AtlasIED Application Note

Configuring GCK for Digital Audio Bridges

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Background

Since the time of the original GLOBALCOM systems, there have been Digital Audio Bridges (specifically CobraNet-to-CobraNet) to allow two or more systems on different networks to pass audio with minimum audio latency. The original version for CobraNet has the part number 1100DAB. As Dante was introduced to the GLOBALCOM offerings, now called GCK, a need arose for two more versions of this Digital Audio Bridge device: (a) CobraNet-to-Dante, the 1100DAB-CD, and (b) Dante-to-Dante, the 1100DAB-DD.

This Application Note presents principles and guidelines for incorporating Digital Audio Bridge devices into the GCK projects. It also focuses on the one case that may be most confusing, namely the CobraNet-to-Dante version (1100DAB-CD) by way of the example presented.

Principles For Employing DABs

The following are some principles for how one can employ Digital Audio Bridges in system configurations:

1. Any DAB that has CobraNet must be 'owned' by one (and only one) of the GCK controllers. This applies to either the CobraNet-to-CobraNet or CobraNet-to-Dante DABs.
    a. In the latter case (DAB-CD), the owner MUST be the *Dante* GCK controller.
2. In Dante-only designs, each GCK controller only 'owns' half of a DAB-DD, i.e., the interface side which is on their own local network.
3. A GCK controller must be able to communicate with both networks that the two DAB interfaces reside on, e.g., through a Default Router setting. (This is also required for multi-ACS announcement control messages between GCK controller.)
4. In the special case of a system with only two GCK controllers, either or both of which are CobraNet, the system can be designed to use only one DAB. One controller will 'own' the DAB while the other will be configured to use CobraNet as the interface type. This setting means the controller is being told that the other system has a CobraNet device on its network that transmits/receives audio (i.e., one of the DAB interfaces).

Principles for Configuring DABs

The following principles pertain to how Digital Audio Bridges are added to a GCK project (in SMC, System Management Center) and configured:

A. DABs cannot be discovered by SMC and added to a controller project that way. Instead, they must be manually added. The interface present on the local network may appear in "Available Devices", but as a generic device, not a DAB for adding to the project. Plus, there is no way (in general) for SMC to find/discover the interface that resides on the other network.

B. BEFORE manually adding a DAB to a GCK controller project, it should be assigned a fixed IP address for each of its interfaces using an appropriate tool, such as CobraNet Discovery or Dante Controller.

   a. The IP addresses must be in the range of the IP addresses and subnet mask of the respective controllers.

   b. The assigned IP address *should* be outside the range of dynamically assigned IP addresses managed by each controller, so as to not possibly come into conflict with dynamic/temporary IP address assignments.

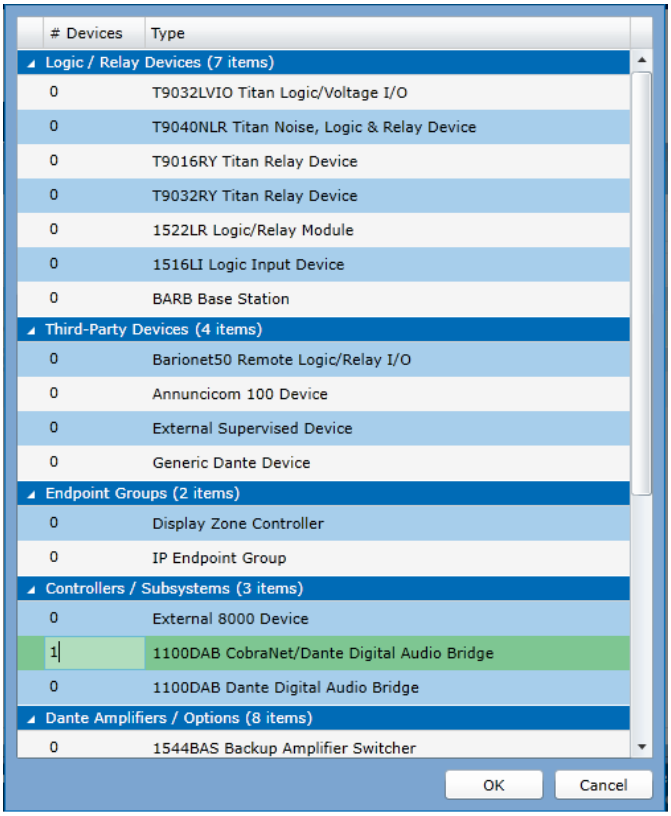
C. There will only be one DAB per system interface (e.g., System A to System B, or System A to System C) in a project. If a Backup DAB is to be employed for redundancy, there are fields in the one (primary) DAB device in SMC for the backup (secondary) IP addresses and Dante node names, rather than adding a second DAB device to the project.

