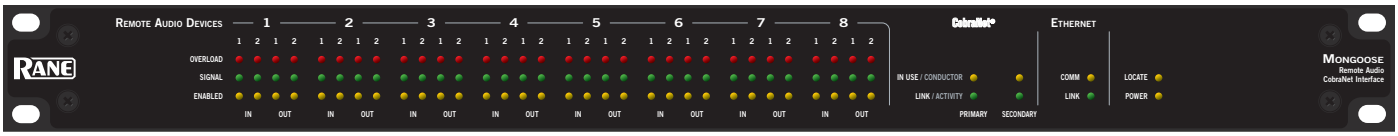
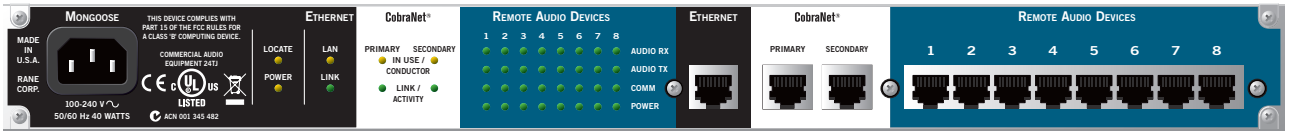
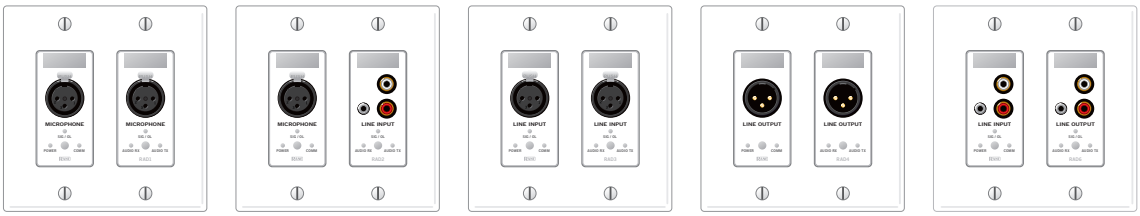


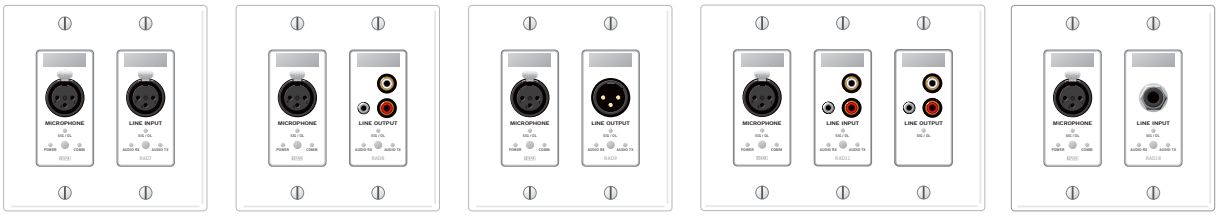
front panel



rear panel



Input and Output for any occasion — 14 RAD models available in white, ivory and black.



Introduction

The purpose of Mongoose is to replace the analog mic and line level portions of an audio system between the equipment rack and remote spaces with digitized audio over CAT 5 cable.

- RAD: Digital conversion at the wall or floor box. Not a Cobranet device.
- Mongoose: Use with, or without, CobraNet.

Mongoose Benefits

- Sends and receives scattered digital audio efficiently.
- Greatly reduces troubleshooting.
- Greatly reduces the length of the analog transmission line.
- Status indicators at the point of remote signal entry.
- Change signal routing easily in software.
- Remove the hum and buzz problems of long runs.
- Greatly reduces conduit, labor, and wire cost in the RAD network — especially the CobraNet run.

RADs

A Remote Audio Device (RAD) provides analog to digital conversion at the wall (or floor box). Several connection types and colors are available.

