TelePresence T3 DNAM System Troubleshoot

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Introduction

This document describes how to troubleshoot T3 Digital Natural Audio Modules (DNAM) and how to properly connect them to the codec and speakers. The DNAM is a multichannel amplifier with built−in digital signal processing. It is a component specially designed for use with Cisco/Legacy TANDBERG codecs.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

The information in this document is based on the Cisco TelePresence T3 System.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Related Products

The information in this document can also be used with the Cisco TelePresence T1 System.

Background Information

Before the DNAM is powered on, the DNAM must be connected to the speaker bar under the 65−inch monitor via the Dual Band (DB), 15−pin, 1−ft. cables. These cables have different grounding pinouts that indicate their position, and are not interchangeable, whereas the DNAM units are. When powered on, the DNAM communicates with the speaker in order to determine the status, and stores the information in the DNAM 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 the 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 Sony/Phillips Digital Interconnect Format (SPDIF) Radio Corporation of America (RCA) cable for the speaker status. If there is no status, the Center codec reports this to the TelePresence Control Unit (TCU), and you receive an error in the Diagnostics.

Here is the layout of the DNAM–to–Speaker, DB15–pin cable pinouts (not interchangeable):

Right Cable (117856)

- Open – pins 1, 2, and 15
- Connected – pins 3 through 12 on the DNAM are straight through to ports 3 through 12 on the monitor–side
- Grounded – pins 13 and 14 on the DNAM–side are grounded to pin 14 on the monitor–side

Center Cable (117852)

- Open – pins 1 and 15
- Connected – pins 3 through 12 on the DNAM are straight through to ports 3 through 12 on the monitor–side
- Grounded – pins 2, 13, and 14 on the DNAM–side are grounded to pin 14 on the monitor–side

Left Cable (117850)

- Open – pin 15
- Connected – pins 3 through 12 on the DNAM are straight through to ports 3 through 12 on the monitor–side
- Grounded – pins 1, 2, 13, and 14 on the DNAM–side are grounded to pin 14 on the monitor–side
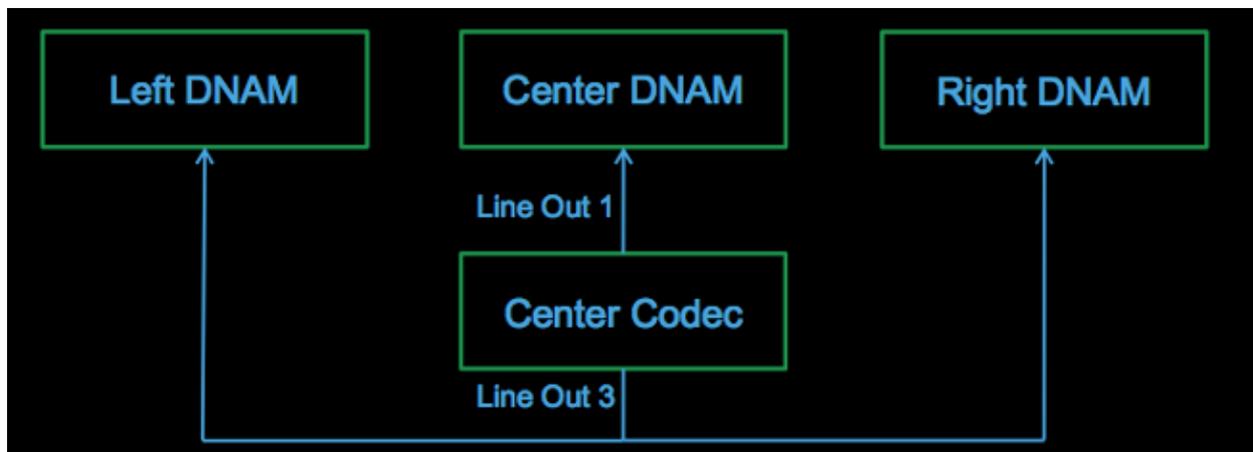
The Y–split SPDIF RCA cable must be plugged into audio output 3 on the center codec, and must be connected to the left and right DNAM RCA inputs. The center DNAM input cable must be plugged into audio output 1 on the center codec. These cables are not standard RCA cables and require the impedence of an SPDIF cable, so use of the wrong cable causes communication problems.

The status of the speakers is verified through the DNAM to the center codec via the ***xstatus audio module*** command. If the fields are populated with data (***114*** for the ***SoftwareID*** and ***B40F69*** for the ***HardwareID***, for example), then you know the status of the speaker that is connected to that DNAM. If all fields are blank for a

particular module, then the codec does not know the status for the speaker through the DNAM.

Here is an example of a good status output, where the center, left, and right DNAM units show status:

```
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
```

Here is an example of a bad status output, where only the center DNAM shows status:

```
xstatus audio module
*s Audio Module 1 Type: DigitalNAM
*s Audio Module 1 SoftwareID: "117"
*s Audio Module 1 HardwareID: "B40F69"
*s Audio Module 1 Connector: "Line_out.1"
*s Audio Module 2 Type: Unknown
*s Audio Module 2 SoftwareID: ""
*s Audio Module 2 HardwareID: ""
*s Audio Module 2 Connector: ""
*s Audio Module 3 Type: Unknown
*s Audio Module 3 SoftwareID: ""
*s Audio Module 3 HardwareID: ""
*s Audio Module 3 Connector: "
```

Module 1 is searched for on audio line out 1 on the center codec, and shows the status for the center DNAM. *Module 2* and *Module 3* are searched for on audio line out 3 on the center codec, and show the status for the left and right DNAMs.