   a. A special case of this is when a CobraNet DAB (DAB or DAB-CD) is used. In this case, it is possible to save on the number of DABs by putting all of the GCK controllers' remote interfaces onto one global network (VLAN) and manage all inter-controller audio via that network. In this case there is one DAB per controller, rather than one per interface. Either CobraNet or Dante controllers can be configured this way, just so long as the global network interface of each DAB is the CobraNet type.

Configuring a Two Controller DAB-CD System

To demonstrate some of the above principles, let's look at a system of two GCK controllers, one CobraNet and one Dante, with a single 1100DAB-CD between them. The system has two Local Area Networks with a Router connecting them (or the equivalent with VLANs). In the example screenshots below, the CobraNet system is GCK system #1 using addresses in the range of 172.26.41.x/24 and the Dante system is GCK system #4 using addresses in the range of 172.26.44.x/24. The network wiring and routing has been configured to comply with Principle 3 above. In this example, we are going to demonstrate Principle 4 (two-controller special case).

First the 1100DAB-CD is configured with CobraNet Discovery to have an IP address of 172.26.41.62 on the CobraNet side (interface 1 of the DAB-CD) and then is configured with Dante Controller to have an IP address of 172.26.44.131 on the Dante side (interface 2). These assignments follow Principle B.

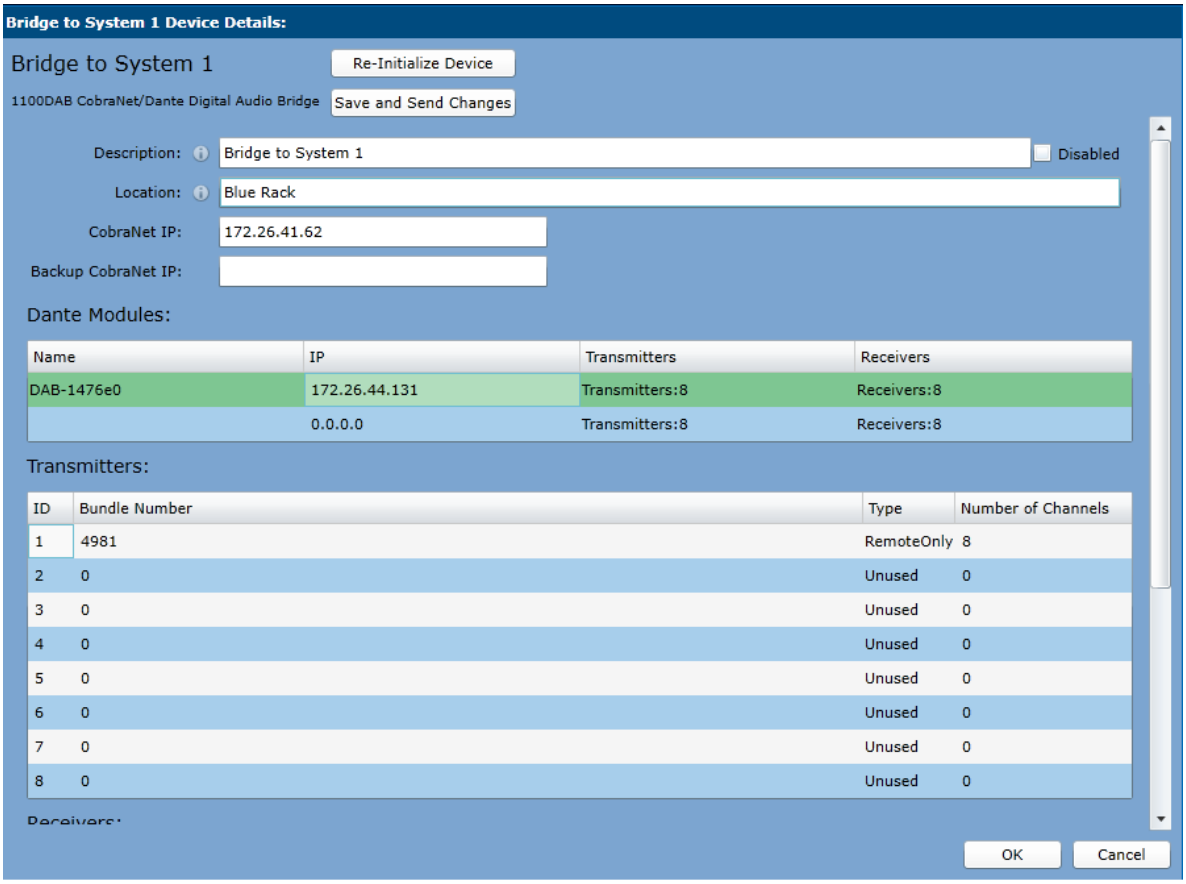