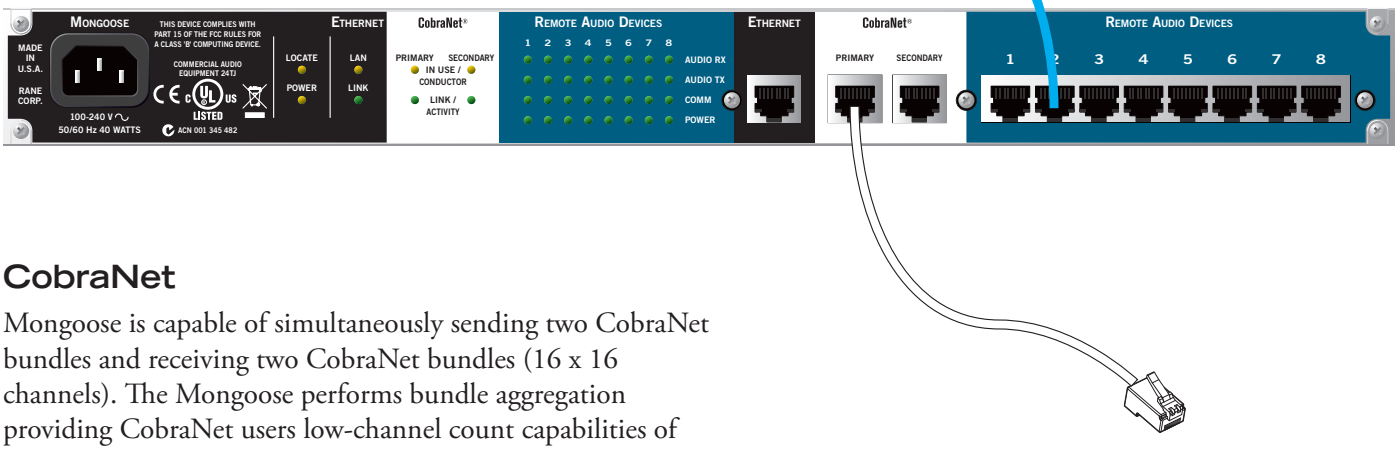
RADs are not CobraNet devices, therefore without CobraNet's rules and limitations.

RAD Network

The RAD network (blue) is a proprietary four-channel (2x2) digital audio bus that connects up to 8 RADs to a single Mongoose.

Mongoose

The Mongoose routes audio between RADs. It may operate on its own, or connect to a CobraNet network.



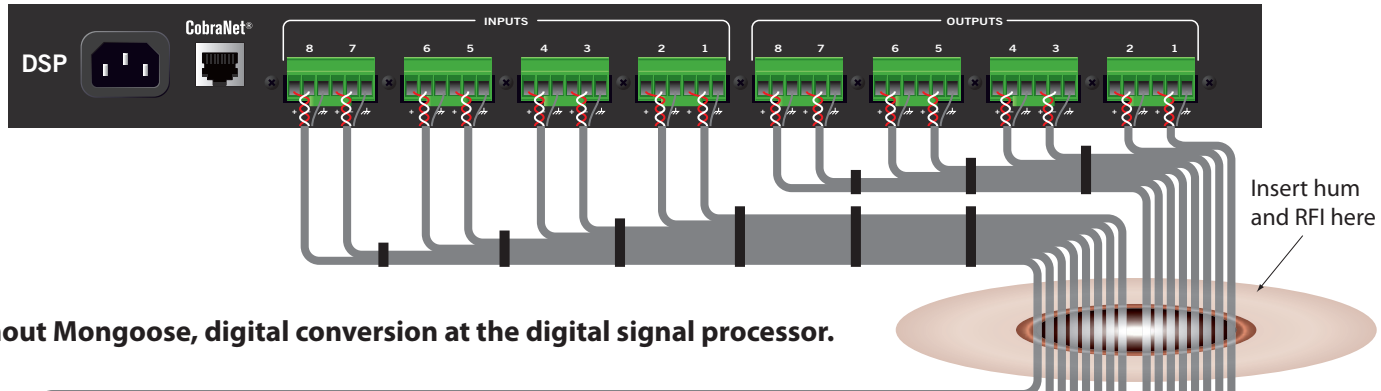
CobraNet

Mongoose is capable of simultaneously sending two CobraNet bundles and receiving two CobraNet bundles (16 x 16 channels). The Mongoose performs bundle aggregation providing CobraNet users low-channel count capabilities of individual RADs.

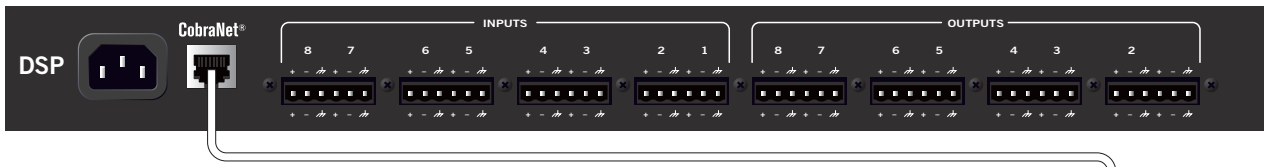
Versatility

Mongoose can send and receive digital audio on both the RAD network and CobraNet. RAD network is an excellent digital audio transport for non-CobraNet users. Multiple Mongoose units can be networked to provide more channels.

