BARIX
THE VOICE OF SIMPLICITY

ABCL Full-Duplex application

Introduction

The ABCL firmware kit is an optional firmware for the Barix audio devices.
The main difference to the standard firmware is, that it can works in full-duplex mode
and that the application itself can be modified/changed. That means the existing application
can be changed, new features or customized designs or also complete new application can be added.

What is ABCL:

ABCL is the Audio BARIX Control Language, it is a simple (like Basic) but very powerful programming language to control BARIX devices like Annuncicom, Exstreamer and Instreamer.
ABCL gives access to almost all interfaces of the BARIX devices available on our Audio devices, e.g. Audio, network, serial, USB, LCD display, LED control, IO control and some more.
The ABCL firmware kit contains the complete development tools and environment and also one fully working DEMO application – the "Full-duplex application".

On the BARIX Homepage some more ABCL DEMO applications are available.

More information to the ABCL programming are available in the BCL programmers manual,
this is available for download on:

http://www.barix.com/index.php?id=151

The same link is containing also the ABCL technical documentation.

Full-duplex application

This application allows to use the Barix Annuncicom series or Exstreamer500/1000 to communicate in full-duplex mode, speaking and listening to another device at the same time with a minimum delay.
The firmware/application runs also on the BARIX Instreamer and the other BARIX Exstreamer devices, but then not in Full-duplex mode, there it works only uni-directional.

The Full-duplex application supports the following key features :

- audio communication uni-directional and bi-directional (half- and full-duplex)
- audio codecs : G.711 (uLaw / aLaw in 8 / 24 kHz) and PCM 16-bit (8 or 24 kHz)
- audio buffer/delay control for lowest latency
- serial gateway / tunnel over network
- relay activation (if available on the hardware) on received audio stream

How to use the Full-duplex application:

At the first time access the BARIX device´s homepage, under settings select the active application.
There select "Full-duplex Annuncicom (annunfdx)" from the pull-down menu.
If necessary define also valid IP setting for the current network environment and click on the "Apply" button at the bottom of the page (scroll down).
Thereafter the device will save the new setup values and automatically reboot.

As shown on the picture above, on the left side are the settings and on the right side of the web page is an online help for each setup item.

When the "Full-duplex Annuncicom" application is selected (and applied) then the "APPLICATION" button will bring you to the FULL DUPLEX INTERCOM menu (see following screen shot).
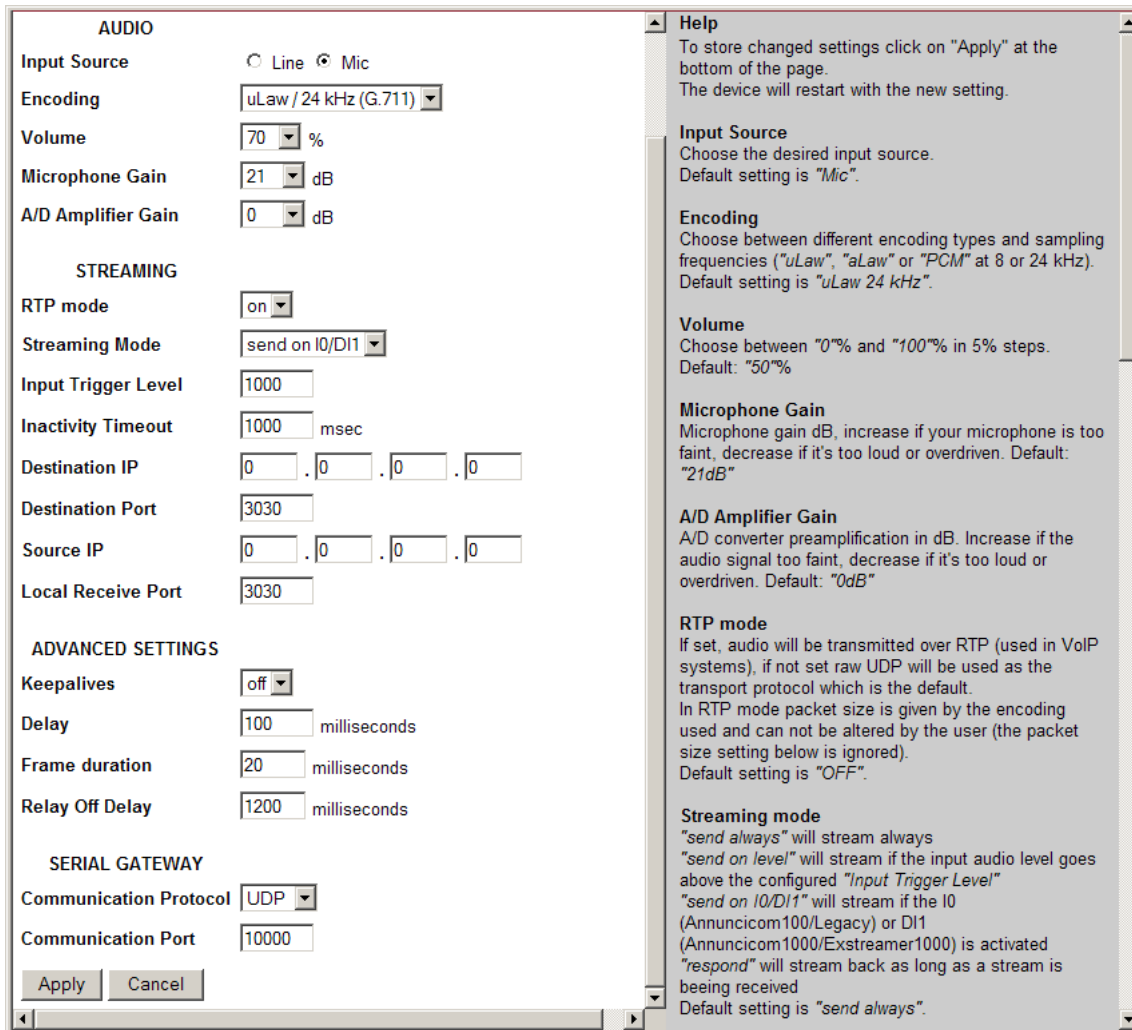
Also here is a online help for each setup item available.

For the application setup make sure both sites/devices have configured the same encoding parameter and the same protocol (RTP mode).

If the "Serial Gateway" should be used, then the serial parameters, like baud rate, parity,data bits, stop bits and flow control must be configured on the "SETTINGS" page.

The application can be used for "point to point" communication. In a LAN environment also a broadcast IP address or Multicast IP address is possible, then it can be also used for "point to multi-point" applications, but in this case not more than one device should answer (at the same time) .

Supported BARIX RTP payload types:

0	= uLaw / 8kHz		97	= uLaw / 24kHz
8	= aLaw / 8kHz		98	= aLaw / 24kHz
96	= PCM / 8kHz		99	= PCM / 24 kHz

When a audio stream is received then the relay will go on for the time of a incoming audio stream, this function is configurable (can be also disabled) over the function "Relay Off Delay".
It can be used e.g. to switch a notification light or to turn on an attached amplifier / intercom panel.

Status page:

The status page is also available over the web server.

This page offers information over the device itself and the loaded software, like :

- uptime
- MAC address
- IP address
- hardware type
- firmware and application version
- detected USB devices