ClearOne.

CONNECT CobraNet and CONNECT AVB
Network Audio Bridge for CONVERGE PRO & SR Products

Quick-Start Guide

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THE CONNECT COBRANET AND CONNECT AVB

The CONNECT CobraNet® and CONNECT AVB network bridges add networked audio capabilities to CONVERGE PRO and CONVERGE SR products enabling them to transmit audio through Ethernet networks.

> **IMPORTANT:** The CONNECT CobraNet and CONNECT AVB bridges only can be used with CONVERGE Pro/SR systems operating at version 4.2 or higher software and firmware.

The latest version of the CONVERGE Pro firmware can be found on the ClearOne website at:

http://www.clearone.com/resources#professional_audio

QUICK-START OVERVIEW

Installing and using the CONNECT CobraNet and CONNECT AVB bridges in your CONVERGE Pro/SR site is subject to the following rules:

1. The CONNECT CobraNet and CONNECT AVB can only be used with CONVERGE Pro/SR systems operating at version 4.2.X or greater, and requires that the firmware on the CONVERGE Pro/SR be updated.

2. You must have a CONVERGE Pro 840T, 880, 880T, 880TA, 8i, TH20, VH20 and/or SR1212, SR1212A in the site.

3. The CONNECT CobraNet and AVB bridges support only 8 Ethernet audio channels in and 8 Ethernet channels out.

4. Either the CONNECT CobraNet or AVB can be used, depending on the particular networks architecture.

CONNECT NETWORK BRIDGES

Both CobraNet and AVB networks can be audio sources to CONVERGE Pro/SR mixers using the appropriate types of audio network bridges. The following diagram shows how several CONVERGE Pro/SR stacks can connect over AVB and CobraNet networks.
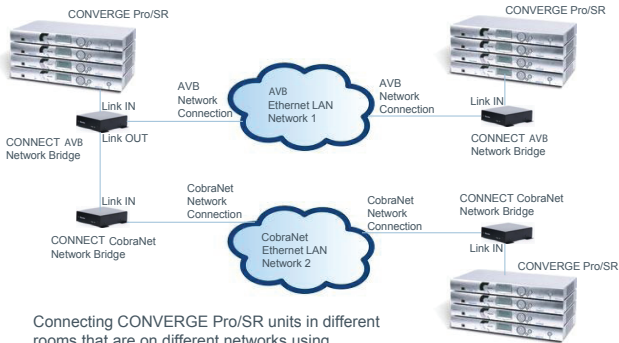
Connecting CONVERGE Pro/SR units in different rooms that are on different networks using multiple CobraNet and AVB network bridges

Up to eight CONNECT units can be attached to a single CONVERGE Pro/SR stack with each set to a unique Device ID using the DID selector rotary switch

Quick Start Summary

These steps must be done in the following order to use the CONNECT network audio bridge in your CONVERGE Pro Site:

1. Update the CONVERGE Pro firmware to version 4.2.X using CONVERGE Console.

2. Set the Device ID of the CONNECT CobraNet and/or CONNECT AVB using the Device ID rotary selector switch at the back of the bridge.

3. Connect the CONNECT CobraNet and/or CONNECT AVB to the updated CONVERGE Pro/SR via the Expansion bus (E-bus).

4. Update the CONNECT network bridge firmware

5. Configure the CONNECT CobraNet and CONNECT AVB with CONVERGE Console.

UPDATE THE CONVERGE PRO FIRMWARE

Update your CONVERGE Console to version 4.2 or higher. CONNECT CobraNet and CONNECT AVB network audio bridges are not recognized by systems running older versions and the 4.2.X versions offer significant upgrades from previous versions.

ClearOne strongly encourages users to upgrade all firmware to the latest release version.

Instructions for updating from version 1.X 2.X and 3X are detailed later in this document.

CONNECT NETWORK BRIDGES

NOTE: Save the CONVERGE Console site file before performing any firmware upgrade.

