

ICgraph manual

Java based control and communication application
for software version 1.4 (2008/07/15)

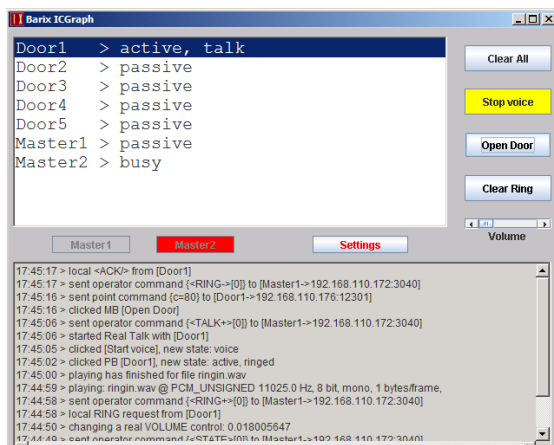
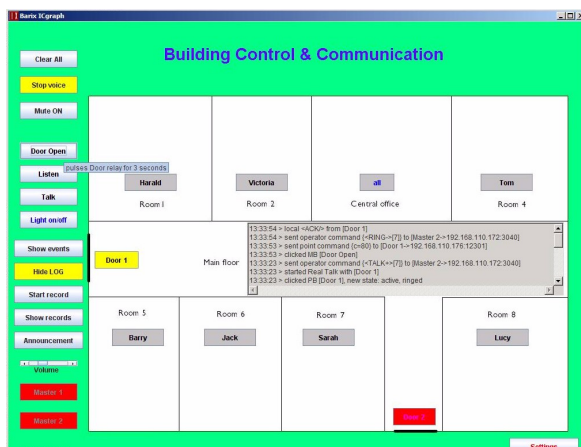
ICgraph Features

ICgraph is a Java based PC software to communicate (VoIP) to Barix Audio products, and also it allows remote control and remote monitoring of Barix products. It is extremely flexible!

It supports the following functions :

- Free configurable and unlimited user interface (background picture and buttons)
- unlimited points / targets (only desktop space defines the limits)
- Full-duplex communication with Annuncicom (by using ABCL firmware)
- Half-duplex communication with Annuncicom standard firmware
- Unidirectional announcements to Exstreamer / Annuncicom / IPAM
- Multi-Master functionality, multiple ICgraph masters can exchange status information
- Logging function (to LOG window and LOG file)
- Audio recording for incoming and outgoing communication
- Send audio message to one, to some selected, to predefined groups or to all
- Switching relay on the remote Annuncicom or Barionet, e.g. to open the door
- can execute local commands/start applications on local PC, e.g. open browser
- Selective Ring sound notification for incoming requests with visual notification
- Visible notification for incoming audio streams and selected (active) communications
- can send any UDP commands (also periodically) to other Barix devices (e.g. Barionet)
- can display status messages / reports from Barix devices (give state information)

Here are three possible DEMO screenshots of the application :



The graphical design or the table design (see left, e.g. like the older SoftIC application), both can be done with the same software and is configurable .

Installation :

ICgraph is developed with Sun's Java development kit 5.0 and is compatible to Sun Java Runtime Environment (JRE) 6.0 and probably earlier versions, this must run on the ICgraph PC. This JRE is available for free for many operating systems (e.g. Windows, Mac, Linux) and is downloadable from : www.java.sun.com !

Sun JRE should be installed first on the PC, if this is already installed on the PC then it is ok and you should go to the next step. Otherwise please download and install the JRE on your PC.

Note, we have tested the application with JRE6.0, this JRE version should be also backward compatible to JRE 5.0.

Please reboot the PC after the JRE installation!

If the PC is restarted then extract the ICgraph.zip in a separate folder.

That's all for the normal installation .

For PCM and G.711 all libraries are already included.

It is now working when you will work with G.711 or with PCM!

If you will use the MP3 codec instead of the already installed PCM or G.711 codec, then please read and follow the following instructions carefully!

Note, the recording function works only over MP3 (also when a PCM or G.711 Codec is used), if used then you have also to copy the MP3 libraries (below) to your ICgraph PC.

Because of copyright and patent issues we cannot deliver the MP3 libraries with the ICgraph software package. You have to get them from the Internet separately.

For the MP3 mode in ICgraph the following files are required on the following locations :

Lame_enc.dll >> to Windows subfolder \system32 (e.g. C:\windows\system32)

lametritonus.dll >> to Windows subfolder \system32 (e.g. C:\windows\system32)

tritonus_mp3-0.3.6.jar >> to Java subfolder \lib\ext (e.g. C:\Programs\Java\jre1.6.x_xx\lib\ext)

tritonus_share-0.3.6.jar >> to Java subfolder \lib\ext (e.g. C:\Programs\Java\jre1.6.x_xx\lib\ext)

jl0.4.jar >> to Java subfolder \lib\ext (e.g. C:\Programs\Java\jre1.6.x_xx\lib\ext)

All the files can be found and downloaded from the Internet, e.g.

- from <http://tritonus.org/plugins.html>

tritonus_mp3-0.3.6.jar

tritonus_share-0.3.6.jar

tritonus-mp3enc-2001-04-25.zip , this is containing the **lametritonus.dll** .

- the **Lame_enc.dll** (in **lame3.97.zip**) from: <http://www.rarewares.org/mp3-lame-bundle.php>

-the **jl0.4.jar** can be downloaded from <http://swiff.upb.de/swiff/download/jnlp/gui/>

Thereafter reboot your PC so that Java can initialize the new libraries!

If you use the above mentioned files then please respect the copyrights of the software owners!

Configuration :

To communicate between ICgraph and the Barix devices two things should be configured :

- the BARIX audio devices
- PC with sound card and ICgraph application (ICgraph.cfg)

ICgraph can use for communication the G.711, PCM and MP3 audio formats.

As transport protocols you can select RAW UDP or RTP.

For all targets only one codec and one protocol type can be defined in ICgraph. That means all must use the same! If you will use different target devices (e.g. Annuncicom and Exstreamers), then you have to make the right selection to be compatible with all devices.

Following is a overview about the supported codecs on the Barix devices/firmwares :

Exstreamer - Standard Firmware v8.20: MP3, G.711 8khz (on RTP Receive Port only !)

(The Exstreamer firmware va8.21 does support also PCM and G.711 (both in 8 and 24 kHz) on the RTP port!)

Exstreamer - ABCL Firmware (Full-duplex application): PCM, G.711 (both in 8 and 24 kHz)

(The Exstreamer can only listen/receive by using the ABCL Full-duplex application !!)

Annuncicom – Standard firmware (half-duplex only!): PCM, G.711 (both in 8 + 24 kHz), MP3

Annuncicom – ABCL firmware with contained Custom1.cob: PCM, G.711

The Full-duplex communication works only with ABCL firmware (contained Custom1..cob recommended) by using the PCM or G.711 codec !

