BARIX ONSITE

STUDIO TRANSMITTER LINKS MADE EASY

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TECHNOLOGY FROM BARIX:
REFLECTOR SERVICE FOR STL CONNECTIONS AND MONITORING.

Professional broadcasters have seen their share of technological advances since the inception of radio, but one requirement has held true: the need for stable and reliable connection technology between the studio and the transmitter, commonly known as "STL" or Studio Transmitter Link.

While many radio engineers and directors have already embraced Barix devices as a very useful (and cost-effective) solution for STL-over-IP, the actual setup of the connectivity can be challenging. Firewalls must be modified, ports on the router must be configured, and in many cases there is a need to subscribe to a static IP address to avoid repeated re-configuration due to changing dynamic IP addresses.

Barix, with its newest invention and technology, is now making this process much simpler with the new Barix Reflector service. Broadcasters can now configure and manage all STL functions via an easy-to-use web-based application, with no need to configure remote equipment or firewalls, and no need for a static IP address.

The Barix Reflector service works as follows:

- Unconfigured Barix devices (Instreamers and/or Exstreamers), pre-loaded with the 'reflector client' firmware, are installed by you without any need for direct configuration of the device. Typically this entails an encoder or 'sender' device at the studio and a decoder or 'receiver' device at the transmitter. Additional 'receiver' devices may be deployed for monitoring from other locations
- You log into your Barix Reflector account, create a new STL project, and add the MAC addresses of the deployed devices.
- Devices are automatically configured by the Reflector's configuration manager, and you are streaming live audio within minutes.
- The STL stream is constantly monitored by the Barix reflector server, and in case of irregularities, you are notified via email.

In this way you can bypass all local and remote configuration of firewalls, routers, and the devices themselves. As long as you have a working internet connection and the devices can get an IP address from a DHCP server, no additional setup is necessary. The Barix Reflector manages all configuration as well as providing low-latency distribution of the audio feed from the sending device to the receiving devices. You can even move your devices to new locations if necessary and still retain the configuration settings.

Barix devices are reliable, not susceptible to viruses or other tampering. They work in the background with low power needs, no maintenance, updates or cooling requirements – you use the same technology that broadcasters, retailers, military and commercial users worldwide rely upon. Whether in Antarctica, America, or Zurich, audio-over-IP devices from Barix work reliably, without maintenance, day after day, year after year.

This paper introduces you to the Barix Reflector service in complete detail, including the factors affecting your choices, the components required to make it work, and related points to consider.

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Overview of the Barix Reflector Service

The Barix Reflector acts as an intermediary between the "encoding" or sending device at the studio and the "decoding" or receiving device at the transmitter, also allowing additional receiving devices for multi destination distribution, including monitoring purposes.

The setup process is quite simple:

- Create an account at www.barixreflector.com
- Create a 'new project' and give it a name.
- Enter the MAC addresses of the deployed hardware devices for the project, assign types to the devices (as sender or receiver), and optionally set audio quality and levels.
- The "sending" device automatically communicates with the Reflector to receive its configuration, then immediately begins streaming to the Reflector.
- The "receiving" device(s) automatically communicates with the Reflector to receive its configuration, then automatically begins to pull the stream from the Reflector.

The Reflector also provides status reports, listing information on recent configuration updates and real-time connectivity status of the devices, all visible via your Barix Reflector account homepage.

The Reflector works with a wide array of Barix hardware devices using the new Barix 'reflector client' firmware. Next we'll look at and compare the factors involved in using the Barix Reflector versus working with a traditional firewall setup.

FACTORS AND COMPONENTS OF A BARIX STL SOLUTION

Factors of STL distribution

This chart provides a comparison between using the Barix Reflector versus working with a traditional firewall setup. No matter the approach, Barix hardware works in every case, making upgrades and costs quite simple to manage.

FACTORS	Barix Reflector	Trad. Setup
Requires constant Internet connectivity at each location	●	●
Configure all local and remote hardware via single web interface	●	
Uplink bandwidth required is only 1x regardless of number of receivers	●	
High potential for restricted port traffic		●
Requires port forwarding on router		●
Requires static IP address		●

Components of a Barix STL solution

This chart lists the various components needed to create an IP-based Studio Transmitter Link

COMPONENTS	Barix Reflector	Trad. Setup
Barix Sending / Encoding Hardware		
Exstreamer 1000 with AES/EBU audio and contact closures	●	●
Exstreamer 500 with high quality balanced audio and contact closures	●	●
Instreamer 100, the lowest-cost entry-level encoder	●	●
Barix Receiving / Decoding Hardware		
Exstreamer 1000 with AES/EBU audio and contact closures	●	●
Exstreamer 500 with high quality balanced audio and contact closures	●	●
Exstreamer 200 with built-in amplifier	●	●
Exstreamer 110 with display	●	●
Exstreamer 100, the lowest-cost entry-level decoder	●	●
Barix Firmware		
Reflector Client Firmware	●	
Standard STL Firmware OR Instreamer/Streaming Client firmware		●

Next we will describe these components in greater detail.

HARDWARE:

Barix Exstreamer family

All of the Barix Exstreamer devices can support audio playback in all of the scenarios mentioned in this document, i.e. act as STL "receivers". The 1000 and the 500 models can also act as STL "senders". Each model comes with various characteristics that make them suitable in different environments.

