

Vi DANTE™ Card User & Setup Guide

The Soundcraft® Vi DANTE™ card is a 64 x 64 interface between a Vi series console and any Dante compatible device from Harman or other 3rd party manufacturer. The card is available in two versions: Local Rack/CSB (D21m 3U format) and Vi Stagebox (6U format). *Note that the Stagebox version is an IO card only and does not allow you to connect a Stagebox to the console using Dante instead of MADI.*

Dante provides a digital audio network that uses standard Internet Protocols over both 100Mbps and 1 Gigabit Ethernet. Dante uses audio independent, high accuracy network synchronization standards to ensure all Dante devices are synchronized at all times. Dante runs on standard computer networking hardware, and does not require dedicated network infrastructure.

The Audinate Dante Virtual Soundcard software allows connection of a PC/Mac to a Dante audio network. This system allows the computer to record from and playback to the Dante network using most common DAW packages. Dante Virtual Soundcard uses the Ethernet port on the computer to communicate with the Dante network; no special hardware is required other than installing Dante Virtual Soundcard software. One DVS license token is provided FOC with the card, this license can only be installed on one specific computer.

Additional information about the DANTE system including the latest software set-up and tools may be found on the Audinate® web site <http://www.audinate.com/>



Configuring The Dante Card

In a manner similar to CobraNet™, patching on the console makes a connection between console I/O slot channels and up to 64 channels on the Dante card. Connections between the Dante cards are set using a tool, in this case the Dante Controller software from Audinate®. As communication across the Dante network is essentially between named cards and channels the configuration must be correct to ensure cards talk and listen to the correct/desired channels on the Dante network.

This user guide summarises the process and provides a simple worked example; full setup details and configuration tools are downloadable from the Audinate web site www.audinate.com.

In addition it is necessary to set the clock status of the Dante card both within the network and in relation to the console hardware. This is described below.

Channel Count Setup

The Dante card uses 64 in and 64 out channels by default, but can be restricted to use less input or output channels if required. This may be necessary on Vi consoles in order to avoid exceeding the 192in/192out channel limit of the local rack (or the 64in/64out channel limit if fitted in a Vi or Compact Stagebox). For example, if only output channels are required on the Dante card, the input channels can be set to 0, to maximise the number of input channels available for other cards.

The DIP switch S1 on the Dante card main PCB is used to set the input and output channel count, in steps of 8chs from 0-64 channels. Refer to the diagram on the next page which shows the location of the channel count DIP switch S1 and the factory default setup of 64 in/64 out. To create other channel count settings that are not marked on the switch, add any two or 3 switch settings together, ie to select 48chs, the 32 and 16 switches should be moved down to the selected position. Note the maximum channel count (input or output) is 64 and minimum is zero.