MP3 works only half-duplex, but is perfect for announcements to the Exstreamer (e.g. to UDP Priority Streaming Listen Port).

For the Exstreamer (receive only, for announcements from ICgraph) :

MP3 streams from ICgraph can be received on the following Ports :

[“UDP Priority Streaming Listen Port”](#) , [“UDP Streaming Listen Port”](#) or [“RTP Receive Port”](#)

For the [“RTP Receive Port”](#) or the [“UDP Streaming Listen Port”](#) the Exstreamer should be configured in [Mode = 4 Streaming Receiver](#) .

The [“UDP Priority Streaming Listen Port”](#) works in all modes in the Exstreamer configuration.

Please make sure that the same port number is not used two times in the Exstreamer setup!

If the Exstreamer should be used also for MP3 background music or any other MP3 streams then also ICgraph must send in MP3! The use two different codecs on the same unit is not recommended.

For G.711 (8Khz) you should use the following configuration (requires minimum firmware va8.09).

[Mode = 4 Streaming Receiver](#)

[RTP Receiver Port = 3030](#) (as example, must be the same port number as used on ICgraph Point button)

Note, if G.711 is used on the Exstreamer then the it cannot listen any other MP3 applications!

Annunicom with Standard Firmware (half-duplex only):

Use the following configuration in the Annunicom:

Audio / Encoding Frequency = **MP3 , PCM** or **G.711** (must be same as used in ICgraph)
Audio / MP3 Bitreservoir Mode = **kept empty** (important for MP3)

Streaming / Own Name = (only required when discovering is used)
Streaming / Mode = **"send on Talk"** (for the most the best) or **"Send on Level"** or **"auto answer"**
Streaming / Non MP3 Packet Size = **500** (only important for G.711 8khz !)
Streaming / Stream Packet Strategy = **lowest Latency** (important for MP3)
Streaming / Receive Timeout = **200** (important!)
Streaming / UDP Receive Port = **3030** (e.g. , must the same as used in ICgraph configuration)
Streaming / Stream to = **from table** ("**origin Source**" recommended for Multi-Master mode)
Streaming / Table1 / #1 = **RAW UDP : IP of ICgraph-PC : 3030** (port configurable in ICgraph.cfg)

IO / I0 push command = **c=91** (important!)
IO / I0 release command = **c=84**
IO / I1 push command = **r="IP address of PC":3040/ring** (e.g. r=192.168.1.20:3040/ring)
IO / I1 release command =

To start/stop to audio stream from the Annunicom to PC the Annunicom's I0 button can be used or the ICgraph user can switch from talk to listen by double clicking the target button or using "Remote Voice start/stop" buttons.

If a I1 button is connected on the Annunicom, then it can be used to send a Ring command (bell sound) to ICgraph. If the I1 button is then pressed a ring sound will be played on the ICgraph PC and the ICgraph Target button for this Annunicom will change the his colour (magenta) as optical notification. If Multi-Master configuration is used, then the notification will come on all masters.

Barix Instreamer with Standard Firmware (ICgraph listening only):

Audio / Encoding Frequency = **MP3, PCM, G.711** (must be same as used in ICgraph)
Audio / MP3 Bitreservoir Mode = **kept empty** (important for MP3)

Streaming / Own Name = (only required when discovering is used)
Streaming / Stream Packet Strategy = **lowest Latency** (important for MP3)
Streaming / Stream to = **RAW UDP or RTP : IP address : Port number**

Annunicom with Full-duplex configuration for ICgraph:

This is the best option for the communication! For full-duplex on the Annunicom it needs the ABCL firmware **va0.12 or newer**, which is downloadable from the Barix homepage. Load this version (contained file "Compound.bin") over the normal web update to the Annunicom.

When this is successfully loaded then go to "Advanced update". There set Target to "WEB5" and select from subfolder "FDx_ICgraph" the file "custom1.cob" and click on "Upload".

Then wait until a successful message

Advanced Update Barix Bootloader V99.12 Sep 5 2007

Target: **WEB5**

Resource: **C:\ICgraph_v14\FDx-ICgraph\custom1.cob** **Durchsuchen...**

Upload **Reboot**

[Update](#)

appears. After the “successful” message reboot the Annunicom, few seconds later you can enter the Annunicom’s home page again.

Note, it could happen that updating the Annunicom firmware resets the IP address. In this case please assign the IP address again!

If you have entered the ABCL configuration, then please check first the IP settings, select Application “Custom Application 1 (custom1)” and click on “Apply”. Thereafter you can use the “APPLICATION” button to enter the application menu.

The online help explains all available settings very clear.

The “Encoding”, “Connection protocol” must have the same settings you have defined in “ICgraph.cfg” file (in “IC” line).

As Streaming mode are available “send always”, “send on level”, “send on IO” and “respond”. “Respond” will only stream when there is also a incoming network stream, else it stops streaming immediately. Fore the most the installations the “respond” mode is probably the best option

The input “I1” is usable as “ring” button, if pressed it sends a “ring” - message to Destination IP.

When ICgraph is used in Multi-master mode then it’s recommended (see online help for details) to use the “Auto detect” mode. This mode can be activated when you set the “Destination port” to 0 (zero). Then it will learn the “Destination IP / Port” and “Connection protocol” from the master automatically.

Barix BCL - Microsoft Internet Explorer

Adresse: http://192.168.1.178/

MAC: 00:08:E1:00:53:72 Setup: V01.01
Firmware: VAD.13 (04/10/2008) Song: V06.01 (Apr 10 2008)
Web application: V01.05 File system: V01.14
Bootloader: V99.12 Application: custom1
Application version: V9.22ak 20080520

SETTINGS APPLICATION REBOOT UPDATE

FULL DUPLEX DOOR INTERCOM FOR ICGRAPH

AUDIO

Input source: ☐ Line ☒ Mic

Encoding: PCM/8 kHz (16bit)

Volume: 60 %

Microphone gain: 21 dB

A/D amplifier gain: 0 dB

STREAMING

Streaming mode: respond

Input Trigger Level: 0

Inactivity Timeout: 0 msec

Connection protocol: Raw UDP

Destination IP: 192 . 168 . 1 . 173

Destination Port: 3030

Receive Port: 3030

Own Name:

Apply Cancel

Streaming mode

"send always" will stream always

"send on level" will stream if the input audio level goes above the configured "Input Trigger Level"

"send on IO" will stream if the input IO button is pressed

"respond" will stream back as long as a stream is being received

Default setting is "send always".

NB! The I1 button can be used as RING request to remote side (to UDP port 3040). Your unit (to UDP port 12301) will also accept the commands FORCE ON (c=91), FORCE OFF (c=84), DOOR ON (c=78), DOOR OFF (c=79), pulse OPEN DOOR for 3 sec (c=80), RTS ON (c=60) and RTS OFF (c=61) from current connected remote side.

Input Trigger Level

Triggering input audio level if "send on level" mode is selected.

Accepted range: 0-32767

Default: "1000"

Inactivity Timeout

"Send on level" streaming stops after this number of milliseconds of no input audio signal.

