STUDER
by HARMAN

STUDER RELINK

Resource Linking

Resource Sharing with Studer consoles

An important part of today's Broadcast infrastructure is the ability to access audio signals from any part of a facility. For example, to access studio microphones from a radio studio to use as program source in a TV studio. Not only must access be possible, but control and indication of signal useage and takeover must also be possible.

With new software versions for Studer's Route 6000, OnAir series and Vista consoles, Studer not only offers attractive sets of new features for each product, but now offers the possibility to share local inputs and outputs as well as control signals with other systems within the same network.

The new STUDER RELINK (Resource Linking) managed I/O sharing system, which can link numerous Studer consoles in various locations of a Broadcast facility to allow audio source and control data sharing across a wide network, is Studer's answer to this often-requested functionality.

Studer RELINK brings the following benefits to any scale of interconnected system:

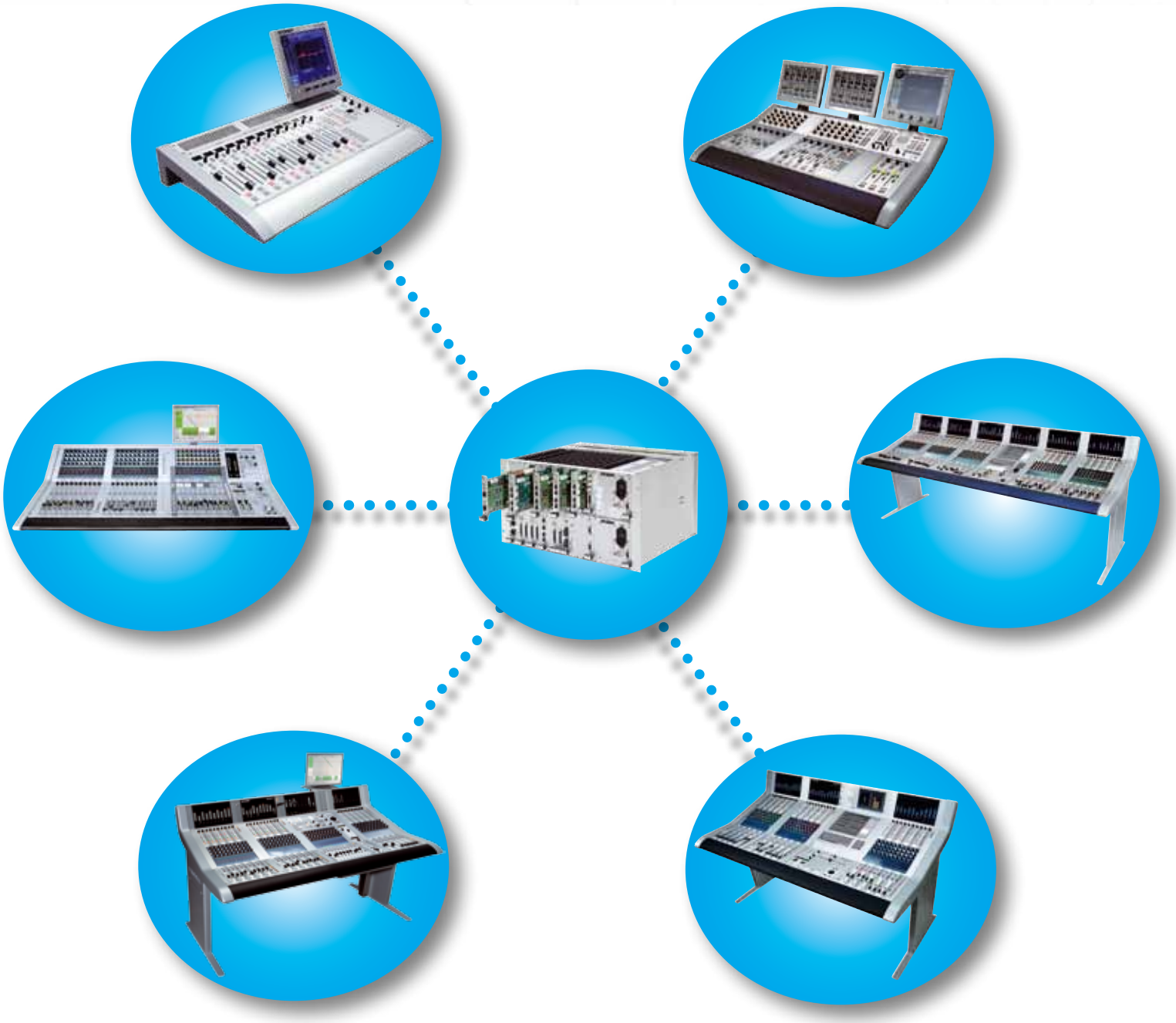
- I/O Sharing with Studer RELINK enables every input or output within an audio network to be available anywhere in the network, requiring a minimum number of audio interconnections.
- I/O Sharing with Studer RELINK allows installing codecs centrally and managing them between different studios in an intelligent way, instead of investing in exclusive codecs for each single studio.
- I/O Sharing with Studer RELINK allows comfortable switching between different rooms, for example two on-air studios.