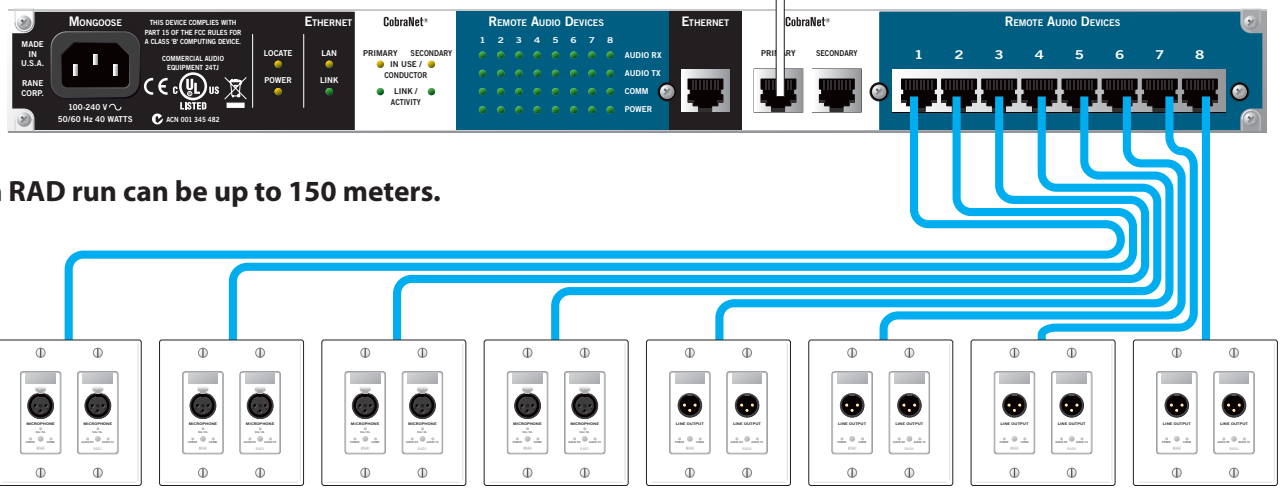
Cabling Comparison



Without Mongoose, digital conversion at the digital signal processor.



With Mongoose, digital conversion is at the wall.



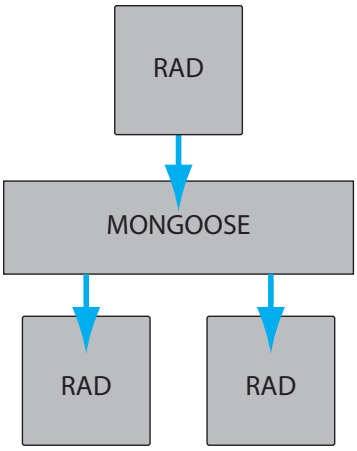
Each RAD run can be up to 150 meters.

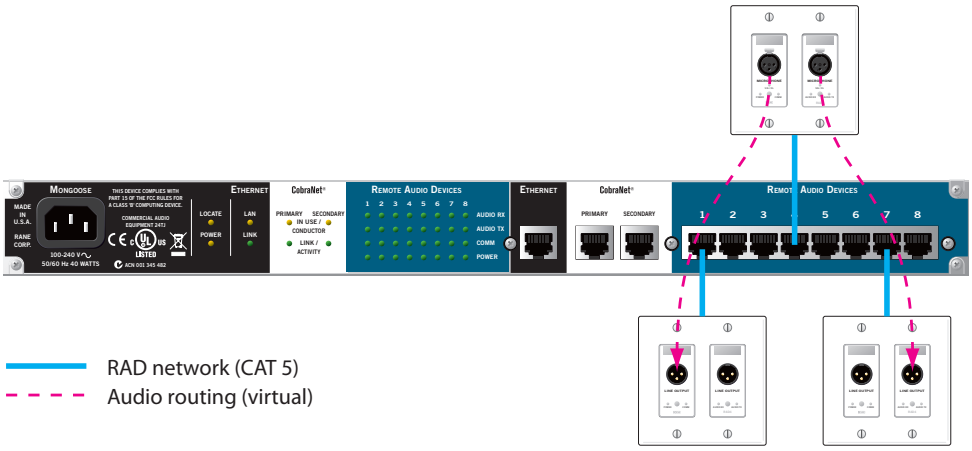
Configurations

Basic RAD to RAD: No CobraNet Required

Analog runs are replaced with digital runs, in an easily configurable "set-&-forget" matrix. Uses include:

- Digital patch bay
- Point-to-point, A to B, (tie lines)
- Splitter / distribution amp
- Multichannel mic preamp
- Unbalanced to balanced converter (consumer to pro)

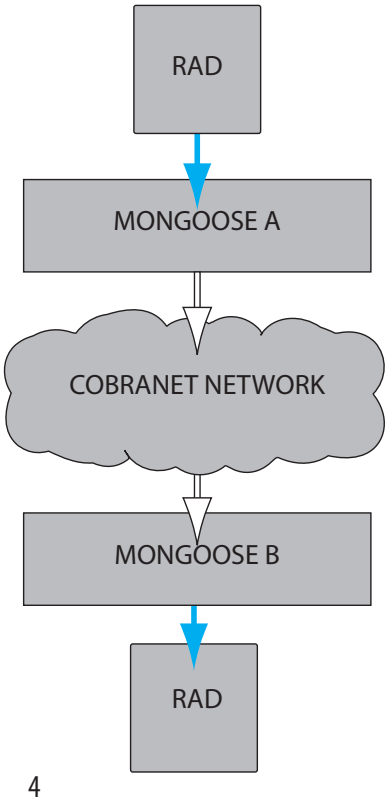


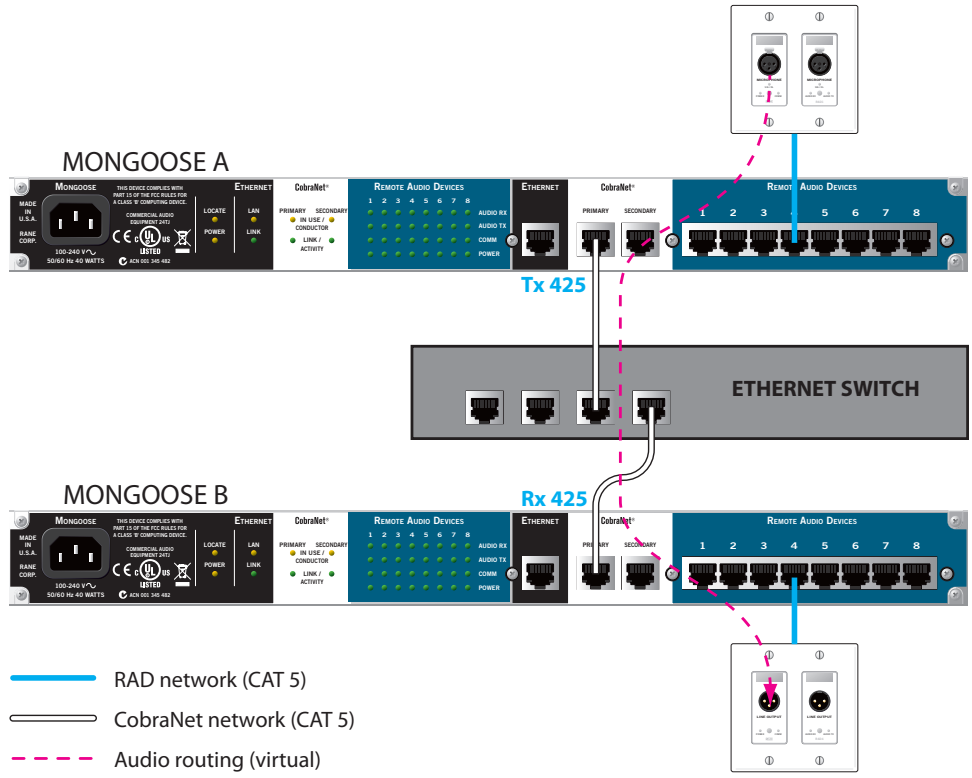


RAD to RAD (made bigger)

Add a second Mongoose on the network to increase the number of RADs or total distance between RADs. Adding an ethernet switch allows greater distances between Mongooses.