Default: "1000ms"

Connection protocol

"Raw UDP" will stream by using raw UDP protocol

"RTP" will stream by using RTP protocol

Default setting is "Raw UDP".

Destination IP

Enter 4 values of the IP address of the receiving unit.

If no Destination Port is used then this IP address is for addressing the ring command to ICgraph only.

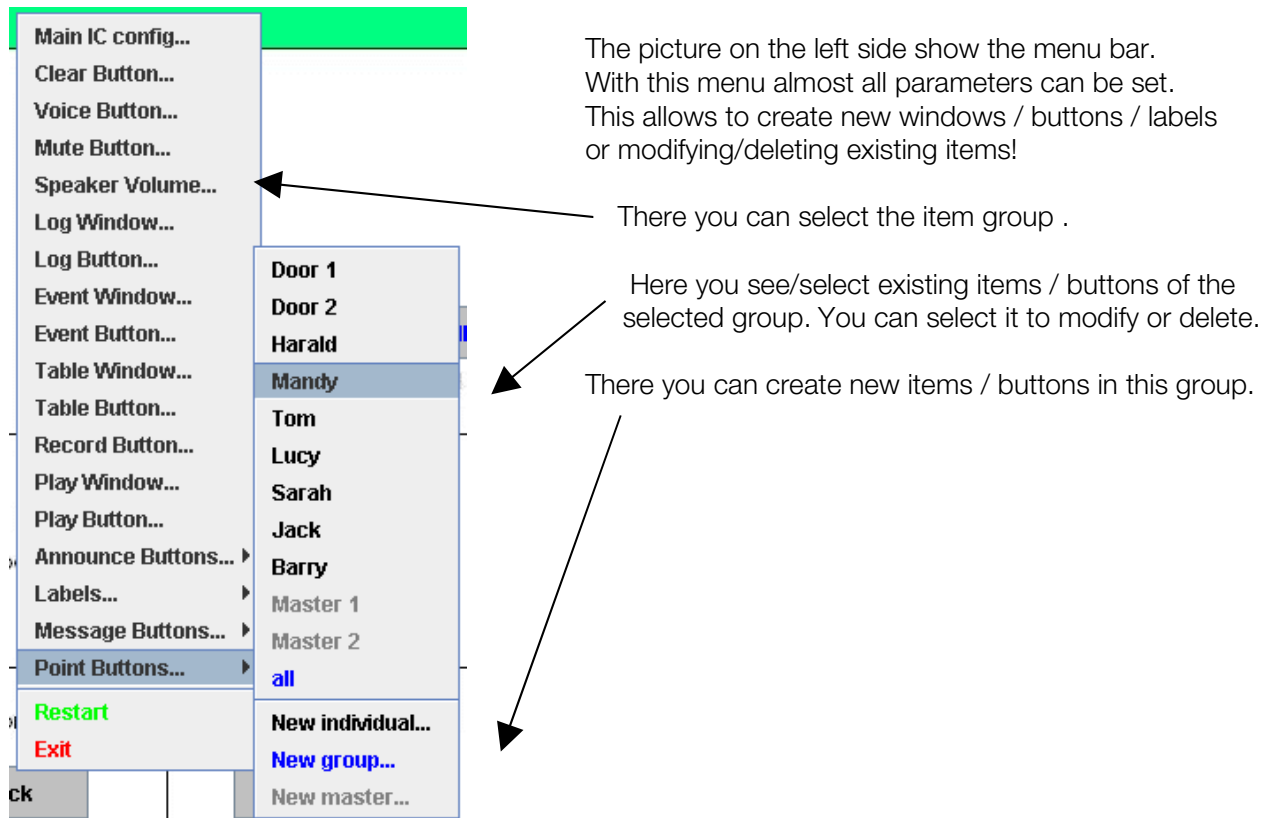
Destination Port

Enter the port number of the receiving unit.

NB! If 0, your unit will send "to origin source" by using Encoding (Payload Type for RTP), Protocol, and IP:Port of the latest received packet.

ICgraph configuration :

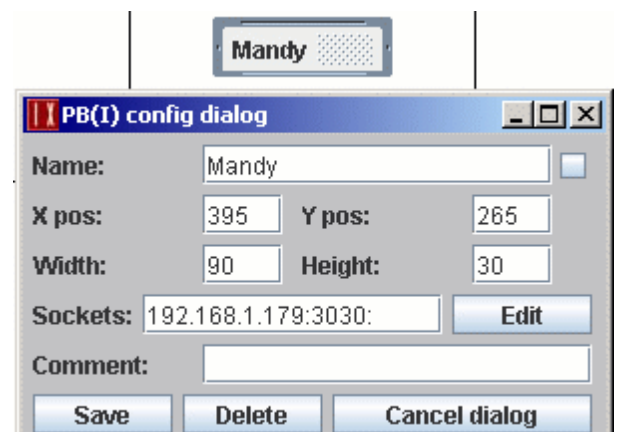
ICgraph has two options for configuration available, there is a menu bar when you click with the right mouse button into the background of the ICgraph application (not on a button!) or you can modify the ICgraph.cfg file by using any editor (e.g. notepad).



If any item is selected then a dialog box for the item opens. Here you can set the settings for the item. The selected item is marked also on the ICgraph GUI so you know which item you have currently in work .

When this item is marked (and config dialog box is open) then you can also move (and relocate) the marked item or resize it by mouse drawing! You should see then that the position values in the config dialog box are changing automatically .

The very most of the parameters are configurable so very comfortable. Only after saving the values and restarting ICgraph the new values get active!



Note! If a password is set in the IC line (only in ICgraph.cfg possible) then the config menu bar is disabled / removed. Password "0" (zero) disables also the menu without activating the password function .

Main IC config:

Here you define the environment for the ICgraph application:

- Map File (background picture, if you have, when empty then grey background)
- Ring File (played on PC at incoming ring requests, must be WAV or MP3 file)
- Form Width/Height (if 0 then size of the selected background JPG file is used)
- Audio (codec) and Protocol (setup depends from used remote devices, see on page 3)
- Voice Port (UDP port for incoming audio streams from remote Annuncicoms)
- Ring Port (UDP port for incoming commands, e.g. Annunicom's ring command)
- Discover,s (feature to check existing Barix devices, use 0 to disable, see below)
- Command Port (UDP port for outgoing commands, should be Barix UDP command port)

Additional (and optional) can be configured in the ICgraph.cfg directly only:

Password (**if set, then no config menu!**) , Title (for ICgraph window), Command button colour

Clear Button:

Button is optionally and can be used to clear/close any open communication.

- Name (name of the button, is displayed on the button)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Comment (help / comment is displayed when the mouse points on the button)

Voice Button:

Button is necessary when you will use the audio communication function in ICgraph !

- Name (name of the button, is displayed on the button)
- Pressed Name (This name is displayed when the button is pressed)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Comment (help / comment is displayed when the mouse points on the button)

Mute Button:

This optional button can turn off/on the PC's microphone (for communication to remote points) .

