‹ACCESS›

Round-Robin Remotes with Comrex ACCESS and Vortex HotSwitch

Often remote broadcasters need to produce programming with contribution delivered from multiple locations in quick succession. An example of this is election night coverage, where an in-studio host will need to converse with reporters at multiple campaign headquarters, or a sports round-up show, where a central host chats with commentators located at several different venues. This could be easily accomplished with several codecs located in the central studio, creating an audio codec "bridge". This is shown in Fig 1. But with a bit of planning and some special modes, this scenario can be accomplished using a single ACCESS IP codec in the studio.

Of critical importance in the round-robin scenario is what each contributor hears delivered to their own headset. ACCESS Portable already has independent level controls to balance the studio "return" audio with a reporter's local programming. This is key because if a reporter hears his own audio returned to him (with the associated time lag inherent in codecs), it will be difficult for him to speak. Each reporter must be fed a "mix minus", which is a sum of all program audio-- but with the target reporter removed from the mix. As shown in Fig 1, in the bridge scenario this special mix must be created for each reporter. The Comrex Mix-Minus Bridge product is an example of a device used to create such mixes.
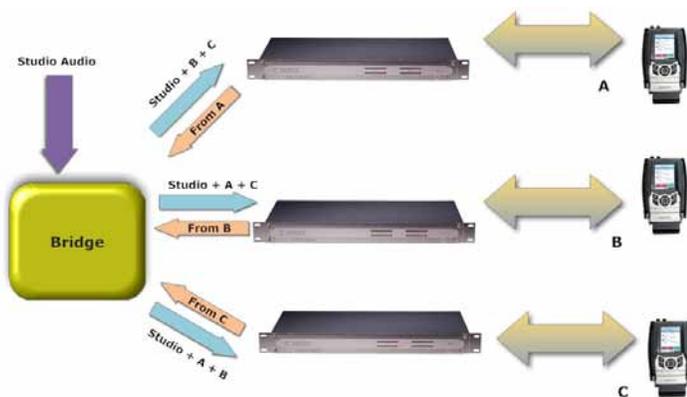

Figure 1

ACCESS Special Features

Multistreaming

Comrex ACCESS has several features which can remove the requirement of having a bridging arrangement in the studio.
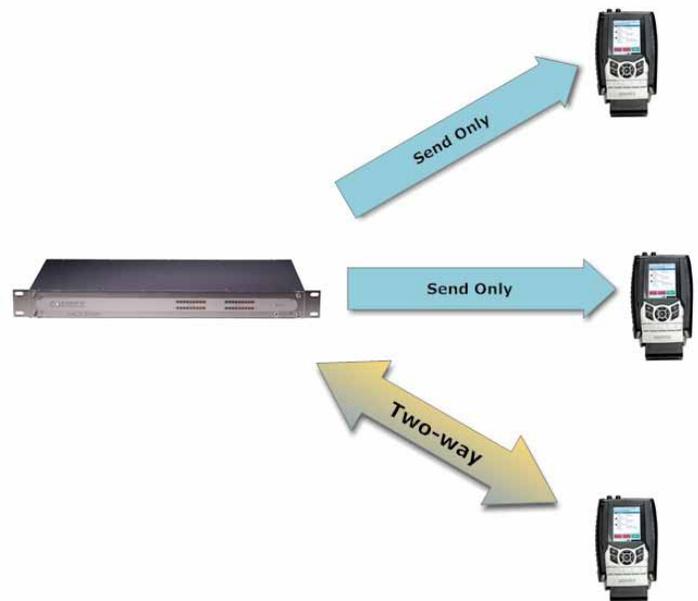

Figure 2

First, ACCESS can deliver an IP stream to multiple locations at once. This is known as "multi-streaming" and is shown in Fig 2. To accomplish this, a profile is built that enables audio to only flow in the outward direction from the multi-streamer (turn off remote encoder). This profile can be assigned to multiple outgoing remotes, and all remotes will receive the same stream and decode the same audio signal.

In addition, one remote can be assigned a full-duplex profile. The local encoder must be selected as the same as the "outgoing only" profile, and the return channel can be set to anything. More information on multi-streaming is available in the product manual.