1. Download the 4.2.X firmware file to the stack of units.

2. The units will default and reboot after the download of 4.2.X firmware.

3. Units are fully upgraded.

4. Verify units have been upgraded by checking the firmware version on the front panel.

Reconnect all E-bus cables, if needed, to complete the stack of units.
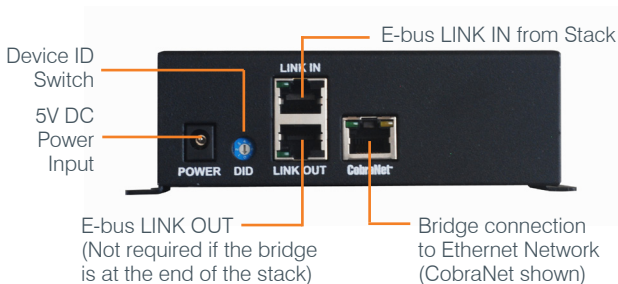
SET THE DEVICE ID

Set each CONNECT CobraNet and CONNECT AVB unit to a unique ID using the Device ID selector rotary switch on the back of the unit. (Range 0-7) Each CONNECT unit in any site needs a unique Device ID. Only 8 units are allowed in any site.

Device ID Rotary Selection Switch

POWER   DID   LINK OUT   Cob
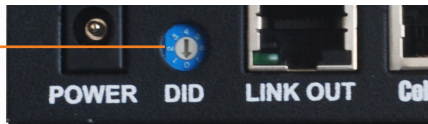
CONNECTING THE CONNECT COBRANET/AVB UNIT

Connect the CONNECT CobraNet/AVB units to the CONVERGE Pro/SR stack via the E-bus connections using CAT5/CAT6-24AWG solid conductor RJ45 cables. Power to the CONNECT CobraNet/AVB is supplied by a standard power adapter supplied with the unit.

Device ID Switch

5V DC Power Input

E-bus LINK IN from Stack

E-bus LINK OUT
(Not required if the bridge is at the end of the stack)

Bridge connection to Ethernet Network
(CobraNet shown)

NOTE: The network connectors for the CONNECT CobraNet and the CONNECT AVB appear to be identical but they are not. Each is electronically unique to the type of network being bridged. Only use the CONNECT CobraNet with CobraNet networks, and CONNECT AVB with AVB networks.

CONNECT NETWORK BRIDGES

UPDATING CONNECT COBRANET/AVB FIRMWARE

NOTE: All CONNECT CobraNet/AVB Pro units in the site must be running firmware level 4.X to be compatible with the CONVERGE Pro/SR units in the site.

1. Connect the E-bus cable between the CONVERGE Pro units and the CONNECT audio network bridge.

2. Connect the CONVERGE Pro units with CONVERGE Console.

3. Open the **Firmware Loader** screen.

4. Browse for the CONNECT firmware file: **cobranet.mdo** for the CONNECT CobraNet, and **avb.mdo** for the CONNECT AVB.

5. Download the CONNECT audio network bridge firmware.

6. The CONNECT audio network bridge will default and reboot after the download of the firmware. (The version of the firmware can be verified later using the **Unit Properties** screen for the CONNECT network bridge.)

7. Units are fully upgraded. (All units connected via the E-bus on the site are simultaneously updated.)

8. Restore the saved site file to the system using CONVERGE Console.

ADDING CONNECT NETWORK BRIDGES TO SITES

Each CONNECT CobraNet and/or AVB network bridge must be added to the site using the CONVERGE Console 4.2.X and later software. This software also provides the capability selecting the audio channels and other characteristics. Refer to the online help available with the CONVERGE Pro/SR software for adding devices.

