4REA4 Controller V1.40 New Features

DiGiCo Dante IO Support (A168D & A164D)

DiGiCo A168D & A164D Wall LCD Dante connectivity IO boxes are now supported.

The A168D is both a portable and rack mountable stagebox with 16 XLR Mic/Line inputs and 8 XLR Line outputs.
The A164D Wall LCD is a wall/floor mounted fixed install stagebox with 16 XLR Mic/Line inputs and 4 XLR Line outputs.
The A164 Wall LCD also features LCD displays for each of the input/output sockets allowing the user to label individual sockets via the Dante Controller software.

Dante IO boxes are required to be connected to a DMI Dante 64@96 card for control of the preamps directly from a 4REA4. Control of the preamps is not possible from the original DMI Dante card.

PLEASE NOTE that for the connection and use of the A168D & A164D Dante IO boxes, there is a requirement for the following firmware updates to the Dante 64@96 DMI card:

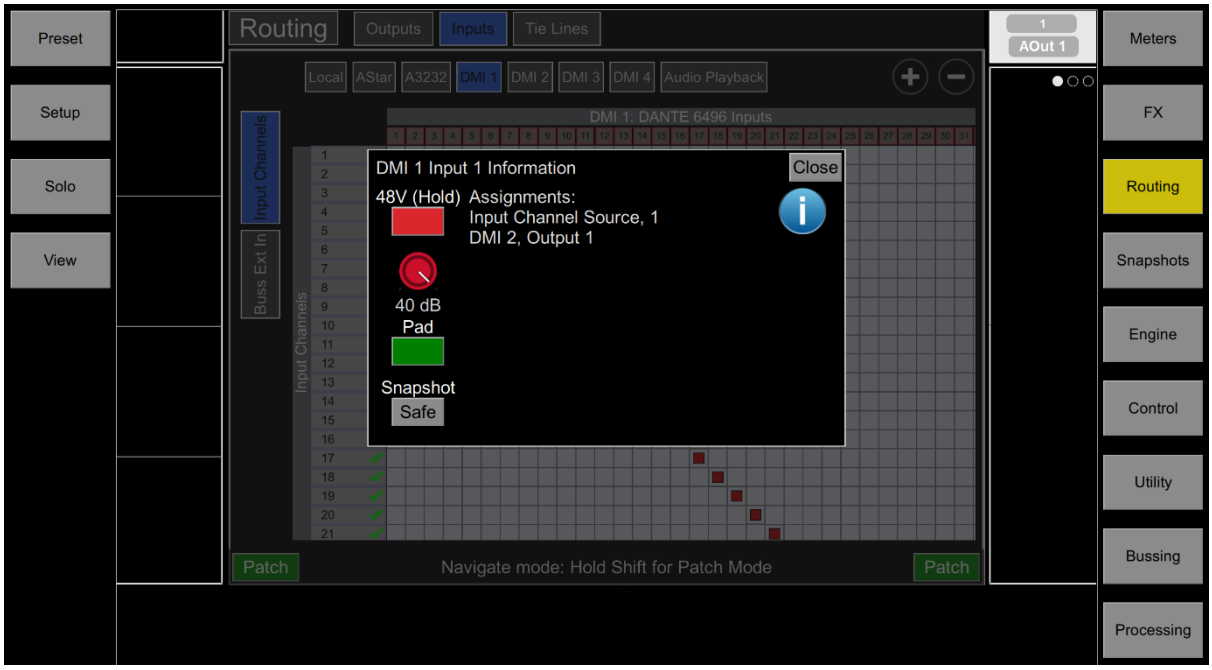
1. Dante 64@96 DMI firmware update (v102) which is included in the V1.40 update package.
2. A Dante firmware update (DNT file) for the DMI card which will be available for download from the DiGiCo website at https://digico.biz/support/ in due course.

Routing Dante IO Sockets as Input Sources
Routing Dante IO sockets as input sources is a 2-stage process requiring routing/patching both in the 4REA4 Controller software and in Dante Controller. The step required in 4REA4 Controller is to select an input channel source from the DMI 64@96 card. In Dante Controller you will need to patch the 64@96 card to subscribe to the Input sockets of the Dante IO box. Further information on routing required in Dante Controller is detailed under “Dante setup details” at the end of this document.

