TelePresence

Connecting the Digital Natural Audio Module (DNAM) Speaker Cable T3 to the Codec speaker

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September 2012 Edition

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1 Introduction

This document describes how to troubleshoot T3 Digital Natural Audio Module (DNAM) modules and how they must be connected to the Codec and speakers.

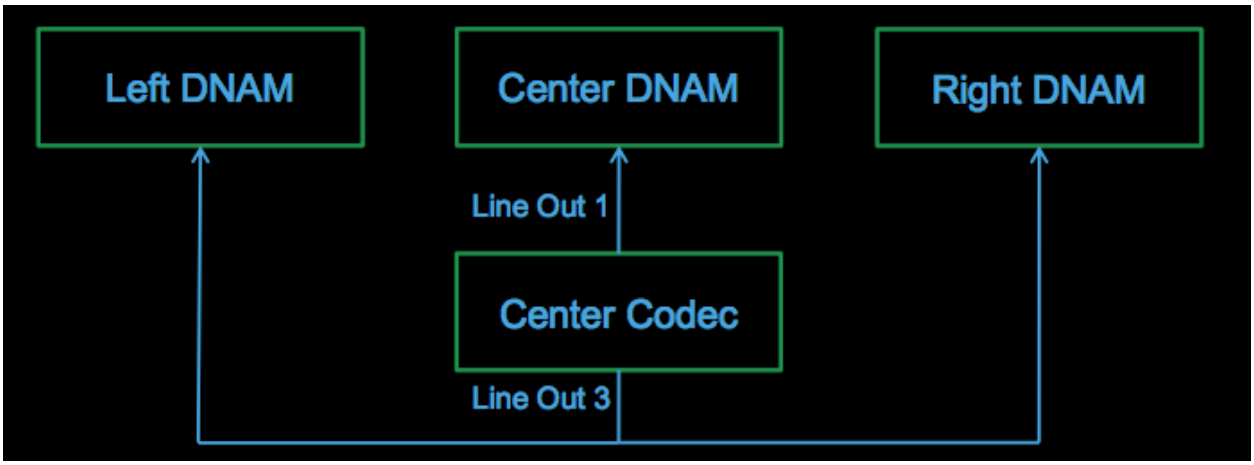
1.1 Release Notes

Table 1 - Release Notes

Technical Change	Title(s) of Affected Section(s)	Changes Made By	Date
Initial Release		Matt Limbrick	9/12/2012
Updates		Matt Limbrick	7/3/2013

2 Connecting the DNAM via the Db15pin

When it is powered on, the DNAM needs to be connected to the speaker bar under the 65” monitor via the DB15pin, 1ft cables. These cables 117850 (Left), 117852 (Center) and 117856 (Right) have different grounding pin-outs to indicate their position and are not interchangible while the DNAM units are. When powering on, the DNAM communicates with the speaker to determine status and stores it in the DNAM's volatile ram. If the DNAM is power cycled, the previous status is lost. If the DNAM is not connected to the speaker when it is powered on, it does not obtain status of the speaker. The DNAM ID is formed only at DNAM boot time and is transmitted to the center codec only during codec boot. This communication is sent over the SPDIF RCA cable for the status of the speaker. If there is no status, the Center codec reports this to the TCU and you have an error in the Diagnostics.



NOTE: ***S/PDIF*** or ***Sony Philips Digital Interconnect Format*** is a standard/protocol that specifies transmission of audio signals from one device to another in digital format.

The ***Sony Philips Digital Interconnect Format*** (***SPDIF***) y-split ***Radio Corporation of America*** (***RCA***) cable needs to be plugged into the center codec, audio output 3 and connected to the left and right DNAM RCA input. The Center DNAM input cable is to be plugged into the center codec, audio output 1. These cables are not standard RCA cables and require the impedence of a SPDIF cable. Using the wrong cable with cause communication problems.
You can verify status of the speakers through the DNAM to the center codec via the "xstatus audio module" command on the center codec. If the fields are populated with data, i.e., “114”, for SoftwareID and `"B40F69" for HardwareID,` then you have the status of the speaker connected to that DNAM. If