Sync Setup

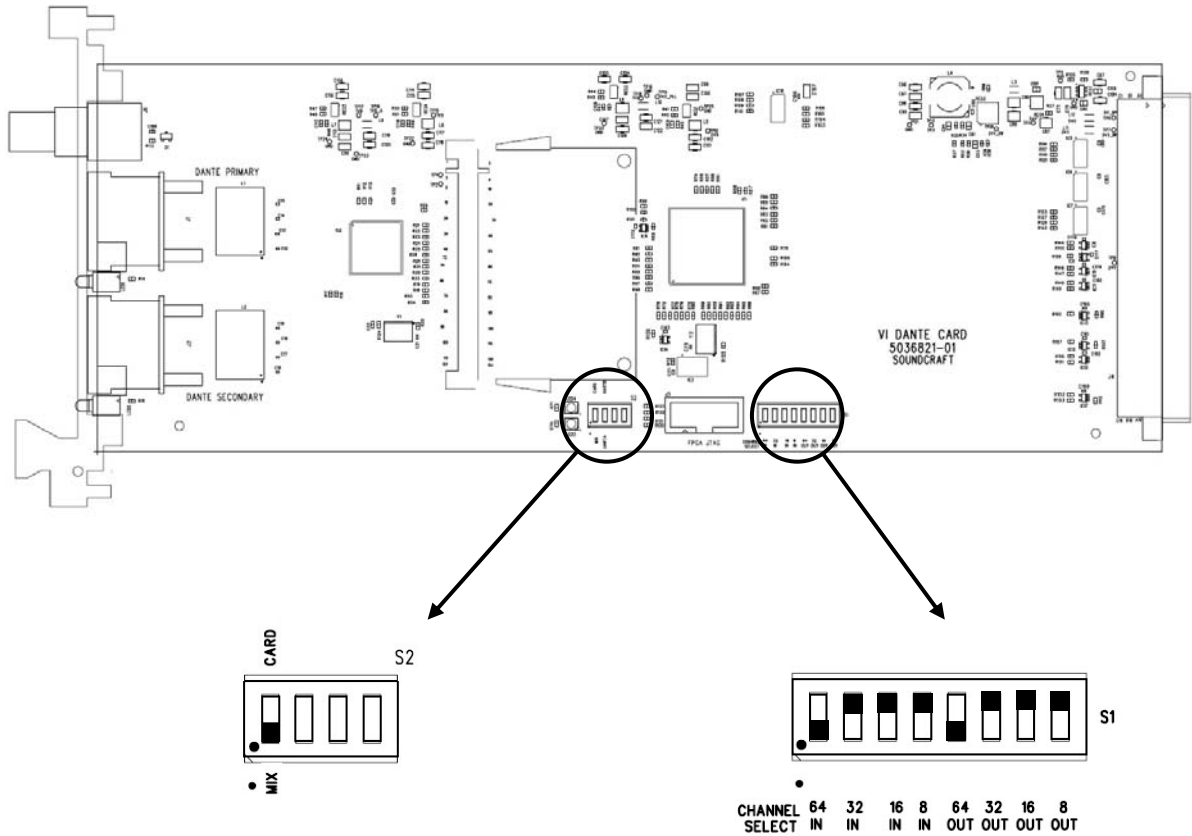
The Dante card can act as either a main clock source for the Dante network, or as a synchronised clock. If there is only one console on the network, this will generally be set as the main clock source for the network, but in cases with more than one console, or where another device acts as the main source clock, it will be necessary to set the console's Dante card to be a synchronised clock. The Dante clock sync status is set up using Dante Controller software (see later in this guide), but in addition to the Dante clock setup, the card's clock status within the console has to be set. This is done using a DIP switch S2 on the Dante card main PCB. Refer to the diagram on the next page for the location and setting of this switch.

MIX: Select this position to make the Dante module lock to the console's internal Wordclock, only to be used when the Dante card is set as the Preferred Master for the Dante network. *This setting is the factory default.*

CARD: Select this position to make the console lock to the Dante network clock, to be used when the Dante card is synchronised to the network. Note: In this case, a BNC wordclock cable must also be connected from the Wordclock Out BNC connector on the Dante card, to the console's Wordclock IN.

Note that it is also necessary to set up the clocking scheme of the Dante network correctly, to avoid audio clicks and dropouts, please refer to the section titled *Device Status* and *Clock Status* in the following pages.

DIP switches S1 & S2 Location Diagram



Note! Switches point **down** to select channel count – ignore the 'ON' legend on switch body!
 Diagram shows the default setting of 64 in / 64 out

Refer to the previous page for information on the function of these switches.

Setting up the Dante card for operation on the network

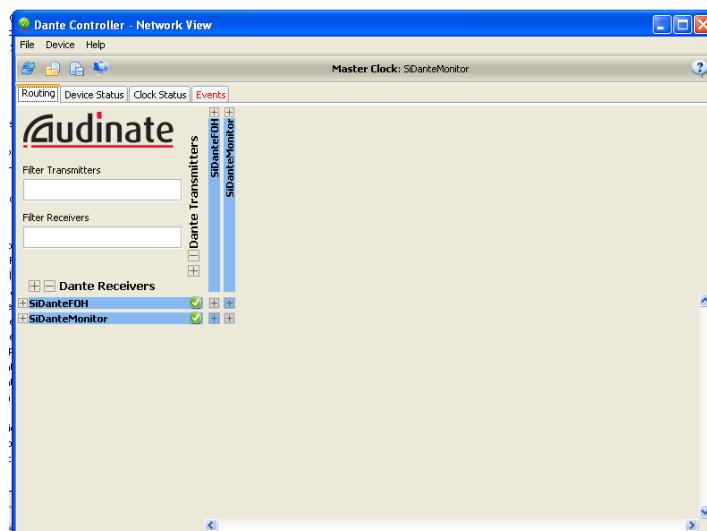
As mentioned earlier, it is necessary to use a software tool connected externally to the card, in order to route audio from the card to/from another Dante-enabled device.