Link different types of console, simply

One of the benefits of the STUDER RELINK system in comparison to others is that it is based totally on Studer's existing SCore platform which is an integral part of a Studer console architecture, so no additional hardware or breakout boxes are required to complete the network. Communicating over TCP/IP with each other, any combination of Studer Vista (5, 6, 7, 8) or OnAir 2500 and 3000 consoles can connect via RELINK. Other console-based networking systems on the market are often restricted to a single type of console.

RELINK is seamless, scalable, flexible, and can start with a simple link between two Studer consoles, right through to multi-console systems using a two-step topology where all signals are matrixed through the Studer Route 6000 system.

Link different types of console, simply



Example systems and applications

Single-step I/O Sharing is an application of two devices (systems) connected directly. Each of them may share signals with the other. The first example shows two consoles in this mode, with one console locally connected to a microphone, and the other console consuming that microphone via a physical connection. Both systems are networked via Ethernet.

Two-step I/O Sharing is an advanced signal sharing application. It allows sharing of signals between two devices 'through' a third device. In the second two examples, the consoles are not connected directly but through the central router device. The console provides microphone feeds to the router. These microphones are available as NETInputs in the router and can be consumed by other studios in the same way as local sources.

Example 1: Shared News Booth

A very common application in radio houses is a voice or news booth connected closely to a studio for speech contribution to a broadcast or a recording, while a second studio is used for production.

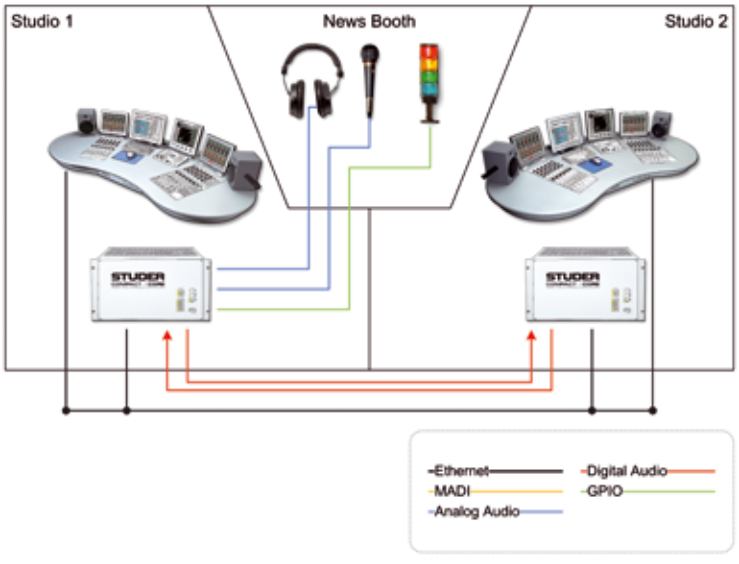
The booth resources (microphone, headphones and indication) are physically connected to one console, usually to the one used most in combination with the booth (the one in Studio 1 in our example).

This console provides the monitoring signal for the headphones, controls the microphone parameters as well as the ready/on air indicators.

If the second studio (Studio 2) requires the booth for production, I/O Sharing allows forwarding the control of the microphone parameters and the indication from the console in Studio 1 to the one in Studio 2. The audio signal is provided to Studio 2 via a physical connection (tie line) between both studios. This audio interconnection can be of any type, for example AES3.

The monitoring signal for the headphones is still provided by the console in Studio 1, but the monitoring signal is delivered by the console in Studio 2 via a suitable tie line (e.g. AES3) and routed to the headphones remotely.

While Studio 2 works with the booth, it controls the microphone parameters, including analogue gain and phantom power. Opening the microphone in Studio 2 activates the red light in the booth, presuming that the 'mic on' parameters are configured accordingly. In this case, existing monitor speakers will be cut remotely as well. Sharing the control information is established via a network connection (Ethernet) between all systems involved., cores and Route 6000 are networked well.