Decoder Downmix

A new feature in ACCESS firmware 2.8 allows profiles to be built that instruct the remote decoder to output only the Left or only the Right audio stream through both audio outputs. This concept is a bit complex and is treated in its own appnote, but essentially this means the central codec can send a stereo stream to multiple locations using its multi-streaming capability, and by changing profile settings can instruct each location to decode only one side of the stream.

Putting it together

Combining the Multistreaming and Downmix features allows a single, central ACCESS codec to deliver one full-duplex channel with outgoing audio from the left audio input, simultaneously with multiple "outgoing only" channels with audio from the right audio input. As shown in fig 3, the duplex channel can be used for the remote guest currently on air, while the simplex channels can be fed to other guests currently standing by. By applying different audio feeds to each of the master ACCESS's "send" channels, the on-air guest can hear a studio mix-minus while the "standby" guests can hear full program audio.
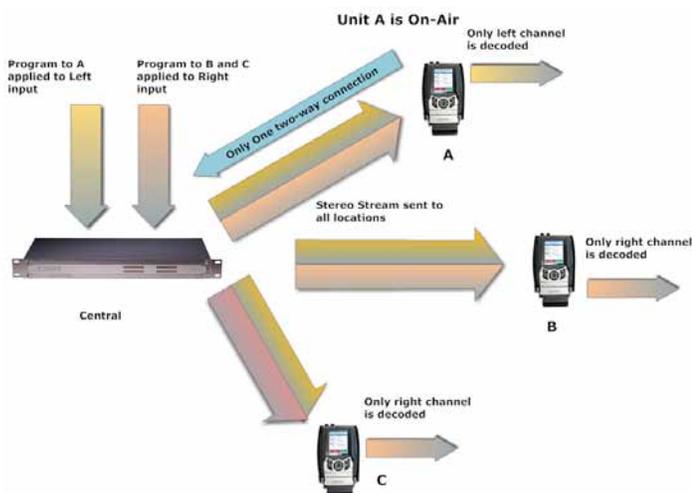

While all this will work, it becomes a bit unwieldy to set up and operate. The final piece of the puzzle, HotSwitch, provides a simplified means of setting up and managing the system on air.

HotSwitch

Vortex HotSwitch is a Windows-based utility especially designed to manage the round-robin application. It can:

- Attach to an IP control channel on the central master codec
- Choose the default profile used for all the connections
- Allow the user to dynamically switch between multiple guests, handling the decoder downmix and simplex/duplex functions in the background automatically.

Use of HotSwitch assumes you have a particular audio connection at the "send" input to your master codec. This hookup is:

On the "Left" channel input, you have created a mix-minus feed for the remote guests. This is usually a mix of all studio sources except the master codec output, and can be created on most consoles using an alternative bus. Alternately, this could be a feed of the studio microphone only. The important thing is that no remote audio is present in this mix, so that the listener will not hear his own audio when put on-air.

On the "Right" channel input, a mix of all studio sources including the codec output is applied. This can be the main console output, or a program feed from further down the air chain. But this feed should not include any profanity delay or any other delay (e.g. an off-air feed is often not usable due to digital processing delay).
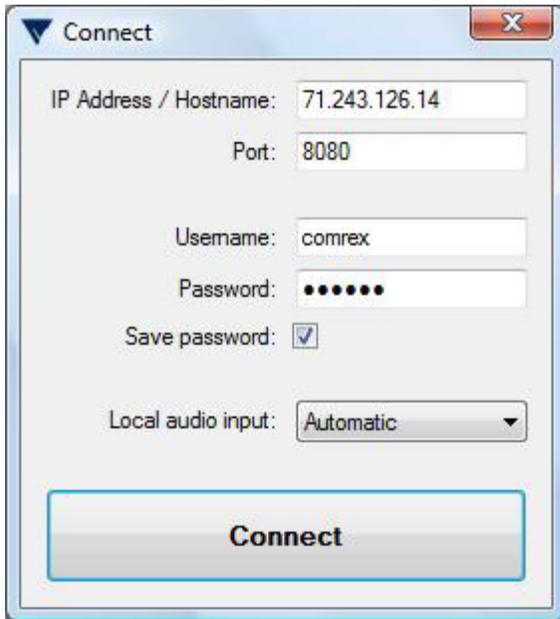
Figure 3