Adding the Bridge

Using the CONVERGE Console software, **ADD** the CONNECT CobraNet and/or AVB network bridge to the site using the drop-down menu.
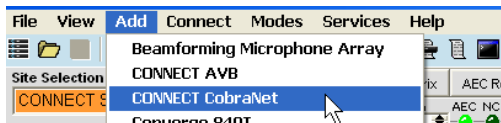
Editing the CONNECT Network Bridge in Site

Select the CONNECT CobraNet and/or AVB audio network bridge from the **Site View** tab in Console, and the device appears under the **Site** button on the right-hand portion of the screen.

Click on the device box and the Unit Properties appear for the device.

CONNECT NETWORK BRIDGES

CobraNet Settings

The next two figures show the Unit Properties tabs for the CONNECT CobraNet bridge.

Set the Device ID (DID) to match that of the rotary selection switch of the CONNECT CobraNet device.

RX and TX Bundle Numbers

When a receiver on one interface is assigned the same bundle number as that of a transmitter on another interface, the CobraNet protocol automatically establishes a connection for transmitting audio data between the interfaces.

ClearOne CobraNet is a single-bundle, eight-channel device with a fixed 48 kHz sample rate. The eight channels of audio correspond to E-bus assignments S through Z. Any audio placed on these busses will be transmitted in the CobraNet bundle. Any audio received from the CobraNet bundle can be taken off the S to Z bus on any CONVERGE Pro Unit.

Latency

The buffering and transmission of audio data typically incurs a delay of 256 samples or 5 1/3 milliseconds called Bundle Latency. This delay can be reduced by sending smaller packets more often but comes at the cost of higher processing demands and greater network demands

Channel Assignment

Complete the audio channel assignments in the Matrix in CONVERGE Console for the channels present in the network bridge. When a CobraNet is added to the site any audio on the S Bus will automatically be placed on the CobraNet transmit bundle on Audio channel 1.

CONNECT NETWORK BRIDGES

AVB Settings

The next two figures show the Unit Properties tabs for the CONNECT AVB bridge.
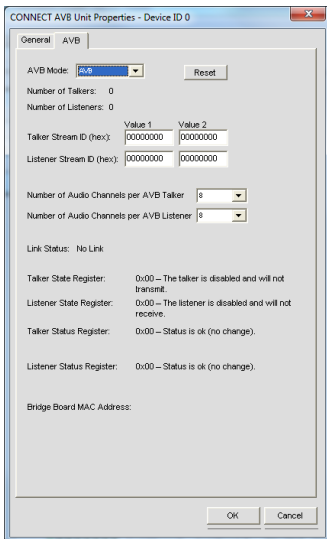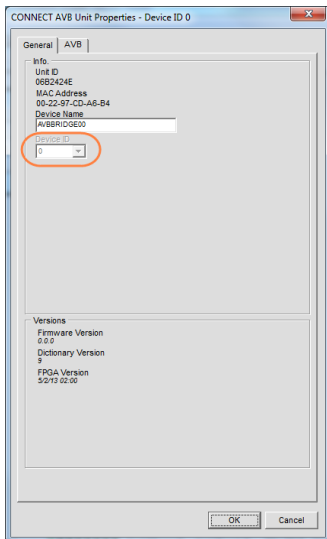
Set the Device ID (DID) to match that of the rotary selection switch of the CONNECT AVB device.

AVB Mode

"AVB" uses the AVB protocols for streaming of audio with AVB switches.

"Legacy" simplifies the AVB packets allowing them to pass through "legacy" LAN switches and routers

Reset

Used to force initialization of audio streaming after Talker and Listener and TX changes are made.

Talker and Listener Stream ID's

AVB endpoints are able to pass streams between each other. The Talker sends the stream and the Listener receives the stream. On a network, each stream has a unique 64 bit (hex) ID. A Talker must be assigned a unique ID. For the Listener to receive the stream is must be assigned the same ID as the desired Talker. The CONVERGE AVB is both a Talker and a Listener

Number of Audio Channels per AVB Talker

When the Converge AVB is a Talker it can set to use 2, 4, 6, or 8 audio channels. On the E-bus connected CONVERGE Pro, the audio channels start with the S Bus input.