- Name (name of the button, is displayed on the button)
- Pressed Name (This name is displayed when the button is pressed)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Comment (help / comment is displayed when the mouse points on the button)

Speaker Volume:

Optional Volume slider to change the output volume on ICgraph application.

Works on the most PCs, but unfortunately not on all , then is has no function.

- Xpos / Ypos (horizontal/vertical position of the slider on ICgraph window)
- Width / Height (size for the volume slider)
- Comment (help / comment is displayed when the mouse points on the slider)

Log Window:

Optional window for information about all activities on ICgraph, contains also informations about background activities and automated procedures .

- Font size (select the size for the displayed information)
- Xpos / Ypos (horizontal/vertical position of the window on ICgraph window)
- Width / Height (size for the output window)
- Text color (select the colour for the displayed information)
- Comment (help / comment is displayed when the mouse points on the window)

Log Button:

Optional button can turn off/on the Log window, if no Log button exists then a defined Log window is permanently displayed.

- Name (name of the button, is displayed on the button)
- Pressed Name (This name is displayed when the button is pressed)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Comment (help / comment is displayed when the mouse points on the button)

Event Window:

Optional Event window contains only information about current operations for the operator and all entries can be also selected from here by double-clicking instead of using the point buttons . The use of this feature is recommended for larger installation with 50 ringing targets or more. So it is easier to retain the overview about tasks/activities.

- Font size (select the size for the displayed information)
- Xpos / Ypos (horizontal/vertical position of the window in the ICgraph application)
- Width / Height (size for the output window)
- Text color (select the colour for the displayed information)
- Comment (help / comment is displayed when the mouse points on the window)

Event Button:

Optional button can turn off/on the Event window, if no Event button exists then a defined Event window is permanently displayed.

- Name (name of the button, is displayed on the button)
- Pressed Name (This name is displayed when the button is pressed)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Comment (help / comment is displayed when the mouse points on the button)

Table Window:

It is a optional feature, you can use it instead or also together with the graphical interface. This lists all available points/targets in a table form with the status behind. If you don't need the point buttons then you can make then also invisible. This can be done by assigning the size 0 to the button on a unused place of the application, e.g. PB:Door2:0:0:0:0:192.168.1.177:3030: The containing example "Table view" shows a simple table view configuration (see screenshot on page1 or last page) . Copy it into the ICgraph folder to activate it.

- Font size (select the size for the displayed information)
- Xpos / Ypos (horizontal/vertical position of the window in the ICgraph application)
- Width / Height (size for the output window)
- Text color (select the colour for the displayed information)
- Comment (help / comment is displayed when the mouse points on the window)

Table Button:

Optional button can turn off/on the Table window, if no Table button exists then a defined Table window is permanently displayed.

- Name (name of the button, is displayed on the button)
- Pressed Name (This name is displayed when the button is pressed)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Comment (help / comment is displayed when the mouse points on the button)

Record Button:

Optional button can turn off/on the integrated recording function. This function can record outgoing and incoming audio communication to the ICgraph program folder (subfolder "Records").

Note, the recording function works only properly when the MP3 libraries are installed (see section "Installation").

All created files have MP3 format with time stamp and button name in the file name. The extension "_S" at the end marks Stereo records for incoming & outgoing direction. The extension "_M" marks Mono records (outgoing only), such files can be sent to remote targets for announcements. If the "Play window" function is used then the recorded file can be listened on the PC and also sent to targets ("_M"-files only) by double-clicking it in the "Play window".

2008/07/01 15:58:31	[home]_S
2008/07/01 17:13:58	[all]_M

- Name (name of the button, is displayed on the button)
- Pressed Name (This name is displayed when the button is pressed)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Comment (help / comment is displayed when the mouse points on the button)

Play Window:

Optional Play window shows live recorded (see Record Button) audio files and allows selecting the files. Double-clicking of one of the recorded files will play the wav file locally on the ICgraph PC.

- Font size (select the size for the displayed informations)
 - Xpos / Ypos (horizontal/vertical position of the window in the ICgraph application)
 - Width / Height (size for the output window)
-

-
- Text color (select the colour for the displayed information)
 - Comment (help / comment is displayed when the mouse points on the window)

There are two different file types, "..._S" and "..._M", please see section Record Button for details!
"..._M" file can be sent also to selected targets.

Play Button:

Optional button can turn off/on the Play window, if no Play button exists then a defined Play window is permanently displayed.

- Name (name of the button, is displayed on the button)
- Pressed Name (This name is displayed when the button is pressed)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Comment (help / comment is displayed when the mouse points on the button)

Announcement Button:

Optional button can send pre-recorded or live recorded audio files to dynamically selected targets!
Note, only files in WAV format (16 bit, 8kHz in Mono) and live recorded files with "....._M" extension can be sent to remote targets! In MP3 mode also Mono MP3 files can be used.

- Name (name of the button, is displayed on the button)
- Pressed Name (This name is displayed when the button is pressed)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Announcement File (select path (or MP3) audio file to stream/play)
- Comment (help / comment is displayed when the mouse points on the button)

Labels:

Optional Labels can be used for a title for the ICgraph window or describe some point/items in the application window.

- Name (name of the button, is displayed on the button)
- Font size (define the size of displayed text, default is 12)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Text color (define the colour of the displayed text, default is black)
- Comment (help / comment is displayed when the mouse points on the button)

Possible are also dynamic labels which can display requested status information of any UDP controlled Barix device, e.g. the current played song of a Exstreamer or a input of a Barionet.
ICgraph can sort the incoming messages and will display only the defined information for the field. It can filter by IP address, own name or HTML information, or also by a combination of both.
The filter must be defined in the Name for the line! More Details in the "Advanced User Section".
Over a Message Button (see following) a device can be periodically polled for status information and the dynamic label field can display these information.

For dynamic Labels you have to use in the Name field :

- "[IP]/[tag]" -> dynamic Label (by gotten reply)
 - if IP is empty -> reply from any IP will be checked
 - if IP is "name" -> fix or dynamic IP of point "name" will be used
-

-
- if tag is empty -> all one-line reply text will be shown
 - if tag is "<HTML>" -> all multi-line reply text with HTML formatting
 - if tag is "<xxxx>" -> one-line reply text between <xxxx> and </xxxx>
 - else -> only one-line reply text after tag will be shown

Message Button:

The optional Message Buttons can send UDP commands to Barix devices to control them. With such control commands you can send any API commands (check technical documentation of the Barix device) to control or to check status information (see also dynamic Label). The "local" Message Button can also start a local application on the PC (e.g. browser).