Figure 4

On starting the HotSwitch program, a log-in dialog box appears as in fig 4. You'll need to enter the address and login information for your master codec in order to allow HotSwitch to control it. The "Local Audio Input" option should be left at "automatic".
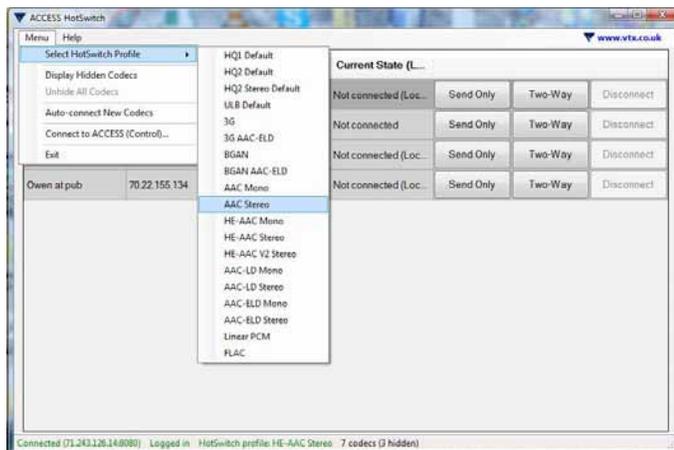

Figure 5

Once logged in, you'll be presented with a list of the pre-configured remotes from your codec's address book. The first step is to choose the profile to be used to connect to your guests. This is shown in fig 5. Note: This profile should have a stereo mode selected as the local encoder, and both local and remote encoder should be enabled (HotSwitch will handle turning off the remote encoders for the "standby" guests automatically). Finally, if this is a custom profile, leave the "decoder downmix" settings at their defaults when creating the profile. HotSwitch will handle those aspects as well.
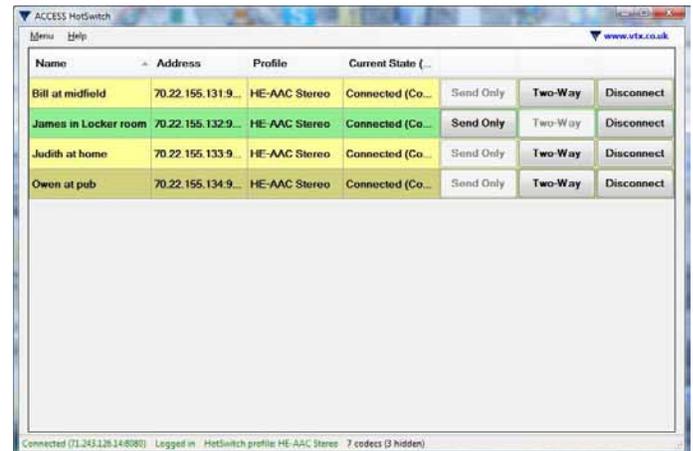
Operation

Figure 6

Operation of HotSwitch at airtime is simple. To start, connect to all remote guests by pressing the "send only" button corresponding to each guest. At this time, the following will happen:

- A new temporary "send-only" profile will be built.
- The "decoder downmix" option for that profile will be set to "Right Channel Only".
- The profile will be assigned to each outgoing connection.
- Connections are made to the remote guests

All guests will hear the entire program (Right channel of master ACCESS) and none will be heard on-air. When you wish to converse with a guest, simply select "two-way" on that guest. The following will happen automatically:

- That guest will be disconnected
- A new temporary full-duplex profile will be assigned to that guest with the decoder downmix option set for "Left Channel Only".
- That guest will be reconnected

At this point the selected guest will hear only the mix-minus, and be put on-air.

In order to change which guest is "on-air", simply select a different guest as "two-way". The current "on-air" guest will return automatically to "send only" mode.

In order to leave the program entirely, a guest can be disconnected manually via HotSwitch or from the far end.

One important point: Remember to reconnect the master ACCESS's input audio to normal before normal usage, or the field talent may experience rather confusing return audio!