- Exstreamer 1000: Able to act as a sender or a receiver, this is the only Barix model offering AES/EBU (highest quality digital) audio interfaces and balanced inputs/outputs, making the 1000 model ideal for premium locations. It also has 4 digital inputs and 4 relay outputs, which can be set according to the device's state or forwarded with the audio stream.
- Exstreamer 500: Able to act as a sender or a receiver, this model is a lower-cost version of the 1000 model, designed specifically for radio broadcasters. The 500 only requires a one-half, 19-inch rack mount 1HU space. Like the 1000 model, it also has balanced inputs and outputs, and a set of contact closure interfaces.
- Exstreamer 200: Receiver only; in addition to the 100's features, the 200 model has a built in IR remote receiver and integrated stereo amplifier (2•25W), making it ideal for control rooms or other applications where amplification is required. Although it is not a typical STL device, it can serve well as a control receiver anywhere.
- Exstreamer 110: Receiver only; in addition to the 100's features, the 110 model has a two-line LCD display, built in IR remote (allowing users to select between multiple channels or control the volume), and a relay port that allows you to control an attached device such as a failover switch.
- Exstreamer 100: Receiver only; the entry-level model, a stereo network audio decoder with a USB interface for local audio playback capability. This is a reliable device you can place in the equipment room and forget about.

Barix Instreamer

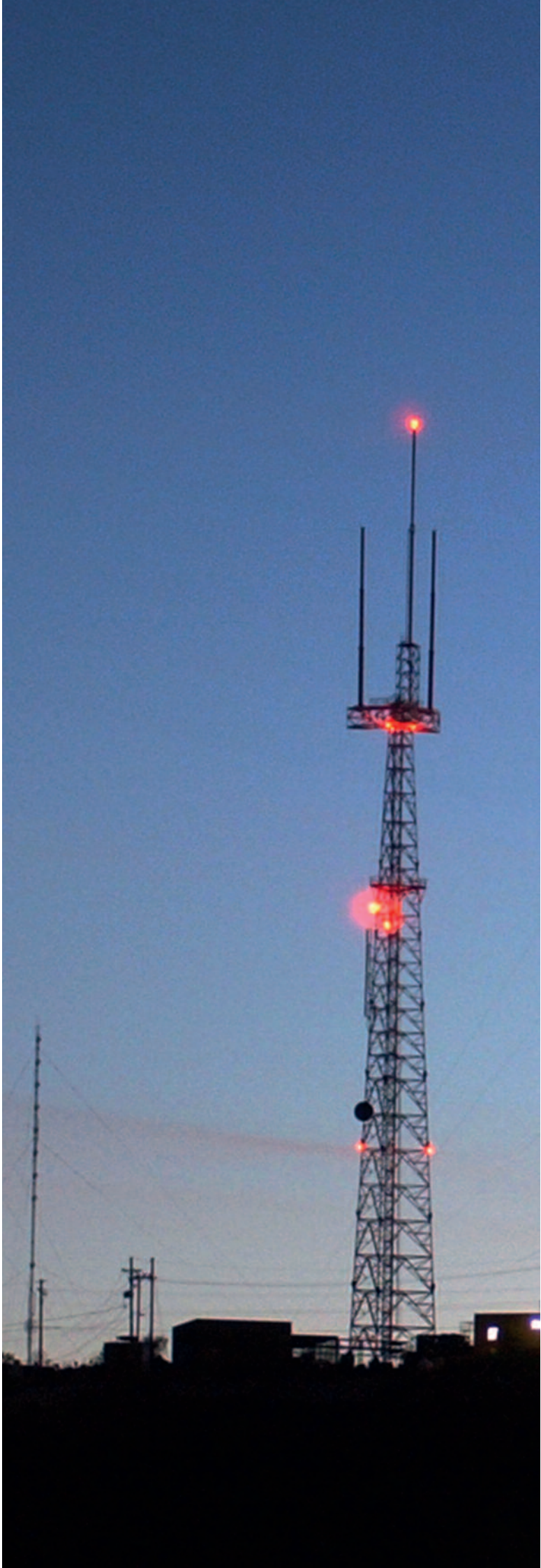
The Barix Instreamer 100 device encodes audio, and therefore with the appropriate firmware it can act as an STL "sender" with the Barix Reflector service.

BARIX FIRMWARE

Exstreamer/Instreamer Firmware

For Barix Reflector-based STL applications, the Instreamer model and all Exstreamer models support the 'reflector client' firmware. For use in non-Reflector STL applications, either the 'standard STL' firmware or other standard firmware can be used

- Reflector Client Firmware: This firmware works as either encoder (studio-side) or decoder (transmitter-side). It allows the Barix Reflector to manage configuration of the device with literally no additional input required. The Exstreamer 500 model, when ordered as the STL package, comes preloaded with this firmware.
- Streaming Client Firmware: The streaming client firmware was originally designed for professional broadcast use. The firmware can play MP3, AAC+, and WMA streams using various protocols. Up to three stream sources can be defined.
- Instreamer Firmware: Standard Instreamer firmware can serve as a TCP, UDP, RTP stream source, and also simulate a shoutcast/icecast server for a handful of connections. In addition to its standard encoding functionality, it can also serve as a silence detector.
- STL Firmware: This is a specific firmware written for traditional STL setups. The firmware can be used on both encoder as well as decoder devices, and offers an array of configurable options. It is ideal for use with 5GHz wi-fi links, on VPNs and in environments where firewalls/routers can be modified to pass the audios stream.



CONCLUSION

The Barix Reflector is a revolutionary advancement for STL applications, virtually eliminating the need to manage or configure firewalls or routers or use costly static IP addresses. Monitoring your STL from one or even several locations has never been easier too. Along with the ease-of-use benefits, the Barix Reflector service allows off-site monitoring of the STL functionality, and saves you valuable time and labor in setting up and maintaining Studio Transmitter Links, taking the difficulties out of IP connections. Simplify your STL today with Barix!

Contact information

More information can be found at
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