Then, following Principle 1 (and 1.a), one goes into the Devices section of SMC for System #4 (the Dante one) and clicks on the Add Device button (i.e., [+]) and enters "1" for the count of new DAB-CD's, such as shown at right. (This is making System #4 'own' the DAB.)

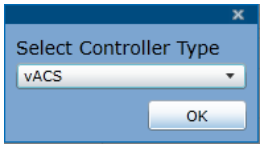
Then, one double-clicks on the newly added device in the Devices list (or single-clicks and then clicks on the [Edit] button) to bring up the Device Properties window. In this window, one enters all the relevant information about the DAB-CD:

- A **Description** to make it easier to associate it with a controller interface
- (opt.) The **Location** of the unit
- The **CobraNet IP** address of the CobraNet interface (or two addresses if there is a Backup DAB-CD)
- The **Dante Module Name** *exactly as it appears in Dante Controller* and **IP** address of the Dante interface in the top line of the table. In the example shown below, the node name is "DAB-1476e0". The second row in this table is for the Backup DAB-CD Dante information, if this level of redundancy is being employed.

One should be able to leave the default (CobraNet) transmitter **Bundle Number** and other settings at the values suggested by SMC (i.e., Bundle Number of 4981 in the example). When filled in, it may look as in the example below.



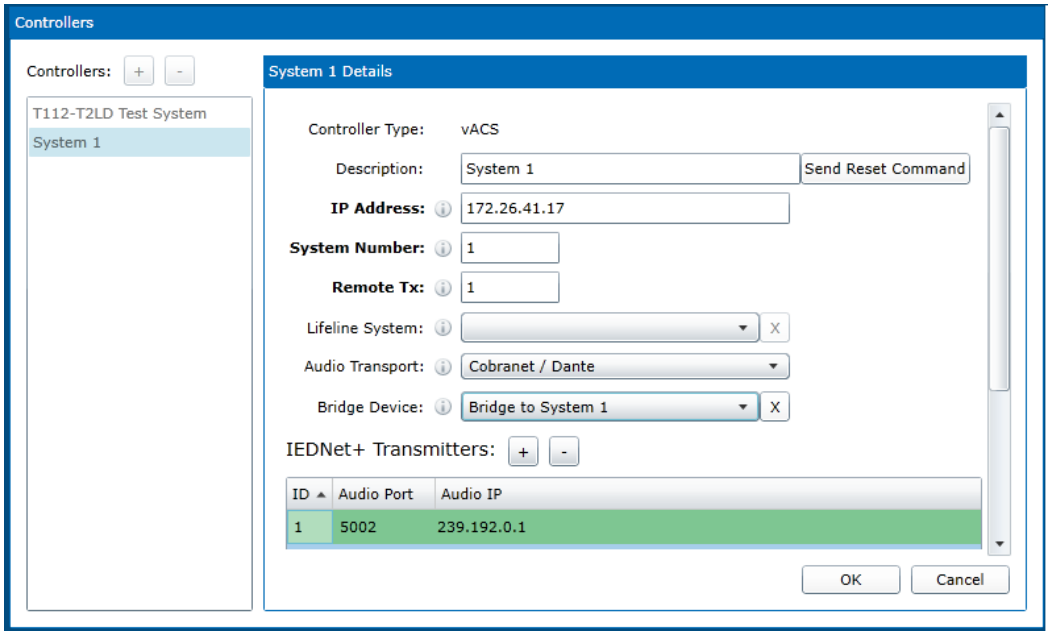
The next step is to assign the DAB to a controller interface. If the "remote" GCK controller has not yet been added to the Dante controller's project, this must be done first by going to the Controllers section and clicking on the Add [+] button there, selecting type "vACS". Then, one can edit properties in the controller as follows:



- Enter the **IP Address** of the other (CobraNet) controller
- Enter the **System Number** of the other controller. This must be the same as defined in SMC over on that GCK controller.
- Select **Audio Transport** type to be "CobraNet/Dante"
- Select the **Bridge Device** just added earlier (identified by its Description, hence the reason to assign it a meaningful name back then).

When filled in for our example system, it appears as in the screenshot below.

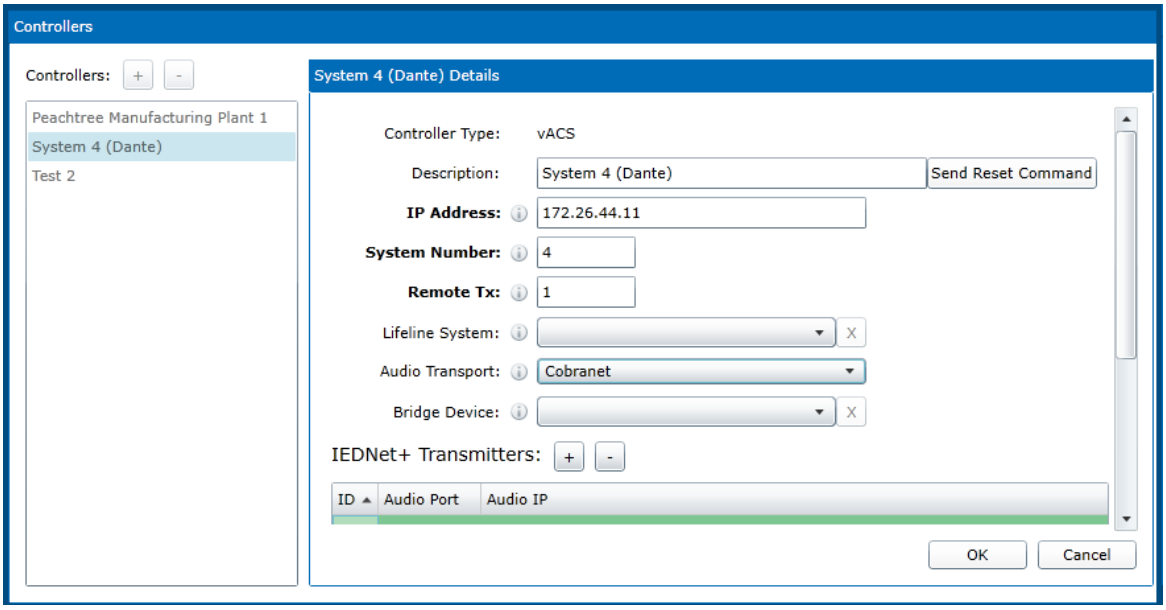
Of course, you should click on the [OK] button in the controller and "Save" at the top of SMC to add the new remote controller to the project.