There are three types of Message buttons :

- * new active will send UDP command to currently selected (active) targets/points.
- * new direct will send the UDP command to a fix defined target
- * new local does not send UDP message, but can start/open application on local PC

Examples:

MB:Door Open:20:210:100:30:c=80:: #pulses Door relay for 3 seconds

MB:Barionet state:600:718:90:45:getio,1:192.168.1.179:12301:10: # change state of Barionet relay 1

MB:Settings:870:725:120:30:>/Programs/Internet Explorer/iexplore.exe <IP>:: # WEB settings for point



The different message button types are displayed in different colours (red, blue and black).

- Name (name of the button, is displayed on the button)
- Command (This command is send when the button is pressed)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Comment (help / comment is displayed when the mouse points on the button)
- Sockets (target IP address & port number where to sent the command to)
- Send Period (optional – time in seconds when to repeat the command automatically)
- Line (instead of "Command", define here path to program on local PC)

The UDP command can contain every characters excepting the global delimiter (default ":"). If the ":" is needed in a UDP command (e.g. **s=cfg://1**) then you have to replace all delimiters in all ICgraph.cfg command lines with any other not existing character (but not "#").

Point Buttons:

The optional Point Buttons define the targets / remote devices. A Point button can be a single device (new individual), a group of devices (new group) or another ICgraph Master PC .



- Name (name of the button, is displayed on the button)
- Xpos / Ypos (horizontal/vertical position of the button on ICgraph window)
- Width / Height (button size, a leading 0 on Width makes the button transparent)
- Sockets (target IP address & port number the for audio stream)
- Comment (help / comment is displayed when the mouse points on the button)

ICgraph has a "Discovering" function for Barix audio devices in the same network. To activate this function assign no IP address to the point button (PB), for example :

PB:Door 1:650:400:50:30::3030:

The "Name" (e.g. **Door 1**) in the PB line (in the ICgraph.cfg) must be for discovering the same (case sensitive) as in the Annunicom/In-/Exstreamer configuration under "Own name"!

The advantage of this solution is the use of dynamic IP addresses (e.g. DHCP) and the optical notification when a unit is not available or not more reachable over network.

  Undiscovered units are marked with a dark grey target button without functionality!
Discovered units have a grey button as normal Point buttons with a fix IP address.
ICgraph is also Multi-Master capable, for details check the Multi-Master section on the next pages .

Configuring ICgraph over ICgraph.cfg file

For the experts editing the ICgraph.cfg file might be the faster option than using the Config menu.
The complete configuration file is human readable, it is in plain text and can be edited with any editor (e.g. notepad).

The file looks very long but the very most are only help comments. Not needed functions you can outcomment or remove. Really required are only the "IC" and the "VB" (for communication) line.

The syntax of the command lines below are marked in blue.

The red lines are the description of the syntax. The active configuration is marked in **bold**!

Not needed commands or buttons can be outlined with "#" (marked as comment) at the beginning of the line. **More details you can find in following chapter "Advanced User section".**

Following is ICgraph.cfg file for the default example for the screenshot on page1
(Building Control and Communication):

```
#####  
# ICgraph main configuration:  
# IC:MF:W:H:AF[SR]:PR:LP:RP:DT:CP:RF:[PW:[TL:[BC:]]]  
#  
# NB! if need, use ICx to set 'x' as new global delimiter instead ':'  
# MF is map file (jpg), if empty -> usual background  
# if MF exists and W=0 or H=0 -> the proper size by picture  
# AF is audio format, mono: P(PCM MSB,default)/F(PCM LSB)/U(uLAW)/A(aLAW)/M(MP3)  
# SR is sample rate, Hz: 8000,default/16000/22050/24000/32000/44100/48000  
# PR is sending protocol (receiving auto): U(UDP,default)/R(RTP)  
# LP is local voice UDP/RTP receiving port (default 3030)  
# RP is local ring port (default 3040 for UDP RING request)  
# DT is DISCOVER timeout (default 60 sec), if 0 -> disabled,  
# if DT > 0 -> sends DISCOVER requests and checks replies  
# if DT < 0 -> only checks replies (unit will be lost after 3*DT)  
# CP is remote command port (default 12301 for UDP commands)  
# RF is ring file (wav or mp3), if empty -> no ring sound  
# PW is optional startup password, if empty or 0 -> no password  
# TL is optional title for customization, if empty -> "Barix graph Intercom"  
# BC is optional command buttons color (RGB,R:16-23,G:8-15,B:0-7 bits)
```

IC:house.jpg:0:0:P8000:U:3030:3040::12301:ringin.wav::Barix ICgraph:
environment for ICgraph

➡ This sets

```
#####  
# any element below can be commented by # -> will disappear  
# [-] marker does any element as invisible with start  
# [#] marker does any element Name as invisible
```

```
# N is element Name, must be unique for all ICgraph
# X,Y,W,H are coordinates and sizes of rectangle element
# if 0W, any element will be transparent in passive state
# N2 is optional alternative name in pressed/active state
# FS is optional font size for text in element (default 12)
# TC is optional text color (RGB,R:16-23,G:8-15,B:0-7 bits)
#####
# Clear button
# CB:[~][#]N:X:Y:W:H:[[:]]
```

CB:Clear All:20:50:100:30::
"Clear all" button

➡ Defines the position of the

```
#####
# Voice & mUte buttons
# VB:[~][#]N:X:Y:W:H:N2:[:]
# UB:[~][#]N:X:Y:W:H:N2:[:]
```

VB:Start voice:20:95:100:30:Stop voice:: # start/stop voice mode
voice" button
UB:Mute ON:20:140:100:30:Mute OFF:: # Mute ON/OFF

➡ That defines the "Start

```
#####
# any element below can be commented by # -> will disappear
# [-] marker does any element as invisible with start
# [#] marker does any element Name as invisible
# N is element Name, must be unique for all ICgraph
# X,Y,W,H are coordinates and sizes of rectangle element
# if 0W, any element will be transparent in passive state
# N2 is optional alternative name in pressed/active state
# FS is optional font size for text in element (default 12)
# TC is optional text color (RGB,R:16-23,G:8-15,B:0-7 bits)
#####
# Speaker Volume slider
# SV:[~][#][N]:X:Y:W:H:[[:]]
# if W>H -> horizontal, else vertical slider
```

SV::20:590:100:10:: # current Speaker Volume
for volume slider

➡ defines the place & size

```
#####
# Log Button & Log Window
# LW::X:Y:W:H:[font size (default 12)]:[TC:]
# LB:name:X:Y:W:H:name2 (pressed state):[:]
# if LB is absent -> LW is visible constantly
# TC is optional text color (RGB,R:16-23,G:8-15,B:0-7 bits)
```

LW::415:350:550:128::3355443: #
size for Log window

➡ defines the position &

LB:Show LOG:10:420:120:30:Hide LOG:: # show/hide Log Window
position for Log button

➡ defines the

```
#####
```

Event Button & Event Window

EW:[~][#][N]:X:Y:W:H:[FS:[TC:]]

EB:[~][#][N]:X:Y:W:H:N2:[:]

if EB is absent -> EW is visible constantly (if no ~)

EW::435:350:500:128:18:3355443: #

➡ defines the position for

Event window

EB:Show events:10:380:120:30:Hide events::