As with all other IO boxes, routing is possible both in the **Routing** matrix view and from the selected channel strip **Processing, Input Setup** view. In the case of Dante IO, the input source will be a channel number on a DMI Dante

64@96 card that will be subscribed/routed to a Dante IO Mic/Line input socket in Dante Controller software. Open the drop-down menu and select the DMI Dante 64@96 card the IO box is connected to, click the Socket box, then drag the mouse over the value to select the required socket or number, then click Apply.

If the DMI Dante 64@96 card input channel is subscribed to a Dante IO socket in Dante Controller, the 4REA4 Controller software will automatically display socket parameter controls for the corresponding input routes from the DMI 64@96 card.
When a Dante IO socket is routed as the input source for a channel, the Gain, +48V state, and -20dB Pad for the input socket can all be controlled directly from 4REA4 Controller in the selected channel **Processing** view as shown above. Select **Processing**, **Input Setup.**



Control of Dante IO socket parameters is also possible without having that socket being used as an input channel source on the 4REA4, if it is routed to the DMI 64@96 card in Dante Controller. This is possible in the **Routing** matrix view by clicking the individual source box with the corresponding input channel number of the DMI Dante 64@96 card. Select **Routing, Inputs, DMI Port Number** then select the source box channel number that the IO socket is routed to along the top of the routing matrix.

The DMI Dante 64@96 rack control mode can be set to either “Full Control” or “Receive Only” mode. Select **Engine**, **Audio**, **IO Settings**, then toggle the rack control mode button between “Full Control” and “Receive Only”.

In Full Control mode, the 4REA4 can set/adjust socket parameters on any Dante IO socket that is routed to the 64@96 card. In Receive Only mode, it is not possible to alter any socket parameters. Socket property values/states are received from the Dante IO device for gain sharing purposes. This can be utilised when sharing Dante IO inputs with another 4REA4/console in a digital split scenario. One can have full control of socket properties whereas the other cannot control them, but still receives the parameter values for gain tracking to be used.

The DMI 64@96 rack control mode is set on a per DMI card basis. All IO box sockets that are routed to that DMI 64@96 card will be in either Full Control or Receive Only mode. It is not possible to set on a per rack/IO box basis. If multiple control modes are required from the one 4REA4, 2 DMI 64@96 cards will be required.

Sample Rate Conversion (SRC)

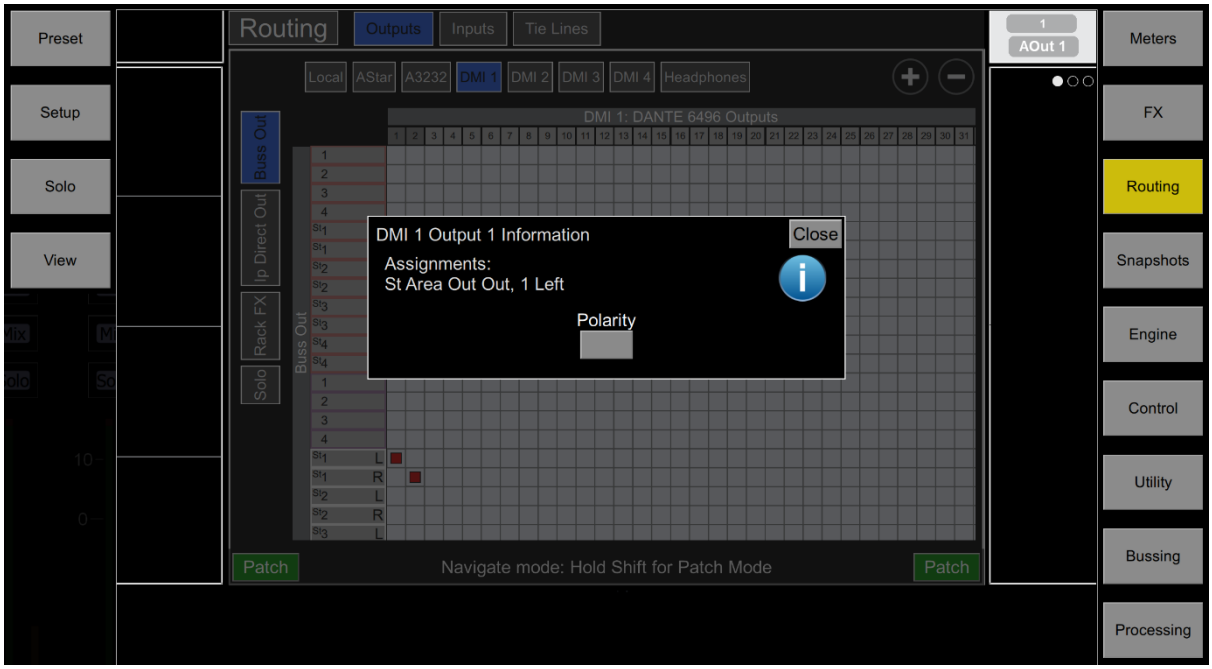
Existing SRC functionality of the DMI Dante 64@96 card remains. The UI has been redesigned to clearly show when there is a sample rate mismatch and activating auto SRC is required. The “4REA4 Sample Rate” and “Dante Sample Rate” will be displayed in red if the Dante 64@96 card is running at 48K and Auto SRC is not enabled. Once Auto SRC is enabled, the sample rates will be displayed in green.