Number of Audio Channels per AVB Listener

When the Converge AVB is a Listener it can receive 2, 4, 6, or 8 audio channels. On the E-bus connected CONVERGE Pro the audio channels start with the S Bus output.

CONNECT NETWORK BRIDGES

Channel Assignment

Complete the audio channel assignments in the Matrix in CONVERGE Console for the channels present in the network bridge. Eight audio channels are supported and are assigned to E-bus channels S through Z.
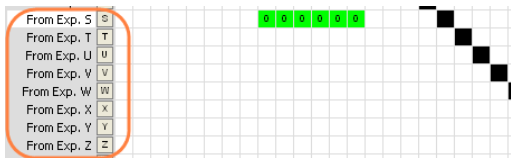
UPGRADING FROM OLDER VERSIONS OF CONVERGE FIRMWARE

Please follow the steps listed below to upgrade your firmware:

NOTE: Save the CONVERGE Console site file before performing any firmware upgrade.

Upgrading from CONVERGE Pro 3.X firmware

1. Remove any 1.X, 2.X and 4.X units from the stack by disconnecting the expansion bus link cable from the 3.X units.

2. Re-connect to the 3.X stack with CONVERGE Console.

3. Download the 4.2.X firmware file to the stack of units.

4. The units will default and reboot after the download of 4.2.X firmware.

5. Units are fully upgraded.

6. Verify units have been upgraded by checking the firmware version on the front panel.

Reconnect all E-bus cables, if needed, to complete the stack of units.

Upgrading from CONVERGE Pro 2.X firmware

1. Remove any 1.X, 3.X and 4.X units from the stack by disconnecting the expansion bus link cable from the 2.X units.
2. Re-connect to the 2.X stack with CONVERGE Console.
3. Download the 4.X firmware file to the stack of units.
4. The units will default and reboot after the download of 4.X firmware. The 2.X to 4.X upgrade requires the firmware to be loaded twice to complete the version upgrade.
5. Units are fully upgraded.
6. Verify units have been upgraded by checking the firmware version on the front panel.

Reconnect all E-bus cables, if needed, to complete the stack of units.

Upgrading from CONVERGE Pro 1.X firmware

1. Remove any 2.X, 3.X and 4.X units from the stack by disconnecting the expansion bus link cable from the 1.X units.
2. Re-connect to the 1.X stack with CONVERGE Console.
3. Download the 4.X firmware file to the stack of units.
4. The units will default and reboot after the download of 4.X firmware. The 1.X to 4.X upgrade requires the firmware to be loaded twice to complete the version upgrade.

CONNECT NETWORK BRIDGES

5. Reconnect to the stack with CONVERGE Console. Download 4.X a second time to the units. The units will reboot.

6. Units are fully upgraded.

7. Verify units have been upgraded by checking the firmware version on the front panel.

Reconnect all E-bus cables, if needed, to complete the stack of units.

PART NUMBERS

910-151-805   CONNECT CobraNet Network Bridge
910-151-804   CONNECT AVB Network Bridge

CLEARONE CONTACTS

HEADQUARTERS:

Salt Lake City, UT USA
5225 Wiley Post Way
Suite 500
Salt Lake City, UT 84116

Sales: 800-705-2103
Toll Free: 800.945.7730
Fax: 801.977.0087
e-mail: sales@clearone.com

EMEA:
Tel: +44 (0) 1189 036 053
e-mail: global@clearone.co

LATAM:
Tel: 801-974-3621
e-mail: global@clearone.com

TechSales
Tel: 800.705.2103
e-mail: techsales@clearone.com

Technical Support
Tel: 800.283.5936
e-mail: tech.support@clearone.co

APAC:
Tel: +852 3590 4526
e-mail: global@clearone.com

Middle East:
Tel: +852 3590 4526
e-mail: global@clearone.com