1. Download & install the latest software for the Vi consoles from www.soundcraft.com. (Software Version must be 4.7.5.205 or later). With earlier versions of the console software, the Dante card will not be recognised by the console and will not appear in the patch.
2. Download and install latest Dante Controller software from www.audinate.com.
3. Connect a Mac/PC to the Dante card, this may be via a switch/router or direct to either the PRIMARY or SECONDARY ports. The LINK indicator on the card will begin to flash indicating an active connection.

NOTE: A crossover cable is not required as the network ports on the Dante card will automatically sort out the transmit and receive connections to the other device.

NOTE: Ensure any firewall operating on the network port of the computer is switched off.

4. Start the Dante Controller application, after a few moments a screen similar to the one below will appear:

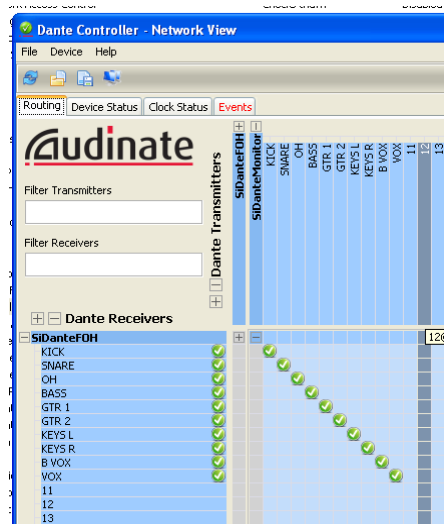


Using Dante

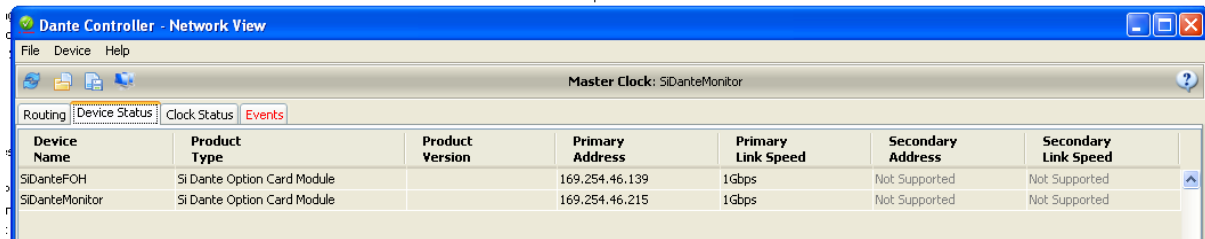
The following sections cover basic setup and use of the Vi Dante cards. For detailed information regarding Dante please refer to information on Audinate's web site www.audinate.com.

Network View

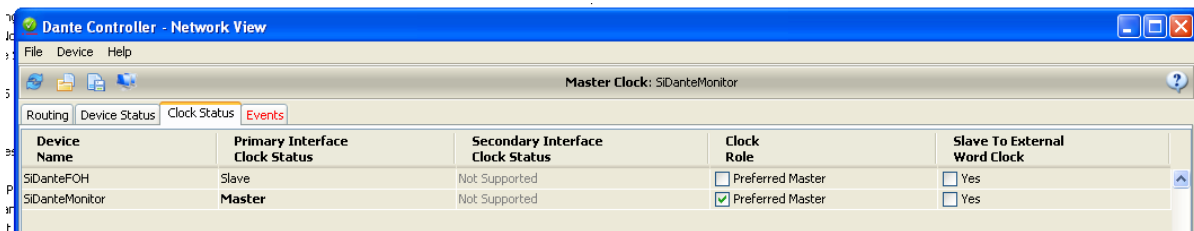
Routing – Matrix view of routing (click on a '+' symbol to expand the matrix view).



Device Status – Displays information about discovered Dante devices; double click a device name to enable its configuration.



Clock Status – View and edit Dante Network clock configuration.



Clock Role column:

Setting a single 'Preferred Master' will ensure that device is selected as the main clock source, if two or more devices are set for 'Preferred Master' the main clock source will be elected by the Dante system.

NOTE: Clock Status settings apply to the clocking of the Dante network, therefore attached devices such as consoles must be clocked to/from the Dante network as appropriate or required in any given system.