➡ defines the position for

Event button

#####

Table Button & Table Window

TW:[~][#][N]:X:Y:W:H:[FS:[TC:]]

➡ Graphical view and table view

can be

TB:[~][#][N]:X:Y:W:H:N2:[:]

used also in the same

ICgraph window

if TB is absent -> TW is visible constantly (if no ~)

#TW::180:550:520:100:20:255: #

➡ Here define place & size

for table window

#TB:Show table:10:330:0120:30:Hide table: # show/hide Table View

and table button (if non

permanent)

#####

Record Button

RB:[~][#][N]:X:Y:W:H:N2:[:]

With this button you

can record the

RB:Start record:10:460:120:30:Stop record::

➡ stream/communication

to your harddisk

#####

Play Button & Play Window

YW:[~][#][N]:X:Y:W:H:[FS:[TC:]]

YB:[~][#][N]:X:Y:W:H:N2:[:]

if YB is absent -> YW is visible constantly (if no ~)

YW::415:350:550:128:20:: #

➡ On this window you can

see your recordings

YB:Show records:10:500:120:30:Hide records:: # show/hide Records Table

#####

Announcement/Playing Buttons

AB:[~][#][N]:X:Y:W:H:N2:AF:

AF is path to audio file, for playing -> any audio format,

for announcement -> only MONO with proper sample rate accepted

button to send a

existing audio file

AB:Announcement:10:540:120:30:Stop ANN:barix.wav:

➡ to the selected

target/point

#####

Labels

LL:[~][#][N]:X:Y:W:H:[FS:[TC:]]#

```
# if name has ".jpg|.gif" extention -> graphical Label from the file
# if name is "[IP]/[tag]" -> dynamic Label (by gotten reply)
# if IP is empty -> reply from any IP will be checked
# if IP is "name" -> fix or dyn IP of point "name" will be used
# if tag is empty -> all one-line reply text will be shown
# if tag is "<HTML>" -> all multi-line reply text with HTML formatting
# if tag is "<xxxx>" -> one-line reply text between <xxxx> and </xxxx>
# else -> only one-line reply text after "tag" will be shown
```

LL:Building Control & Communication:270:40:0500:33:29:6684927:

LL:Volume:45:600:050:12:: #current Volume settings

➡ Labels can be used for any
description on the
ICgraph window

LL:(c) Barix, 2007:20:740:090:20::0: # Barix copyrights

```
#####
# Messages buttons (can have some IP items for direct commands)
# MB:[~][#][N:X:Y:W:H:[>|#]text command:[IP1:port1:[IP2:port2:]...[SP:]]
#
# [>] marker is used to execute local command in this OS, where
# also possible substitutions <NAME> and <IP> for active points
# [#] marker converts HEX to binary command, where also possible
# substitutions <ID> and <BM> for own ID and active points Bitmap
# optional IP items are used for direct commands (without points)
# if IPx is "name" -> fix or dyn IP of point "name" will be used
# if an optional port is empty -> CP will be used
# SP is optional sending period, sec, if 0 or empty -> disable
```

MB:Door Open:20:210:100:30:c=80:: # Open door

➡ Here define any

message buttons, it will

MB:Talk:20:290:100:30:c=91:: #Target talks

send a UDP message to
"#" at the end of

the target. **MB:Listen:20:250:100:30:c=84:: # Target stops**

the line adds a quick

MB:Light on/off:20:330:100:30:setio,1,999:192.168.1.179:12301:

info for the button.

MB:Settings:870:725:120:30:>/Program files/Internet Explorer/iexplore.exe <IP>:: # call WEB settings
for active points

```
#####
# Points buttons (each can be with some IP items for group)
# PB:[~][#][*][N:X:Y:W:H:IP1:port1:[IP2:port2:]...[[+|-]ring file:]
#
# [*] asterisk is used for Operator points in Multi Master Mode
# if name has "=N" extention -> BARP ID number is N (1-1024)
# Please, set individual IP points before group IP points!
# if IPx is empty -> dynamic IP will be gotten from "name" unit
# if IPx is "name" -> fix or dyn IP of previous "name" will be used
# if portx is empty -> port of "name" (else LP) will be used
# optional ring file for the point, if empty -> no sound
# if optional ring file is absent -> RF will be used
# [+|-] optional RING action -> to make active/passive
```

PB:Tom:820:265:90:30:192.168.1.181:3030:

➡ Here you can define the

points / targets.

PB:Victoria:395:265:90:30:192.168.1.180:3030::
anywhere on the

PB:Harald:202:265:90:30:192.168.1.178:3030:
the

PB:Jack:340:535:90:30:192.168.1.183:3030:
coordinates (X,Y) , the

PB:Lucy:813:535:90:30:192.168.1.182:3030:
address of the

PB:Barry:180:535:90:30:192.168.1.185:3030:
RTP listen port

PB:Sarah:511:535:90:30:192.168.1.186:3030:
device .

PB:Door 1:150:400:76:30:192.168.1.176:3030: # Front door

PB:Door 2:668:673:74:30:192.168.1.177:3030: # Back door

PB:*Master 1:20:630:100:30:192.168.1.173:3030: # Master operator
configuration (*)

PB:*Master 2:20:680:100:30:192.168.1.172:3030:+notify.wav:

PB:all:610:265:60:30:192.168.1.255:3030:

for multiple targets

#PB:Broadcast:635:330:0100:30:Door 1:3030:Door 2:3030: # both doors
also possible.

The buttons you can put

picture, you have only to define

size (W,H), the

name of the button and IP

Barix device and UDP or

number on the Barix

➡ Multi-Master

Groups button

➡ (and to all) are

End of configuration

#####

There is no limitation for the number of buttons or targets/points on ICgraph.

As background picture you can use any picture in JPG format. With the most graphic programs you can create your own background picture in JPG format, e.g. with Paint in Windows XP .

If you use no background picture then the size of the application should be defined (in the "IC" parameter line) otherwise you have it always to enlarge the application window after startup.

When the ICgraph.cfg is changed then the ICgraph application must be restarted to get the new changes active!

The buttons you have not to add in the background picture, they are configured in the ICgraph.cfg or over the menu! All buttons can be defined also transparent or invisible.

Note, each button name (message or point) must be unique in the ICgraph.cfg!

Otherwise the application will perhaps not properly work .

There is also a "quick info" feature which gets active when the mouse arrow points on any button.

The quick info text you can add for each button behind the button configuration line after the "#",
e.g.

MB:Open Door:20:160:100:30:c=80: # Opens door for 3 seconds on selected point

(the end of the "quick info" requires no delimiter!)

When the PC mouse is touching this button, then automatically the "quick info" field with the information "Opens door for 3 seconds on selected point" appears. Each button can have a own quick info.

If you will use another existing example then you should replace the ICgraph.cfg in the main program directory with the other from the example sub directory.