all fields are blank for a particular module, then the codec does not have any status of the speaker through the DNAM.

```
xstatus audio module
*s Audio Module 1 Type: DigitalNAM
*s Audio Module 1 SoftwareID: "114"
*s Audio Module 1 HardwareID: "B40F69"
*s Audio Module 1 Connector: "Line_out.1"
*s Audio Module 2 Type: DigitalNAM
*s Audio Module 2 SoftwareID: "114"
*s Audio Module 2 HardwareID: "B40F4B"
*s Audio Module 2 Connector: "Line_out.3"
*s Audio Module 3 Type: DigitalNAM
*s Audio Module 3 SoftwareID: "114"
*s Audio Module 3 HardwareID: "B40F78"
*s Audio Module 3 Connector: "Line_out.3"
** end
-----------
```

Module 1 is searched for on audio line out 1 on the center codec and is status for the center DNAM. Module 2/3 is searched for on audio line out 3 on the center codec and is status for the left and right DNAM.

The second to last digit in the hardware ID is the speaker ID. (If the ID is incorrect, audio will still pass from the codec to the speakers, but the TCU Diagnostics will show an error. Spatial audio will also perform incorrectly)

```
6 is center.
4 is left
7 is right
```

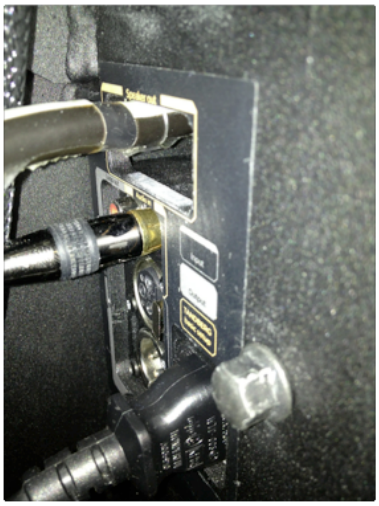
After the speaker status is stored on the DNAM, you can then unplug the DB15pin cable and reboot the codec and still get good status (although you will not be able to have audio pass through). This is because the speaker status is still stored on the DNAM's volitaile memory. If you power cycle the DNAM without the DB15 cable connected to the speaker, it will not be able to communicate with the speaker for it's status. The previous status is lost when the power is removed and would show as a DNAM error if the center codec is rebooted.

2.1 STEPS TO FOLLOW FOR TROUBLESHOOTING

To troubleshoot the DNAM, complete the following steps:

1. Connect as **admin** to the Center codec CLI.
2. Do an **xstatus audio module** and make sure all the information is similar to above on this page.
3. Unplug the DNAM power cable, then plug it back in. You should hear a "pop" sound from the speaker when doing so
4. Make sure the DB15 pin cable is seated firmly between the DNAM and speaker and that all pins have good contact. (No bent or missing pins)
5. Plug-in the power cable again and make sure you get a "pop" sound when doing so.
6. If no "pop":
   a. Remove power cable.
   b. Take out the fuse and make sure it is not blown (be careful to re-insert it correctly afterwards and make sure it is not loose! Important!)
   c. Re-insert power cable.
7. Re-start the Center codec.

8. You should also be able to observe a green light emitting from the XLR port area. As shown below. some models have a LED as others do not. If they do not have a LED, green light should reflect off the silver RCA and XLR connectors from within. You can check against the other 2 units to verify the green light.

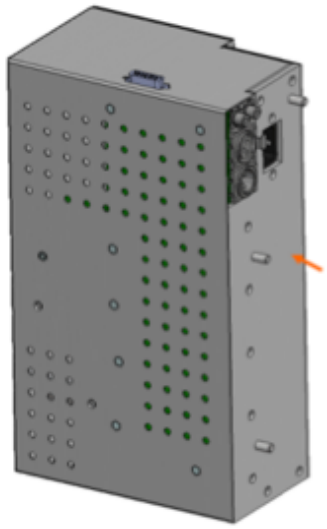


DNAM connections

DNAM LED w/ green power light

DNAM no LED w/ reflected green light

NOTE: *The codec only detects the DNAM at start-up so you always have to restart the center codec after troubleshooting the DNAMs.*



Additional information:

The DNAM is a multichannel amplifier with digital signal processing built-in. It is a component specially designed for use with Cisco/Ex-TANDBERG codecs. The interaction with the codecs is somewhat complex and not at all intuitive, and it is possible to misinterpret fault situations. When experiencing problems with audio output on systems incorporating a DNAM, especially “no-sound” situations, the following simple guidelines should be followed before concluding that the DNAM is faulty.