The second−to−last digit in the *HardwareID* is the speaker ID (in this example, 6 represents the center speaker, 4 the left, and 7 the right). If the ID is incorrect, audio still passes from the codec to the speakers, but the TCU Diagnostics show an error. Spatial audio also performs incorrectly.

After the speaker status is stored on the DNAM, you can unplug the DB15−pin cable and reboot the codec, and you still receive a good status. However, you do not have audio pass−through. This is because the speaker status is still stored in the DNAM volatile memory. If you power−cycle the DNAM without the DB15−pin cable connected to the speaker, it is not able to communicate with the speaker for status. The previous status is lost when the power is removed and shows as a DNAM error if the center codec is rebooted.

Troubleshoot Cisco TelePresence T3 System DNAMs

In order to troubleshoot the DNAM, complete these steps:

1. Connect via *admin* to the center codec CLI.
2. Enter the *xstatus audio module* command and ensure that all of the information is similar to the previous example.
3. Ensure that all cables are correctly connected:

- ♦ 117850 – Connects the left DNAM to the *speaker port* on the left 65–inch LCD speaker bar.
- ♦ 117852 – Connects the center DNAM to the *speaker port* on the center 65–inch LCD speaker bar.
- ♦ 117856 – Connects the right DNAM to the speaker port on the right 65–inch LCD speaker bar.
- ♦ 129613 – (RCA SPDIF) Connects the center codec *audio out 1* to the center *DNAM RCA in* (black port).
- ♦ 117854 – (RCA SPDIF Y–split cable) Connects the center codec *audio out 3* to the left and right *DNAM RCA in* (black port, 3) power cables (one to each DNAM).

4. In order to ensure that the line out 1 and 3 *Type* is set to *Auto*, enter these commands, which display the settings that are currently configured:.

```
xConfiguration Audio Output Line 1 Type
xConfiguration Audio Output Line 3 Type
```

Here is the output for these commands:

```
xConfiguration Audio Output Line 1 Type
*c xConfiguration Audio Output Line 1 Type: Auto** end
```

5. Power–cycle the complete DNAM system (along with the codec); remove and reinsert the main power plug from the wall socket. Wait for the system to boot completely and check the sound. If the cables and hardware are properly connected, this resets all software functions and reestablishes codec–to–DNAM communication.
6. Unplug the DNAM power cable, and then reinsert it. You should hear a *pop* sound from the speaker when this occurs.
7. Ensure that the DB15–pin cable is seated firmly between the DNAM and speaker, and that all pins have good contact (no bent or missing pins).
8. Unplug the power cable once again, and reinsert it. Ensure that you hear the *pop* sound when this occurs.
9. If the problem persists and/or no *pop* sound is heard, check the DNAM fuse and fuseholder for damage:

Caution: Take care not to damage the fuseholder when you remove the fuse for inspection.

A. Push the fuseholder slightly inwards, and turn counterclockwise in order to release it. On some systems you can do this with your fingers, whereas on other systems the use of a flat–bladed screwdriver might be required for more leverage.
B. If the fuse is blown, replace it with a Littelfuse 215002, which is a 2A, 250V, time–delay, high–breaking capacity fuse.

Caution: Use of unrecommended fuses might lead to repeated failures or a serious hardware malfunction.

C. In order to replace the fuseholder, push the holder slightly inwards and turn carefully clockwise until it locks into place.

10. If the DNAM has power and the fuse is good, a green light should illuminate in the XLR port area. As shown in the next image, some models have an external LED, while others do not. If your model does not have an LED, a green light should reflect off of the silver RCA and XLR connectors from within. You can check against the other two units in order to verify that the green light illuminates.
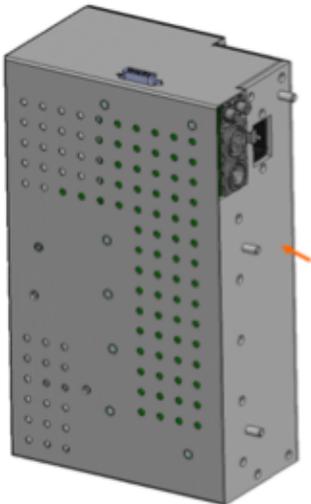

DNAM connections   DNAM LED w/ green power light   DNAM no LED w/ reflected green light

Note: The codec only detects the DNAM upon start–up, so you should always restart the center codec after you troubleshoot the DNAMs.

11. In order to verify that the problem is with the codec, check the settings and output signal, and ensure that there is sound. Attempt to connect an external audio source to the DNAM input. If there is sound from the DNAM, it means that both the speaker and DNAM are okay, and that the issue is most likely with the codec.

Parts Information

Use this section for information about the parts used in this document.

T3 DNAM Unit
Part Number − CTS−DNAM−SHT (DNAM Short)

DNAM Cable Kits

CAB−T3−KIT7

- 117854 04 − RCA Y−split DNAM cable
- 129613 01 − Center DNAM cable

CTS−T3−CABKIT12

- 117850 − Left DB15−pin cable from the left speaker to left DNAM
- 117852 − Center DB15−pin cable from the center speaker to the center DNAM
- 117856 − Right DB15−pin cable from the right speaker to the right DNAM

Related Information

- *Cisco Telepresence T3 System Schematics*
- *Technical Support & Documentation − Cisco Systems*

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