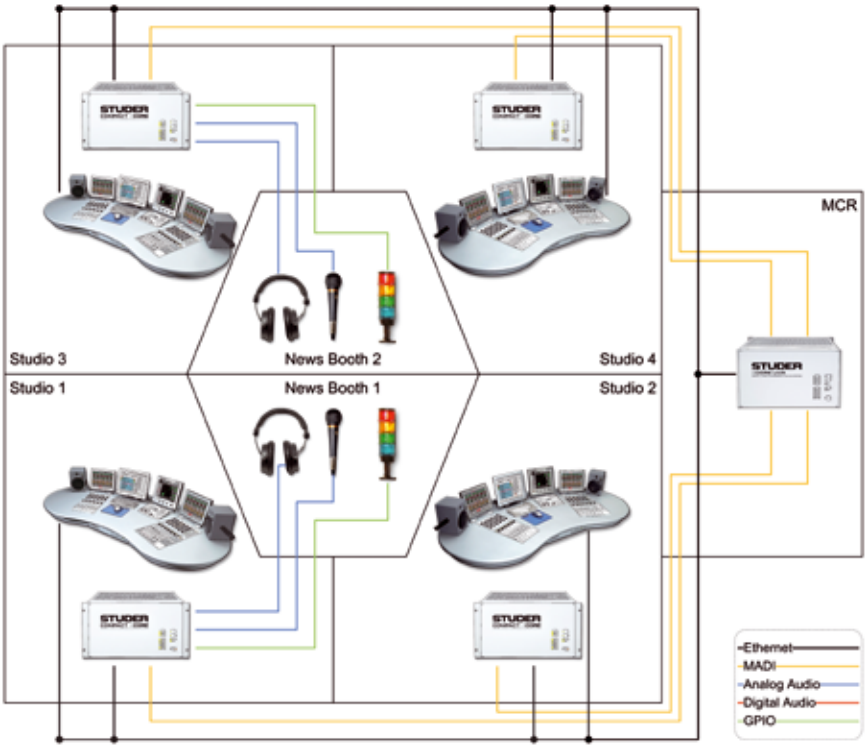


Example 2: Shared News Booth – Central Router

In this larger installation, a number of studios in the same facility are used to feed and produce signals, for example for two independent programs. OnAir 3000 consoles in the four studios are connected to a central Route 6000 in a MCR via MADI.

MADI provides a bidirectional audio connection between both ends. Consoles, cores and Route 6000 are networked via Ethernet. Studio 1 and Studio 2 share one news booth as described in example 1, Studios 3 and 4 do the same with secondary news booth. The functional principle of sharing audio signals between Studios 1 and 2 or Studios 3 and 4 is very similar to example 1, except that the direct audio tie lines between the studios and the router are replaced by MADI interconnections.

Shared signals are now 'tunnelled' through a central device. This setup adds a couple of advantages to the installation. Via MADI, many more signals can be shared simultaneously than via an AES3 connection. These additional channels may be used to distribute the signals from News Booth 2 to Studios 1 and 2 as well. This enables Studio 2 to record a signal from Booth 2, while Booth 1 is at the same time used for the news with Studio 1. The setup also allows a very flexible emergency switch-over, since every studio can connect to any voice booth.

