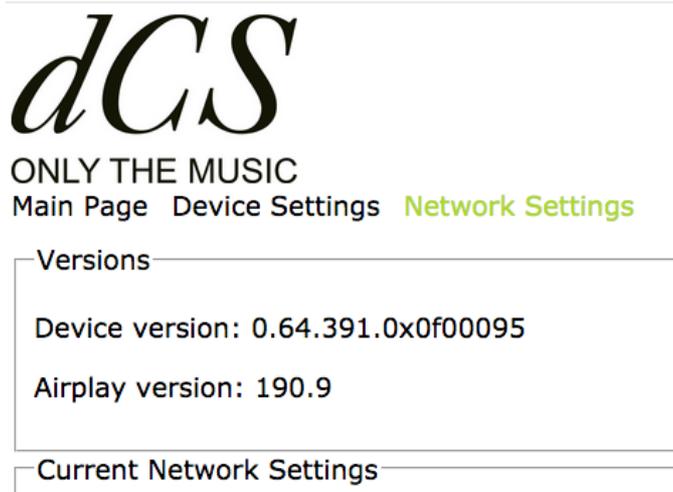
4) Set "Override DNS" to "yes".

5) In the two boxes that appear enter the address for the preferred DNS server(s). We recommend using Google DNS by entering 8.8.8.8 in the first box and 8.8.4.4 in the second. If your entry is incomplete the text will show red.

6) Click submit. Your *dCS* device will now resolve internet addresses using the server(s) you entered.

To disable DNS override:
1) Execute steps 1 – 3 as above.
2) Set "Override DNS" to "no"
3) Click submit.