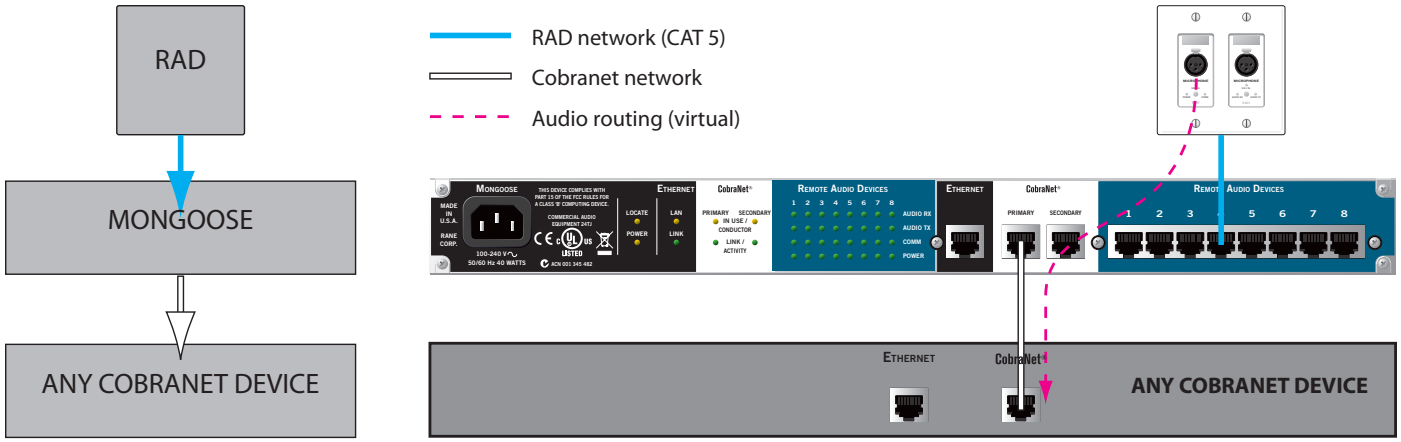
RAD network cable distance maximum is 150 meters, so use this configuration when more than eight RADs are needed, or if the RADs are more than 150 meters apart.