It is suggested that in most simple cases with one console connecting to peripheral equipment (eg a computer recording device) via Dante that the console is set as preferred master, which means that the item 'Sync to External Word Clock' must also be checked'. If there are two or more consoles connected together then obviously only one should be set as preferred master.

'Sync to External Word Clock':

When checked the Dante card will clock from the console internal word clock, if not checked the console must be clocked to the Dante card or system word clock as appropriate or required in the given system. Normally this is achieved by connecting a short BNC jumper cable from the wordclock OUT of the Dante card, to the wordclock IN of the console.

Note on Clock status when connecting the Dante card to a Vi3000 console's Dante interface

The Vi3000 console includes a built-in Dante interface, and as such has the capability for the console to automatically sync to the internal Dante card's clock, when the Vi3000's Dante interface is set to 'sync' clock status (ie another device is set as Preferred Master), and the setting 'Sync to External wordclock' is NOT checked (ie console synchronised to Dante network clock). Therefore with the Vi3000, an external BNC jumper cable is not required and the console will automatically switch to indicate 'Dante' as the clock source (viewable in the Menu-Sync page of the Vi3000).

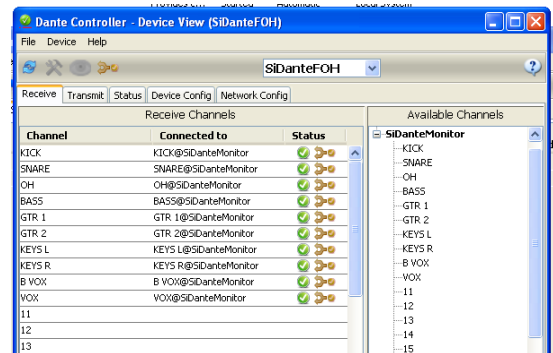
Failure to set up the clocking scheme of the network correctly is likely to result in audio clicks during operation.

Device View

The Device View allows viewing and editing of a selected Dante device.

Receive – This tab presents information about all channels being received, and channels available to the current device. The tab is arranged into two areas:

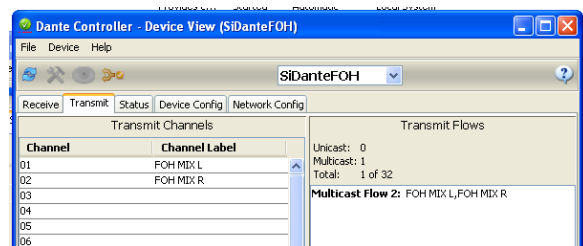
Receive Channels: Lists the Rx channels in the left pane of the window. It shows whether or not they are connected and, if connected, the channel they are connected to and the status of that connection.



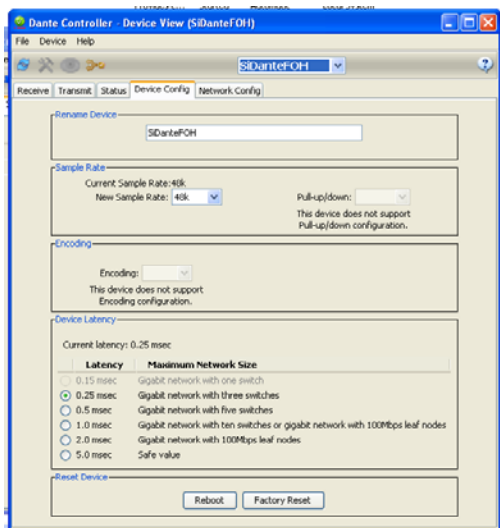
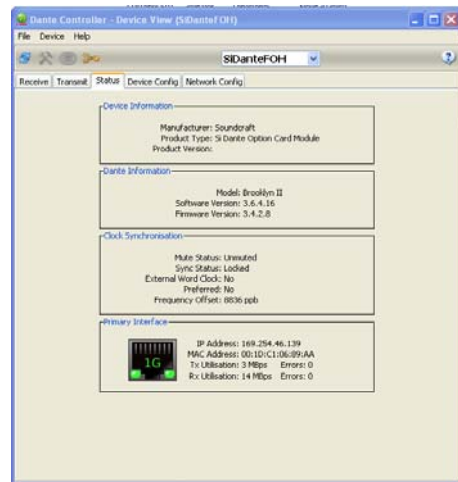
Available Channels: On the right pane of the window, lists the Tx channels from other devices that are available for subscription by the current device. You may drag and drop *Available Channels* to *Receive Channels*.