Now, one needs to go into the configuration (SMC) of the CobraNet GCK controller and tell it about the Dante controller, so that it knows how to interface/communicate with it. On this controller, we need to set the following properties:

- The **IP Address** of this controller
- The **System Number** as defined over in its project.
- Set the **Audio Transport** type to ”CobraNet”. (As mentioned above in Principle 4)

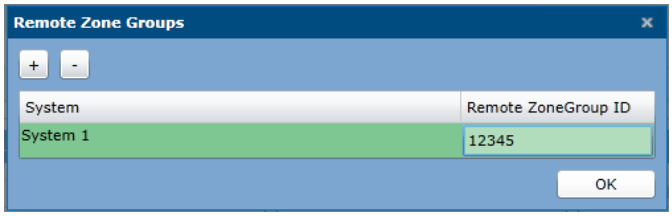
When filled in, it may appear as in the example shown below.



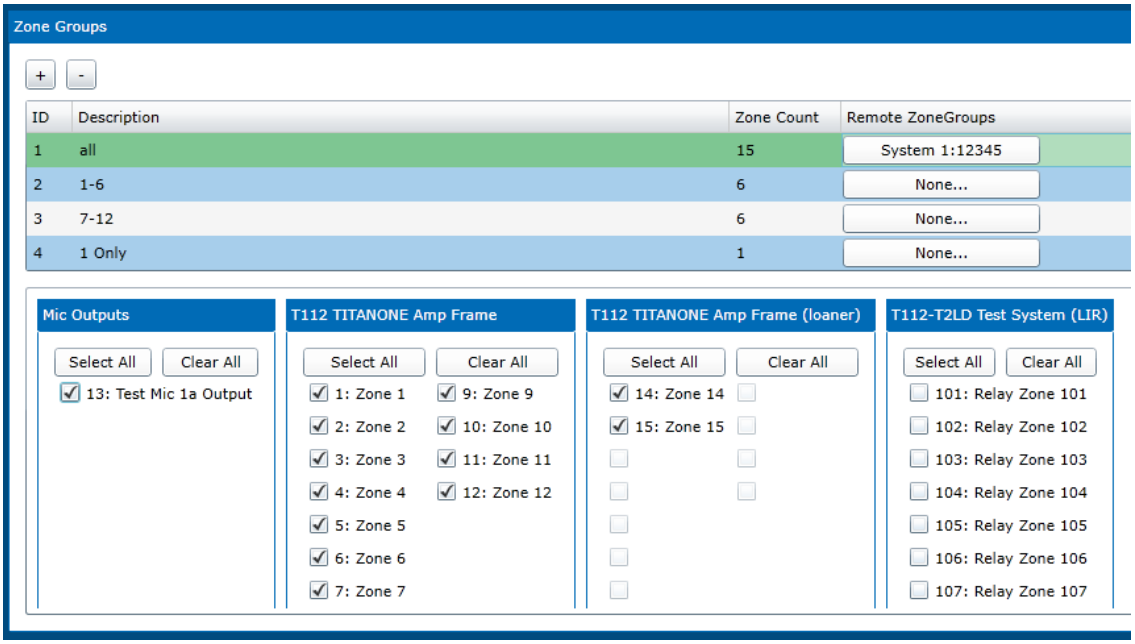
Of course, click on the [OK] button in the controller and “Save” at the top of SMC.

Conclusion

At this point bi-directional initiation of multi-ACS messages should be possible.



Of course in order to actually do multi-ACS paging, one needs to define Zone Groups on the *initiating* side that include a Zone Group on the remote side. If one clicks on the button in the **Remote ZoneGroups** column of a local Zone Group, SMC presents a pop-up for adding one or more remote systems and zone group IDs, such as shown at right. Once entered, the button caption changes to show the newly added Zone Group, such as the example below on the first line.



Once this is Saved, an announcement on System #4 that uses local Zone Group 1 (labeled “all”) will also initiate a multi-ACS announcement over to System #1, Zone Group 12345 (which happens to be the ID # for the built-in all-call Zone Group).