How to use the serial gateway function

The Barix Instreamer, the Barix Exstreamer (all types), the Barix Annuncicom and also the IPAM you can use also as serial gateway. Serial gateway means you can connect two serial devices (i.e. Modem to PC) with Barix products over the network together. Also you could connect from a PC (i.e. with telnet) to this serial gateway port on the Barix devices.
This function is implemented in all Barix standard firmwares as also in many ABCL firmwares.

How to set up:

There are only few parameters which you have to configure in the web configuration on the Barix devices. Following is a configuration example for the Instreamer firmware together with the Streaming Client firmware (on the Exstreamer).

On the Instreamer configure in the Advanced Settings under:

IO & Serial
Local port = **0**
Destination IP address = **IP of the Exstreamer site (e.g. 192.168.0.63)**
Destination Port = **5000**

On the Exstreamer Streaming Client configure in the Advanced Settings under:

Serial and Control:
use Serial for = **serial gateway**
serial gateway Port = **5000**
serial gateway IP = 0.0.0.0 (because the Instreamer is establishing the bi-directional connection)

Beside that check the serial parameters are matching with the serial parameters of the connected serial equipment!

Serial wiring

The Barix devices have a DTE interface (same as a PC), that means when you connect to a PC then you have to use the serial crosscable or a serial nullmodem cable. On the receiver end (Exstreamer in your case) which connects often to the RDS encoder you can use the same cable as you have used before to connect directly to the PC.

How to test the serial gateway

There is a very easy way to test your serial gateway is up and running.
On the homepage of the Instreamer you have a button "Active Connections",
there you see all open BRTP and TCP connections.
The serial gateway is using TCP, so it must be listed there, like following:

```
TCP connections
192.168.0.23:src port 80 :dst port 49163
192.168.0.23:src port 80 :dst port 49162
192.168.0.63:src port 54442 :dst port 5000
```

There you can see the open socket from the example from previous page

How to setup serial gateway on the Annuncicom firmware

In general, the Annuncicom firmware can also run on a Barix Exstreamer or an Instreamer,
it is default on the most Annuncicom devices.
The serial gateway you can do between the two RS232 ports, and/or the RS485 ports (if available on
hardware !) or even from RS232 to RS485 or reverse.
The configuration is very simple, one site you leave with default settings (only the "Local port"
configured, no "Destination IP" and no "Destination port" !!) and on the other site (which should start
the connection) you configure the destination IP address (IP address of the remote Annuncicom) and
destination port number (remote "Local port") - as shown on the screenshot below:
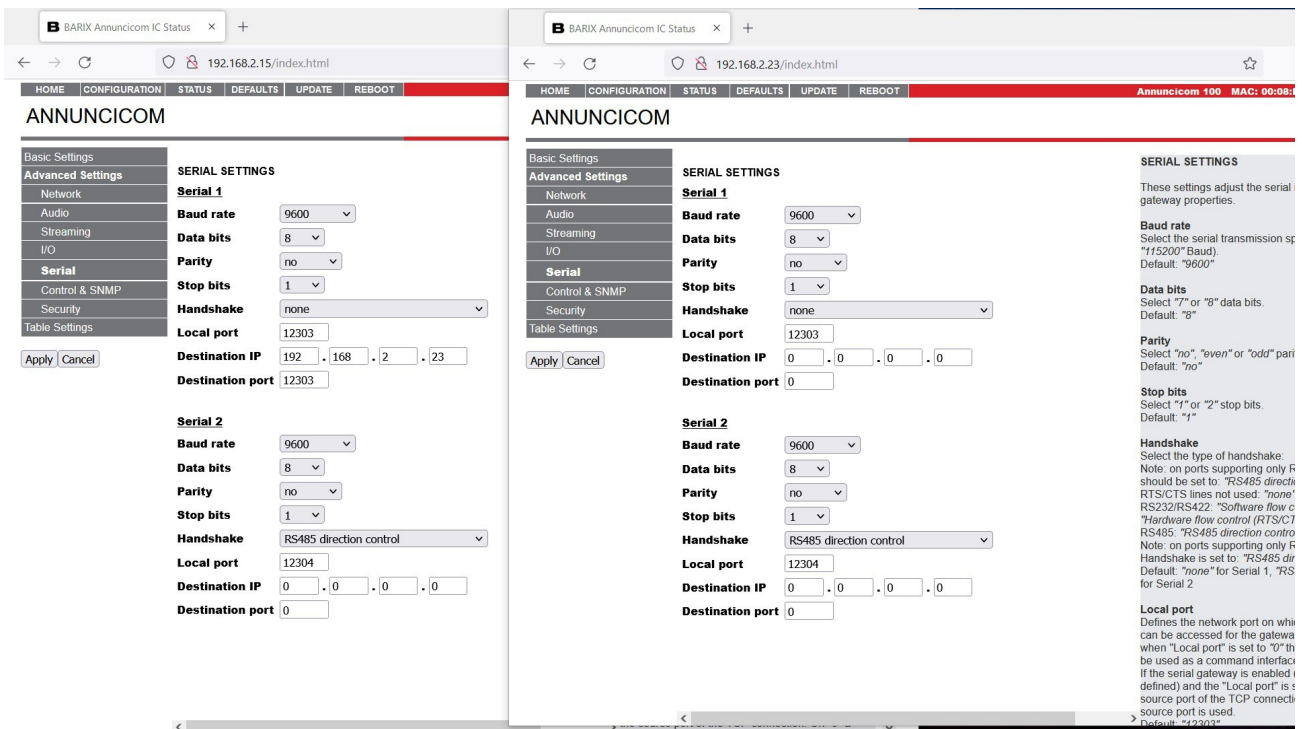
When connection is established, then it can be used bi-directional.