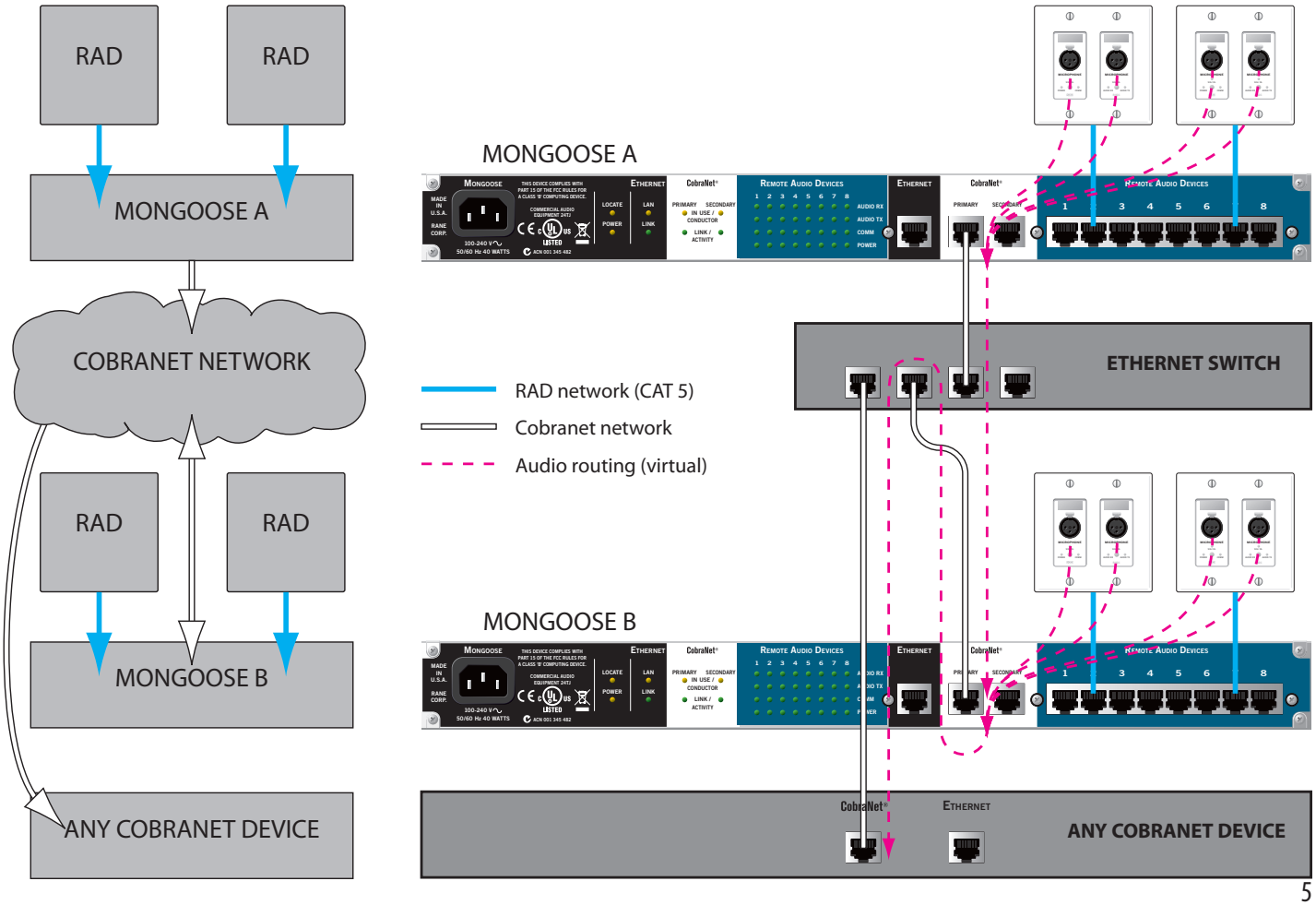
RAD to / from CobraNet DSP

This is the primary application for Mongoose. The Mongoose is directly connected to any CobraNet device port. The CAT 5 CobraNet run carries up to 32 (16 x 16) channels. Relocating the A/D converters from the DSP to the wall plate reduces or eliminates long analog runs.



RAD to / from CobraNet DSP (made bigger)

The Mongoose is connected to the CobraNet device through the network. Audio may travel in either or both directions depending on RAD choices. Adding more ethernet switches allows greater CobraNet distances and addition of more CobraNet or Mongoose devices.



Mongoose Math

Mongoose is self-funding in most applications. You save more by using Mongoose. Significant savings are realized in hardware, wire and conduit, and the installation of projects.

- Remove or reduce the analog I/O in the DSP.
- Reduce the number of DSP devices.
- A single CAT 5 transmitting CobraNet can replace up to 128 (64x64) channels.
- Pulling and terminating a single CAT 5 cable requires far less labor than the 32 (or 64) twisted pairs it replaces. A single Mongoose has the CobraNet capability of 32 channels. Double that to 64 in a multi-Mongoose system.
- In many applications conduit is not required for CAT 5. Less conduit is required, because digitized audio does not need to separate mic and line level. The conduit can be smaller size because a single CAT 5 has the channel capacity of a fist full of analog runs.
- Cost of terminating. Compare RJ45 crimps versus both ends of 128 channels of XLRs.
- No time spent finding the hum and buzz culprits.

Instant Diagnostics

Real time testing and status indicators address:

- Is this thing on? No question.
- RADs are their own cable and audio testers.
- Every aspect of RAD network hardware, wire, terminations, and firmware.
- Monitor system integrity at the RAD, Mongoose, or computer.
- Owner awareness of system status and solderless replacement of RADs — No computer required.
- Contractor: verify the system is fully operational before you leave the job site.
- Consultant: verify the system is fully operational before you arrive at the job site.

Latency

RAD A/D converter (Input channel): 0.36ms.
RAD D/A converter (Output channel): 0.41ms.
Mongoose (RAD Network processing / transport): <0.16ms.
CobraNet (selectable 1.3 ms, 2.6 ms, and 5.3 ms).

When calculating latency, know that RADs usually relocate an A/D converter (from the DSP to the wall) rather than add one. Therefore, RADs normally do not add latency.

CobraNet Users

RADs and Mongoose may greatly reduce costs:

- RAD mic inputs provide 24V Phantom power.
- RADs are powered via the Mongoose.
- RADs are not CobraNet devices, for less rules: no bundles, address, latency settings.
- CobraNet run <100 meters, RAD run <150 meters.
- Use the RAD network for low channel-count runs, CobraNet for high channel-count runs.
- On-ramp or off-ramp for CobraNet (from mic to loudspeaker).
- Aggregate channels to fill bundles.

Unfamiliar with CobraNet?