Dante IO boxes can operate at either 48K or 96K (set in Dante Controller device configuration). If the requirement is to place the IO box onto a 48K Dante Network, this is possible by setting the Dante IO box and DMI 64@96 card to 48K and activating Auto SRC to convert up to 96K from the card to the 4REA4 Engine.

Line Outputs

As with inputs, routing to Dante IO Line outputs is a 2-step process requiring routing/patching in both 4REA4 Controller and in Dante Controller. The step required in 4REA4 Controller is to route from an output buss to an output channel on the DMI 64@96 card. In Dante Controller you will then setup the Line output socket of the Dante IO box to subscribe to the 64@96 output channel that was routed in 4REA4 Controller. Further information on routing required in Dante Controller is detailed under “Dante setup details” at the end of this document.

In 4REA4 Controller, routing to Dante IO Line outputs is performed in the **Routing** matrix view as with other rack/output types. Select **Routing, Outputs, DMI Port Number** and then select the DMI 64@96 output channel that is routed to the Dante IO Line output in Dante Controller. Each output has the option of polarity reverse by clicking output channel number box of the Dante 64@96 card.



SD control of Dante IO

As with other IO devices, Dante IO boxes connected to a 4REA4 can be tie-lined to an SD console via DMI Optocore and DMI MADI for control of those sockets from an SD console. See V1.31 release notes for details on the setup procedure.

DMI 64@96 Information

A DMI 64@96 is capable of a maximum 64 channels of IO to/from the Dante network at both 48k and 96k sample rates. This can be a mixture of any number of both Dante digital audio inputs/outputs and Dante IO box socket inputs/outputs. For example, 2 Dante IO boxes can be routed to channels 1-32 (16 input sockets x 2) then the remaining 32 DMI card inputs can be used as standard Dante digital audio inputs. Each DMI 64@96 card can support up to 4 Dante IO boxes when routed 1 to 1.