Transmit: This tab is used to view and edit the transmit configuration of a device.

Transmit Channels: The area on the left pane of the tab shows the Tx channels for the device, and any user-defined channel label. It allows the user to create labels for transmit channels. Input to the table is filtered to prevent illegal characters from being used in channel labels. To change a Tx channel label double click on the label and type in a new one. Tx channel labels must be unique on a single device.



Status: The Status tab is used to view information about a Dante device, this information may be required for trouble shooting and checking software / firmware is up-to-date.



Device Config: This tab on the device view allows viewing and editing of the following device specific parameters.

Rename Device: Allows renaming of the Dante device.

Sample Rate: 48K – this is fixed and cannot be edited.

Latency: Allows selection of an appropriate latency.

NOTE: The 0.15 msec setting is unavailable on Vi Dante cards as these include an internal switch.

Factory Reset: Allows remote reboot of the Dante interface and to reapply factory settings. Following a reboot it is recommended to power-cycle the console including disconnection of the AC power cord. Factory Reset wipes the following device configuration settings:

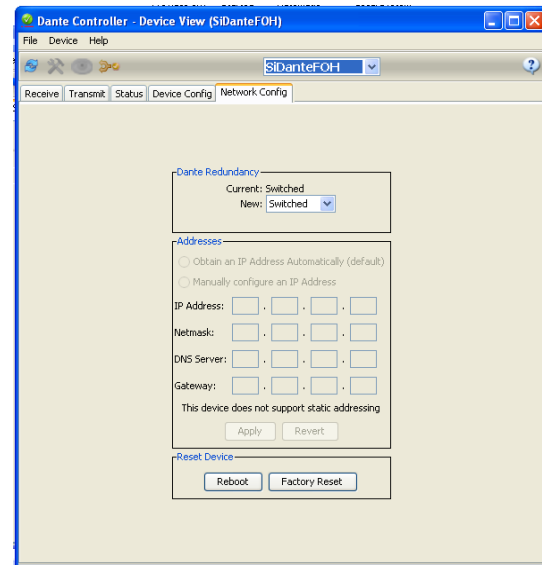
- User-defined device name
- User-defined channel labels
- Clock configuration (clock master / external clock master setting)
- Static IP addresses
- Redundancy configuration
- Sample rate setting (including pull-up/down)
- Latency setting
- Any existing audio routes

Network Config: This tab enables viewing and editing of Dante Redundancy mode.

Switched Mode - When set to Switched, the secondary Ethernet port will behave as a standard switch port, allowing daisy-chaining through the device.

Redundant Mode - When set to Redundant, the device will duplicate Dante audio traffic to both Ethernet ports, allowing the implementation of a redundant network via the secondary port. In this case care must be taken to avoid accidentally making any connection *between* the two parallel networks.

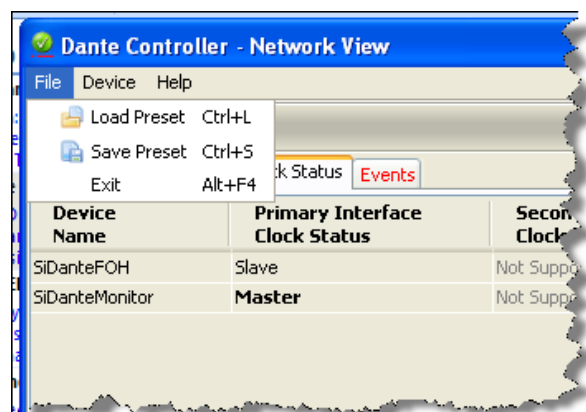
Note: All devices on a Dante network **MUST** be set to the same Mode (Switched or Redundant), otherwise the network will not function reliably.