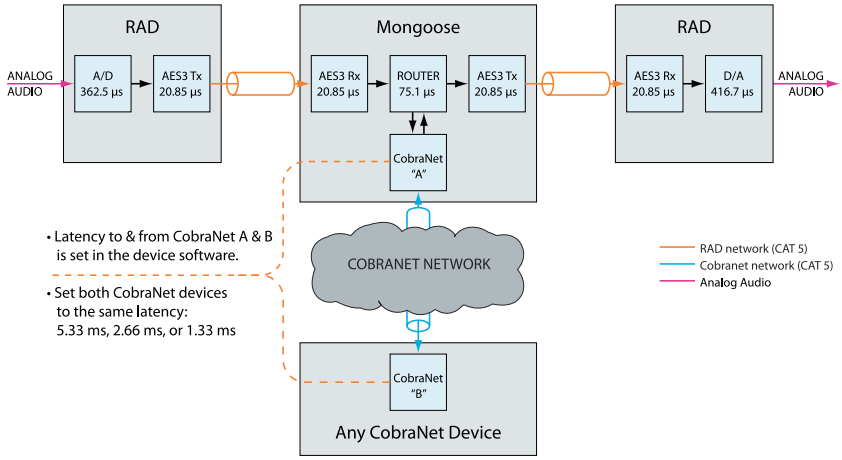
The basic concept of CobraNet is the ability to send multiple channels of digital audio from one device to another using standard Ethernet networks. The basic concept of Mongoose is to connect the scattered channels of the RAD network to the multi-channel CobraNet network.

CobraNet isn't scary. Here's the short version. CobraNet transmits individual channels of audio in Bundles. Bundles contain up to 8 audio channels. Most CobraNet equipped devices can send at least 2 bundles and receive at least 2 bundles (up to 16 x16 channels) though it is possible to have more.

Suppose we have a Mongoose and want to send (transmit) a Bundle of 8 audio channels to a DSP device.

Step 1. Pick a number that will be used to identify the Bundle, say for example, Bundle number 500. Simply enter 500 into Transmit Properties on the Mongoose and into the Receive properties on the DSP.

Step 2. Set both the Mongoose and the DSP to the same latency, i.e., 1.33 ms.



Programming

In the office

The Mongoose can be programmed in the office with Mongoose Tracker Software. The on-site task is then limited to system termination as spec'ed.

Mongoose Tracker is shipped on a CD with the Mongoose product, and is also available free anytime at *www.rane.com/mongoose*. It runs under Microsoft Windows® XP or Vista.

At the job site

On-site, Mongoose Tracker's Match feature automatically programs the RAD ports, based on detected devices. Then simply route between the desired Input and Output channels in the matrix, and add the CobraNet values if applicable.