Password

The password protection (configurable in the "IC" parameter line) is surely only very simple and no hard

protection against hackers or so. To increase the security you can hide the ICgraph.cfg or make this file inaccessible for others.

If no password is set, then the config menu is available by clicking with the right mouse button on the applications background. Any password or "0" disables the config menu.

Log file function

ICgraph logs every activity on the application in the ICgraph.log file. Per default this log file is renewed / deleted by reopening the ICgraph application.

To disable the Log – function, change the command in the ICgraph.bat to :

java -jar ICgraph.jar

To append (instead of deleting) new log entries to the LOG file by restarting ICgraph, change the start command in the ICgraph.bat to :

java -jar ICgraph.jar >>ICgraph.log

If multiple PC users should access the same ICgraph folder from a network share, then you have to disable the LOG file or to create for each user a separate BAT file with a separate LOG file.

Multiple users cannot access the same LOG file at the same time.

Multi-Master function

ICgraph can work also in a Multi-Master mode, means all the Annunicoms can be controlled from two or more ICgraph PCs.

If one of the masters is communicating with an Annunicom or Exstreamer, then the target button for this device is marked in red on all other masters, so that they see that this device is busy or the incoming ring is handled. For the other masters the red target is not usable for any activities.

All Masters must be defined in the ICgraph.cfg in the Point Buttons (PB) section, they must be marked with a "*" at the beginning of the button name.

e.g. **PB:*Master1:20:600:100:30:192.168.1.172:3030:**



If you use ICgraph in the Multi-Master mode then you have to make sure that also the Annunicom devices uses a dynamic mode (origin source), that it can answer to each master!

On the standard Annunicom firmware you have a feature "**origin source**", on the full-duplex Firmware (Custom1.cob) is "**Destination Port = 0**" according to "origin source" setting!

If you use the ring button on the Annunicom, then you should define the IP address of one of the masters, that this master can receive the ring and forward the information to all other masters.

All masters are exchanging status information over their "Ring Port" (per default UDP Port 3040).

Note, by using the dynamic modes on the Annunicom, the message buttons are working only after communication! Opening the door directly after incoming ring will not work.

The ring sound/notification will appear on all masters. When this ring request is answered by one of the masters, the target button resets automatically to normal state on all masters.

If you use the LOG file function and you start the ICgraph from a shared network folder then it needs multiple batch files (one for each master) to start to the application. Each PC needs to write in his own log file.

In that case create new ICgraph1.bat which writes to another log file (e.g. ICgraph1.log).

Otherwise the application on the second PC will not start, because both PCs cannot use the same log file! Or you can also disable the LOG file function (see below).

Voice communication between the Master-PCs is also possible.

Migration from the two older ICgraph version to new ICgraph version

There are many new features in the latest version for that reason we had to make also some changes on the ICgraph.cfg file. This means your ICgraph.cfg file from earlier ICgraph versions is not more compatible with the current ICgraph version. Here are the steps to get your old ICgraph.cfg file in the new version working :

- PTT Button is now Voice Button called

e.g. old: PB:Start voice:20:100:100:30:Stop voice:
 new: **VB**:Start voice:20:100:100:30:Stop voice:

- Point Buttons are starting now with PB, please add "PB:" at the begin of each Point Button

e.g. old : Door1:672:676:69:30:192.168.1.176:3030:
 new : **PB**:Door1 672:676:69:30:192.168.1.176:3030:

- Audio Format in IC -line changed

e.g. old : IC:house.jpg:0:0:P:U:3030:3040::12301:ring.wav::Barix Icgraph:
 new: IC:house.jpg:0:0:**P8000**:U:3030:3040::12301:ring.wav::Barix Icgraph:

Also the button style has changed a little bit, so maybe it needs also some cosmetic changes. Because of a new design mask (was necessary to get MAC compatible) the style and the size of the buttons/points is little bit different.

The recording function is changed in this new version, the previous version could record only in WAV format, the new version records only in MP3 format (also if any other Communication format is selected in IC line) to save hard disk space. But because of this you have to install the MP3 libraries as mentioned before in the section "Installation".

There are many new functions, but all of them are optionally.
That means you can use it, but you must not use it .

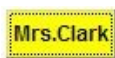
How to use ICgraph

When everything is installed and configured then start the "ICgraph.bat" (on Windows PCs) which is also located in the ICgraph folder. Two windows are opening now, both are needed. The black command window you should minimize to the task bar.

Note, when you create a shortcut for the ICgraph.bat on your desktop, then you can assign in the properties "Run : minimized", this will load the black window automatically to the task bar !

To get any audio communication working - press the "Start voice" button.
The button colour is thereafter changing to yellow and is labelled then "Stop voice" !
Only if "Start Voice" is pressed you can make any communication !

Yellow & green (static) target button :



If you click now on any point / target button then this changes the colour to yellow. Yellow target button means open communication. If a full-duplex firmware is used in the Annunicom then you can speak and listen now.

If the standard firmware is used in the Annunicom then it is working only half duplex, what means when one is speaking then the other can only listen.

To turn around the communication make the doubleclick on the yellow target button and it will change the colour to green (static), now the Annunicom can speak and ICgraph is listening.

To turn to speak again make a double click on the green button. Also the "Remote Voice start/stop" buttons in ICgraph or the IO button connected on the Annunicom can be used to turn around the communication. Note, deactivating a point button works only from yellow state, not from green state !

Green blinking target button :

Green blinking target button means the target is streaming to the ICgraph PC, but you cannot hear it because the channel is not selected. It is a visual notification that this unit is currently sending to the PC. Click on the blinking target button (colour changes to yellow) and the incoming stream is audibly on the PC.

Magenta (blinking / static) target button :



A magenta blinking button is a notification for a incoming ring, if not disabled then you should hear also the ring sound on the PC (moreover, this sound can be tuned individually for each point, if need). The button blinks 3 times, thereafter only the name of the button remains in magenta. Using double-click on the target button, "Door open", "Remote Voice start/stop" or "Clear all" will reset to normal colour.

It is also possible to select multiple target buttons for outgoing streams at the same time, but make sure they do not answer all, otherwise the incoming audio is stuttering .

For the use of any message button one or more target buttons must be selected. The command behind message button is sent to selected targets then. This works also if "Start voice" is inactive!

Red button (static) :



Happens only in Multi-Master mode. When the red colour appears on a target button

then the device is busy and used from another master (also red displayed). No other activity will work in this state with this target (no voice, no message button) .

Note, on the current example the Log window, the Event window and the Play window are overlapping, you have to close one window before you open the next !

Keyboard control

ICgraph is designed to control it via mouse or mouse-less via touch panel.
In the new version is also the control over keyboard possible.