How works the serial gateway on Barix products:

The serial TCP connection is completely transparent when the TCP session is opened.
When the serial device is sending data to the Barix device, then this data are buffered until there is
an interruption for at least 12 milliseconds in the serial data stream or the maximum frame size of
1200 byte (1400 byte in versions before Firmware vb1.17) is reached. Then the data will be filled in
a network frame and sent to the remote site.

The receive buffer for over network to the serial gateway port incoming data is 2048 byte.
If the network stream interrupts due to network problem then it will happen after a while that the Barix
device is changing temporary into the serial command mode and answers the serial incoming data with
an acknowledge or an error message. This will happen until the TCP connection is automatically
reconnected again.

The opened serial gateway is bi-directional and allows data exchange in both directions.

Redirector software

Redirector software is a software which creates virtual serial ports on the PC, and in the back of the serial application the redirector transfers the data over the network.

There are some known Redirector softwares which also work with Barix products:

- the Redirector software **version 3.1.0.4** from the Lantronix homepage (www.Lantronix.com)
- SerialIP (Windows) or TTYredirector (Linux) from Tactical Software

Application example:
There is a device which has only a serial RS232 port. The control software for this device allows only serial communication. It allows only selecting COM ports installed on the PC.
Unfortunately you cannot use the serial device close to the PC, because you have to use it few miles away from the PC, close to the Barix Annuncicom.

That´s a typical application for serial Redirector software. Such software creates a virtual COM port (e.g. COM5) on the PC. This new virtual COM5 the application can use for the communication. In the back of the application the redirector reroutes all serial data traffic for this serial port over network to the Annuncicom.

How to Install and how to use the Lantronix Redirector:

To install the software you will need Administrator permission on the PC. You have only to execute the EXE setup file and to follow the displayed steps. After installation you should reboot the PC. When the PC is rebooted start the Lantronix Redirector Configuration and click on "Com Setup" to select/add the virtual COM port. Then assign IP socket of the Barix device to the new COM port by using the button "Add IP". As next open the "Port Settings" and mark/enable the "RAW Mode" and click "OK".
Now reboot the PC again. You can use now your Application for the serial device and select there the new virtual COM port for communication. The help button will provide more help if necessary.

This software works with all Barix devices, also with the Barix Barionet!