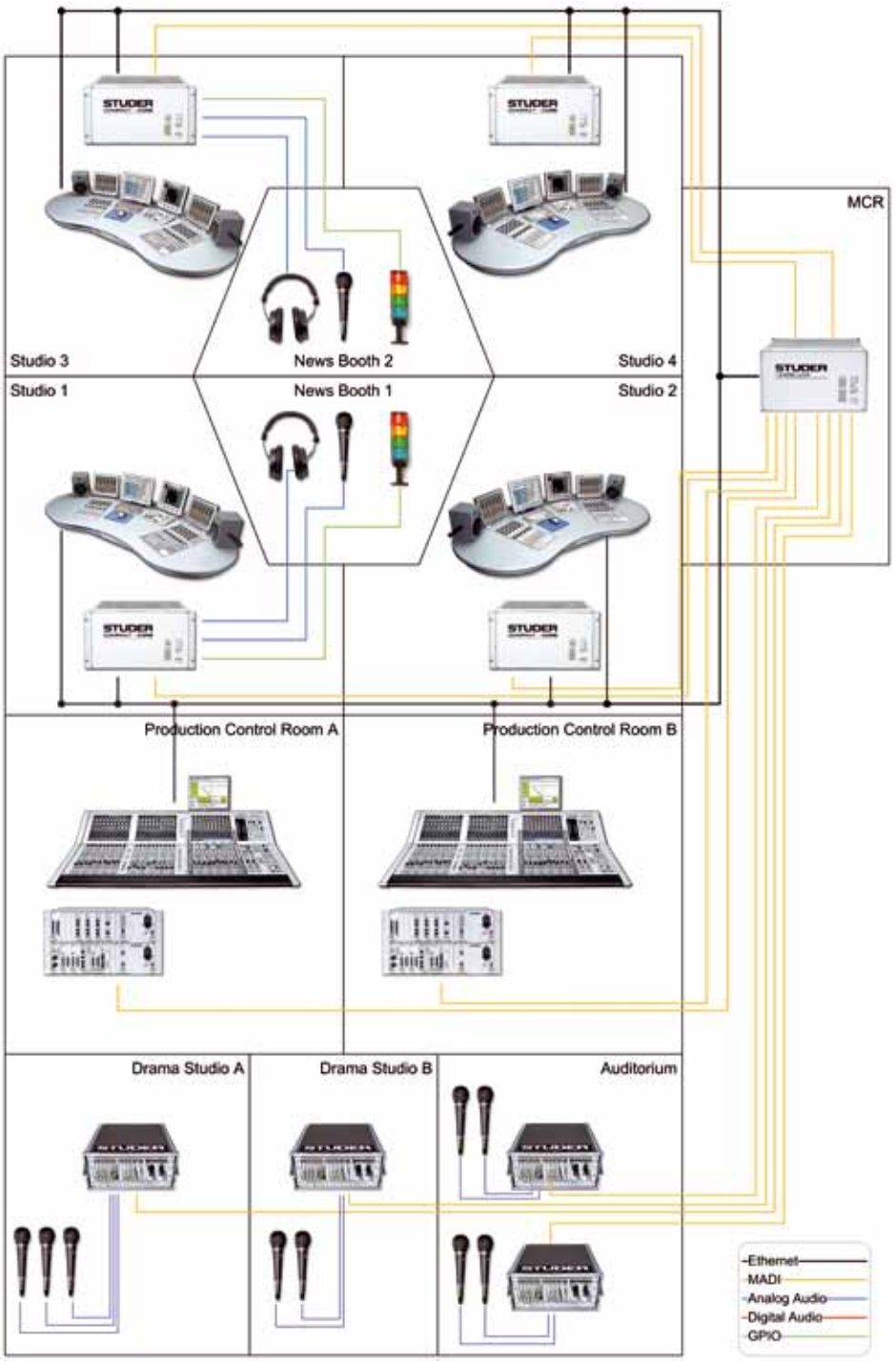


Example 3: Radio Broadcast and Production House

This example shows a (radio-) broadcast house where production studios and control rooms are located, in addition to the OnAir studios in the same building. The production studios (Drama A, Drama B and Auditorium) are equipped with D21m stageboxes connected to the Route 6000 in the MCR.

In this way, not only the two Vista 5 consoles in the production control rooms can use mic signals from the stageboxes, but also the four OnAir consoles can use these signals and, if necessary, also get control of the mic parameters.

STUDER RELINK offers probably the most integrated, comprehensive and optimised I/O sharing management available to Broadcasters today. To utilise STUDER RELINK, consoles must be running at least the following software versions – V4.1 for Vista, V3.1 for OnAir systems and V2.0 for Route 6000 systems.



Uncompromising Input Output Flexibility

Studer's D21m I/O system forms the heart of all the remote input/output connections and network audio is not restricted to a single transport type – audio interconnects may be made through conventional MADI, AES, Ethersound, ADAT, regular copper analogue lines or even HDLink.

Each D21m remote stage box can be configured to accept up to 192 inputs and 192 outputs, with numerous options for audio interface types including analogue, AES, SDI, Dolby E and MADI, all available in cost-effective modules which waste no unused channels. These inputs and outputs can be shared with any or all of the mixing consoles.

I/O formats available include:

- 4ch microphone input card
- Analogue insert card (for use with 4ch microphone input card)
- 8ch line input card
- 8ch line output card
- 16ch in/16ch out AES/EBU card
- 16ch in/16ch out AES/EBU card with input SRCs
- 16ch in/16ch out AES/EBU card with input and output SRCs
- MADI I/O card (max. 64 inputs/outputs)
- Dual ADAT input and output card (16ch in/16ch out)
- Dual TDIF input and output card (16ch in/16ch out)
- SDI input card (de-embedder for 8 or 16 input channels)
- SDI input/output card (de-embedder/embedder for 8 inputs and outputs)
- Dolby® E/Digital decoder cards (8 or 16 input channels)
- CobraNet® I/O card (32 input and output channels)

- Aviom A-Net® output card (16 output channels)
- Ethersound® I/O card (up to 64 input and output channels, selectable in groups of 8, plus 8 GPIO control signals)

Simple source selection and transfer

Source selection is transparent, and signal labels are automatically transferred to the shared locations, so the operator always knows what source is connected. Signal takeover between studios is seamless, so RELINK is well-suited for live transmission switchover.

Clear and easy setup for ownership permissions is of course mandatory and provided.

As an important sub-function, especially in the radio broadcast market, a resilient mic take-over mechanism ensures that local monitoring at point of use is turned off automatically to prevent feedback, with clear red light and take-over signalling, for example.

Fader start functions can also be passed to the controlling console.

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