Mongoose Tracker Software

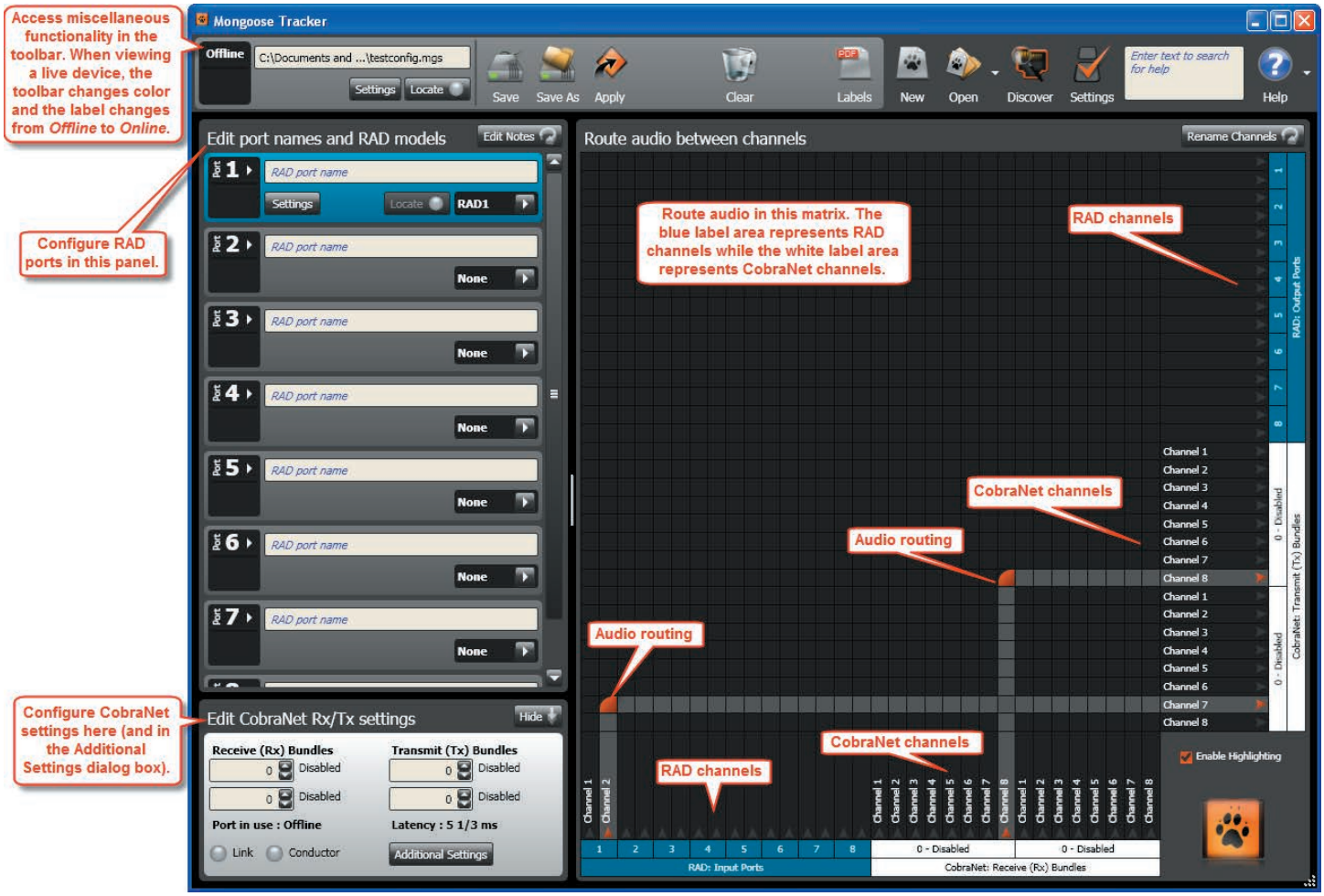
The Mongoose Tracker allows you to easily and intuitively configure and troubleshoot the RADs and Mongoose devices in your system.

To communicate with your Mongoose, connect your computer to a network switch or use a standard Ethernet patch cable (or crossover cable) to connect directly.

Using Mongoose Tracker, you configure each Mongoose RAD port with the RAD model to be connected to it. You can also configure various settings for each RAD, for the Mongoose itself, and for the CobraNet network.

Setting up the audio routing, using the matrix that appears in Mongoose Tracker's main window, makes it is very easy to connect inputs to outputs.

Mongoose Tracker is also a valuable tool for troubleshooting any issues that may arise. Although you can determine a lot from the hardware status indicators, the software provides more detail, allowing you to drill down and pinpoint the problem with greater accuracy.



Recent Installations

Great Wolf Lodge, Grapevine, TX (Nov, 08)

Room combine
2 Mongooses, 12 RADs
DSP provided by BSS Blu-800s

Arizona State University (July, 08)

Classroom audio 5 rooms (3 of which combine)
7 Mongooses, 27 RADs
DSP provided by four Biamp Audias

Arnhem Town Hall, Apeldoorn, Netherlands (Oct,08)

Conferencing systems
1 Mongoose, 7 RADs
DSP provided by Biamp Audia

Schuberg Philis, Amsterdam (Oct, 08)

Audio distribution system
1 Mongoose, 8 RADs
DSP provided by Biamp Audia

Snake vs. Mongoose?

Snakes have many connectors (A/D converters) at one location.

RADs are intended to be scattered, placing the converters where needed.

Snake boxes may not have the exact type of connectors needed, i.e., dual RCA, 3.5 mm, etc. RADs are available in a wide variety of connector types.

Commonly Asked Specifications

Distances

- RAD network 150 meters (492 feet)
- CobraNet 100 meters (328 feet) to a switch or other CobraNet device
- Ethernet 100 meters (328 feet) to a switch/router or other Ethernet device

RAD network audio

- Uncompressed, 24-bit converters, 48 kHz sample rate.
- Mic preamp sensitivity range: -26 to -60 dB (in 1 dB increments)
- Common mode rejection of RAD network: -20/+26 volts.
- Phantom Power: +24 V @ 10 mA (suitable for most +48 V applications, see RaneNote 148 or PAR).

Download Mongoose Tracker now at www.rane.com/mongoose