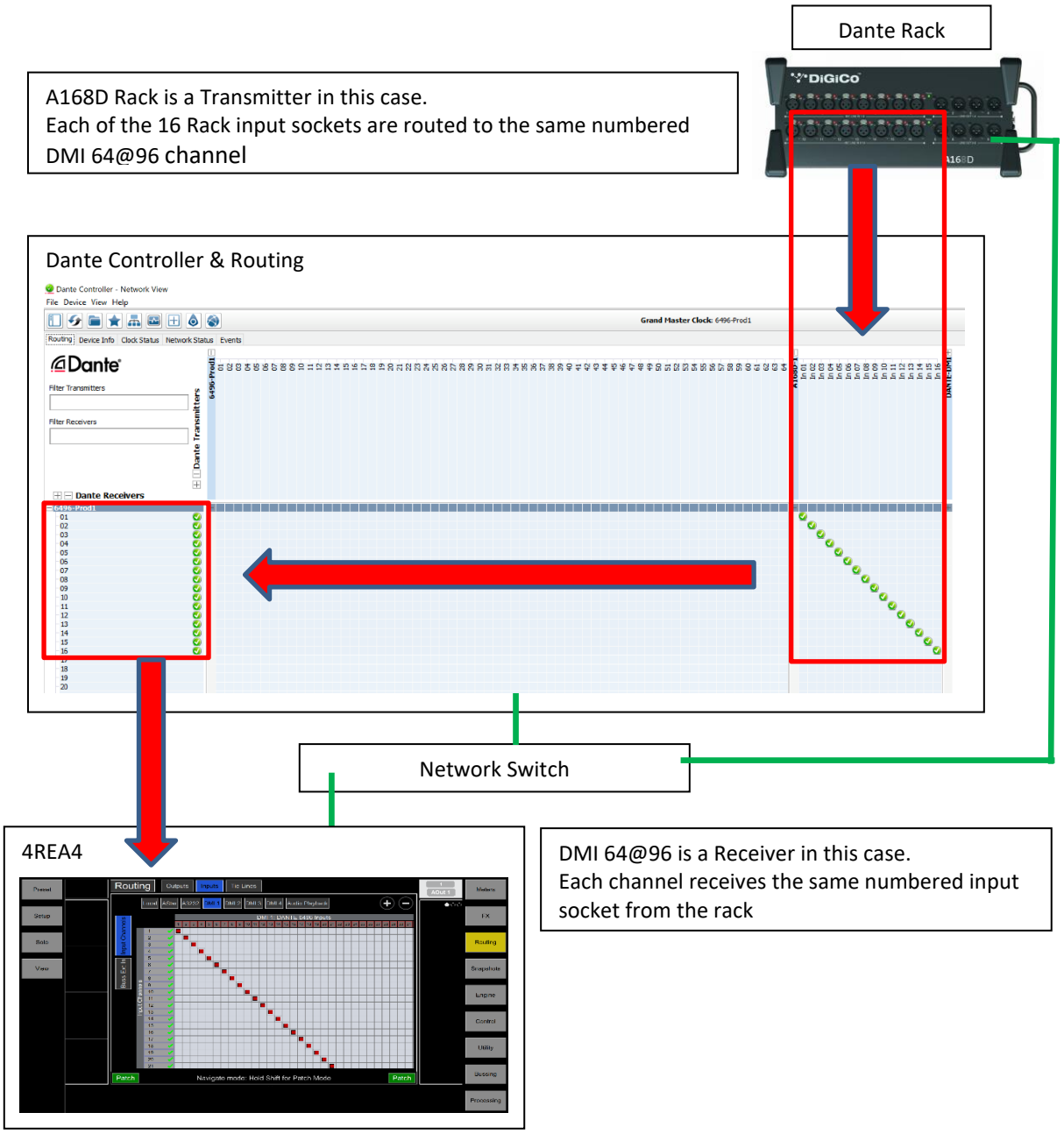
Dante Network Setup details

A Dante IO box can provide a specific number of IO on the Dante network according to the rack's capability. A168D = 16 Analogue Input sockets and 8 Analogue Output sockets.
Any Dante network may have many more devices on it than just a single DMI Dante 64@96 and Dante IO box.
There might be multiple Dante card equipped consoles, multiple racks and other Dante devices.
When a 4REA4 has a Dante 64@96 DMI fitted, it "sees" that DMI as a 64 channel interface device to/from the Dante network.

The source device of the audio signals it is receiving across that interface and the destination device of any signals that it is sending out across that interface are generally "unknown" to the 4REA4.
The critical component in determining where the audio is going to/from is the Dante Controller application, which is responsible for setting up audio paths (routing) on the network.