NOTE: T3 DNAM setup is special. If you have any problems with the setup, don’t hesitate to contact support or the escalation team directly.

1. Make sure all cables are properly and correctly connected. This includes the RCA cable from the codec audio output to the DNAM input, the cable(s) from the DNAM to the loudspeaker drivers or monitor assembly, and the power cable to the DNAM. On some systems, some of these connections are not easily available. Check those that are available. Verify that the DNAM's are connected to Line out 1 and 3 on the codec. Make sure that the Line out 1 and 3 Type is set to Auto (in the audio part of the codec's advanced configuration settings).

2. Power-cycle the complete DNAM system (including the codec) by pulling out and reinserting the mains plug from the wall socket. Wait for the system to boot completely and check the sound again. If cables and hardware are OK, this resets all SW functions and re-establishes codec-DNAM communication properly.

3. If the problem persists, check the DNAM fuse. Care should be taken not to damage the fuse holder when removing the fuse for inspection. Push the fuse holder slightly inwards and turn counter-clockwise for release. On some systems this can be done with fingers only, on others a flat screwdriver is required. On some systems, pulling the fuseholder out can be made easier by using a pair of pliers. If the fuse is blown it should be replaced with a **Littelfuse 215002,** which is a **2A 250V time-delay high-breaking capacity fuse**. (http://www.littelfuse.com/products/Fuses/5x20mm/215/0215002..html). This should be readily available from electronics component warehouses. Some systems have extra fuse kit in the column. **Using different fuses may easily lead to repeated failures or more serious hardware malfunction**. Also inspect the fuseholder for damage. Take care also when reinserting the fuse and fuseholder, push slightly inwards and turn the holder carefully clockwise until it locks in place.

4. Problem in codec, check settings and output signal, making sure there is sound.

5. Try connecting external audio source to DNAM input. If there is sound from the DNAM, that would mean both the speaker and DNAM are ok and the issue is probably the codec.

6. Check audio stat mod on codec in menus or use the xstat audio command. If data, the DNAM is communicating, there may be errors with speaker ID and cabling, contact TAC. If no data the DNAM is not talking to the codec.

T3 DNAM unit fru part number for RMA:
CTS-DNAM-SHT= (DNAM Short)

DNAM Cable Kits
==========
CAB-T3-KIT7= (Includes the two cables below)
RCA Y-split DNAM cable: 117854 04
Center DNAM cable: 129613 01
==========

CTS-T3-CABKIT12= (Supposed to include the three cables below)
117850 – Left DB15 pin cable from Left Speaker to Left DNAM
117852 – Center DB15 pin cable from Center Speaker to Center DNAM
117856 – Right DB15 pin cable from Right Speaker to Right DNAM
==========

DNAM to Speaker DB15-pin cable Pinouts (Not interchangeable)
Right: 117856
Open: pins 1, 2 & 15.
Connection: 3-12 on DNAM are straight through to 3-12 on the monitor side.

Ground: 13 & 14 on DNAM side are grounded to pin 14 on the monitor side

Center: 117852
Open: pins 1 & 15.
Connection: 3-12 on DNAM are straight through to 3-12 on the monitor side.
Ground: 2, 13 & 14 on DNAM side are grounded to pin 14 on the monitor side

Left: 117850
Open: pins 15.
Connection: 3-12 on DNAM are straight through to 3-12 on the monitor side.
Ground: 1, 2, 13 & 14 on DNAM side are grounded to pin 14 on the monitor side

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