Dante Presets

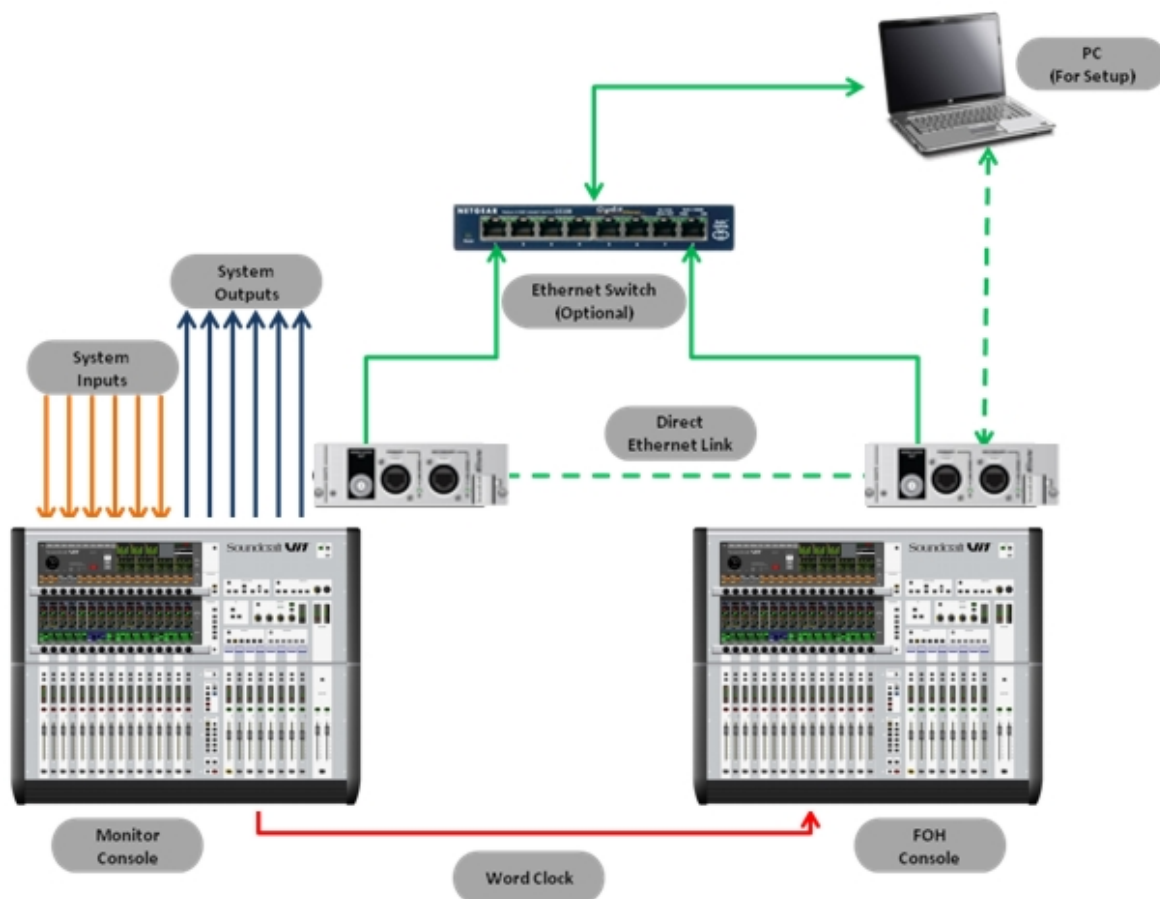
Although patching to and from the Dante card in the console is stored as part of a show or part of a cue the *configuration and routing* of the Dante cards and Dante audio streams is not.

In the event a Dante card is replaced or similar, the 'new' card will require configuring, this may be done manually or by loading a previously stored preset from the 'File' menu of the Dante Controller software



Connecting Dante Devices

The following example illustrates two Vi1 consoles 'House' and 'Monitor'.



Audio inputs are sent to the monitor console, these can be connected directly to the console or via a stagebox attached via a MADI card to the monitor console.

A direct output from each input of the monitor console feeds the FOH console which is patched to receive audio from the Dante option card.

The FOH console mix is returned to two spare channels of the monitor console and the direct outputs of those inputs are in turn patched to the system outputs; once again these can be directly on the console or attached via a MADI card to the monitor console.

The link between the Dante cards may be via a switch as shown with a solid green line or direct from card to card as shown by the dotted green line.

NOTE: Once configured the PC is not required.

NOTE: Dante may operate in redundant mode, this is not shown for simplicity.

Alternative Options

Once audio is in the Dante domain the possibilities become near endless, in this alternative system:

- All system outputs leave via a Dante enabled processor such as the BSS BLU 806
- An additional console does a live stereo mix-down for web streaming or similar
- A laptop running the Audinate Virtual Soundcard makes a multi-track recording