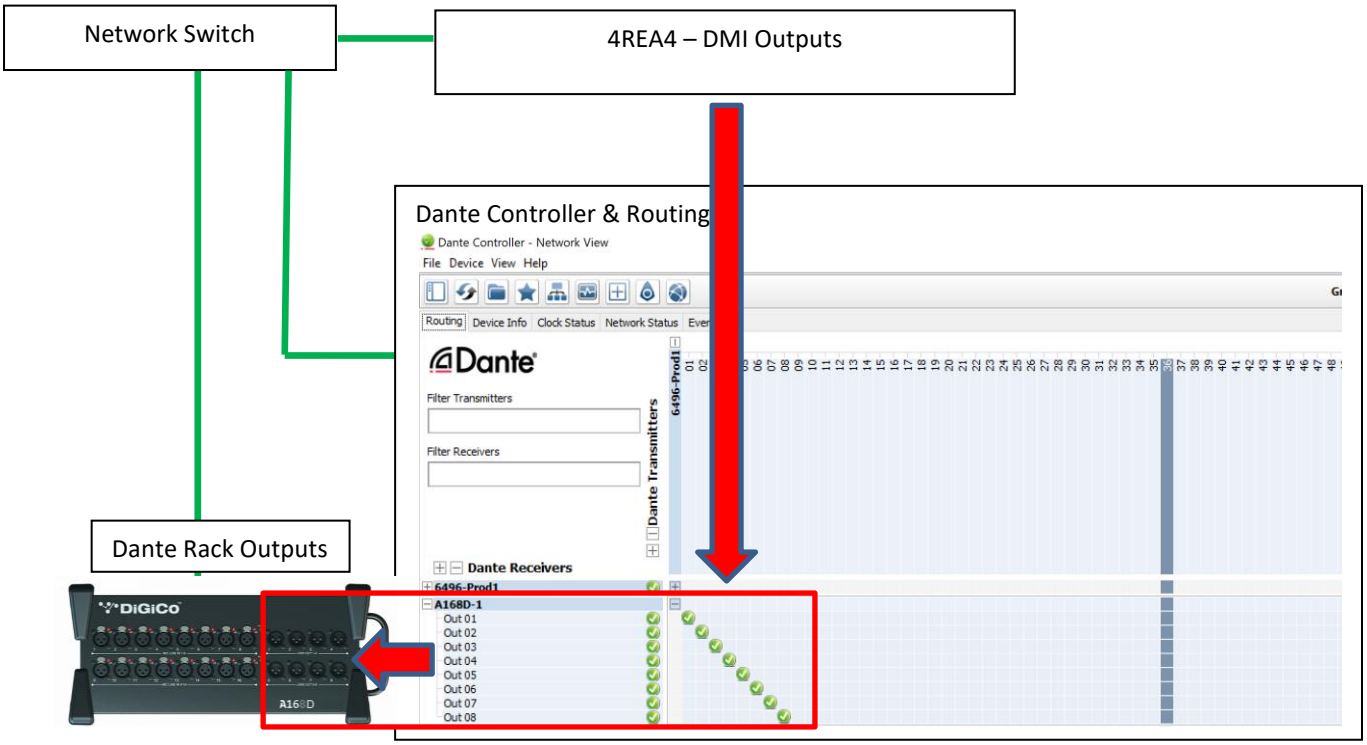
As an example, using just a single 4REA4 and a single rack, the 4REA4 could use its Dante 64@96 DMI channel 1 as an input source for its own Input Channel 1, but the audio signal which appeared on that DMI Dante channel could be any signal from the Dante IO rack and is determined by the routing in the Dante Controller.

With the following routing in place, a console that selects any of the DMI card channels 1-16 as an input source will receive the signal from the same numbered Rack Input socket – this is a logical setup.



In this example, a console that routes signal to DMI card output channels 1-8 will be sending them to the same numbered Rack Output socket.

4REA4 DMI is a Transmitter in this case.
Each of the DMI 64@96 outputs 1-8 are routed to same numbered Rack output sockets



UI enhancements to improve user workflow

DMI Dante

The DMI Dante **I/O settings** view has been updated to be similar to the DMI Dante 64@96 and clearly show when there is a mismatch between Dante network sample rate and 4REA4 sample rate. The Sample rates will be displayed in green when both the card and 4REA4 are configured to run at 96k and will show in red if the DMI card Dante network rate is set to 48K. As this card is not capable of SRC the Dante sample rate of this card must be set to 96k.

DMI MADI

The DMI MADI **I/O Settings** view has been updated with new rack control mode colours of green/orange for Full Control/Receive Only mode and to reflect the layout of other DMI card input sample rate reports.

Bug fixes

- Input channel filters could be incorrectly drawn on the EQ graph of buss outputs (audio unaffected).
- Restarting 4REA4 engine with the DMI Optocore Input channel count set to 0 will not pass audio to an SD console.
- System tab - selected engine could occasionally display wrong IP/version information when multiple 4REA4 engines were on the same network.
- Various general performance improvements.