-previously press Start Voice button (then use the usual system means – move focus by TAB and select by SPACE)

-with TAB set focus to any point button (for graphical control) or into Table or Event window (for table control)

-the following buttons can be used for operation control:

- **ESC** instead Clear button
- **ENTER** instead the first message button (e.g. Open Door)
- **SPACE** instead one mouse click (passive/active)
- **double SPACE** instead double mouse click (listen/force talk)
- **arrows UP/DOWN** to move focus from point to point

-additionally, if there are no already active or ringed points, for graphical control the focus will be automatically moved to just now ringed point button

- to close ICgraph use standard **ALT-F4**

Advanced User section:

ICgraph main configuration in ICgraph.cfg

```
#####  
# ICgraph main configuration:  
# IC:MF:W:H:AF[SR]:PR:LP:RP:DT:CP:RF:[PW:[TL:[BC:]]]  
# NB! if need, use ICx to set 'x' as new global delimiter instead ':'
```

This line describes the main general parameters of ICgraph at all, starts always with prefix “IC”, and has the fixed syntax (blue colour line above). Call your attention that a global ICgraph delimiter (default “:”) is not fixed. You can use any another char if need, but you must be sure that this delimiter will not be used inside any ICgraph parameter later. So, the ICgraph will automatically recognize the char after “IC” prefix as the new global delimiter for the complete CFG file.

Also you can see that some parameters and delimiters are enclosed by square brackets – it means that you can omit these values as optional. Almost all other parameters in CFG file also can be omitted (then ICgraph will use the default values) but the proper delimiters must be left!

```
# MF is map file (jpg), if empty -> usual background  
# if MF exists and W=0 or H=0 -> the proper size by picture
```

The map file is a picture (usually in JPG format) that ICgraph uses as background from the left top corner of window. If this parameter is omitted the ICgraph just uses a light gray panel instead. The parameters W (width) and H (height) are usually obligatory and give the ICgraph window size on the screen, however if one (or both) size is zero, the ICgraph will automatically use the proper size of given picture (or collapsed window if a map file is absent). At last, if a size parameter is omitted, the ICgraph will use default size 300 pixels instead. The ICgraph does not scroll a picture if its size is more than the given window or even screen – it is your responsibility to fit the proper picture size in advance for your project.

```
# AF is audio format, mono: P(PCM MSB,default)/F(PCM LSB)/U(uLAW)/A(aLAW)/M(MP3)  
# SR is sample rate, Hz: 8000,default/16000/22050/24000/32000/44100/48000
```

The audio format and sample rate you can give from right mouse button menu but it allows using only the main encoding formats of Barix devices. The ICgraph CFG allows using considerably more variants that you can use also for other tasks, for example, in VoIP system. However the ICgraph always uses mono audio format because it is intercom and paging system firstly.

```
# PR is sending protocol (receiving auto): U(UDP,default)/R(RTP)  
# LP is local voice UDP/RTP receiving port (default 3030)  
# RP is local ring port (default 3040 for UDP RING request)
```

The ICgraph can use raw UDP and RTP protocols for unicast, broadcast, and multicast (for paging) sending audio packages. With voice stream receiving the ICgraph automatically recognizes the protocol of packages gotten on local voice port (default 3030 if omitted). Also the ICgraph can catch the control UDP messages gotten on local “ring” port (default 3040 if omitted). The ICgraph uses this port for getting:

- acknowledge and discover messages from Barix devices
 - mutual status and sync messages in ICgraph Multi-master mode
 - reply messages from Barix devices for ICgraph dynamic labels
-

-
- secret macro commands from remote operators or devices
 - DOOR RING requests from Barix Annuncicoms
 - # DT is DISCOVER timeout (default 60 sec), if 0 -> disabled,
 - # if DT > 0 -> sends DISCOVER requests and checks replies
 - # if DT < 0 -> only checks replies (unit will be lost after 3*DT)

This parameter defines the behavior of ICgraph with discovering Barix devices, it allows automatically to recognize the devices with dynamic IP and to watch their live status on-line in network. If this value (default 60 sec) is more than zero, the ICgraph sends the broadcast discover requests (c=65535) with this period and checks incoming replies to identify by name the Barix Annuncicoms, Exstreamers and Instreamers. If a device does not reply for more than three times of these value, the status is changed to dead. Alive or dead status is shown on screen. If this value is less than zero, then ICgraph does not send the broadcast discover requests, but checks the proper "replies" all the same. It allows discovering the active Barix devices that send these "replies" themselves even if they are out of this local network. Beside that the same discover method also is used for Barix devices with Paging Client SW that send the BARP paging status messages to paging status port (see below).

CP is remote command port (default 12301 for UDP commands)

The remote command port is a UDP port (usually 12301) that the Barix devices use for getting remote command from ICgraph or another operator. For example, ICgraph sends to this port the mentioned broadcast discover request or command "OPEN DOOR for 3 sec" (c=80), etc.

RF is ring file (wav or mp3 w/o header), if empty -> no ring sound

The ring file is proper sound file that ICgraph will play (with getting DOOR RING request on local "ring" port) together with magenta color notification for proper device point button. Usually it is normal WAV file. If you want to use MP3 file, you must have installed the proper MP3 extension libraries. If this parameter is omitted, ICgraph will play no sound on DOOR RING request at all.

PW is optional startup password, if empty or 0 -> no password

The optional startup password is open text in CFG file and not really secret protection – it only blocks accidental start from Shortcut (of course, to increase the security you can hide the CFG file or make this file inaccessible for others by OS means). If the password is omitted, the ICgraph will start without password protection at all. If the password is set, the ICgraph will wait for 10 sec the correct password, else it will exit. Also if the password is set, the right mouse button menu cannot be used for configuration (only for Restart and Exit). The special case is if the password is "0" – then no password protection, but the right mouse button menu cannot be used for configuration too.

TL is optional title for customization, if empty -> "Barix graph Intercom"

The optional title you can use to show your own text as the ICgraph window title (for example, to show your project name). If it is omitted, the ICgraph will show the standard title "Barix graph Intercom". Also you can use for additional customization your own icon – just named "barix.jpg" and placed instead of the original Barix icon file in ICgraph directory. Beside that you can add your own data in LOG file by using own text instead "IC" line comment after "#" char (here is "comment to LOG with startup", see below).

BC is optional command buttons color (RGB,R:16-23,G:8-15,B:0-7 bits)

This optional parameter sets a new general colour for command buttons in ICgraph. If it is omitted, the ICgraph uses default "metal" colour. To set a new RGB colour you should convert the decimal values (0 – 255) for Red, Green and Blue to general decimal value = $(R*256+G)*256+B$.

So, here is example of ICgraph main configuration line:

IC:map.jpg:952:697:U24000:R:3030:3040:30:12301:ringin.wav:: #comment to LOG with startup

ICgraph uses here:

- background picture from file “map.jpg”
- window with width of 952 pixels and height of 697 pixels
- uLaw (G.711) 24 kHz audio format and RTP protocol for audio stream
- local voice port 3030 and local “ring” port 3040
- 30 sec period for broadcast sending to port 12301 of Barix devices the discover requests
- DOOR RING sound from file “ringin.wav”
- text “comment to LOG with startup” for customization output in LOG file/window

General configuration rules and parameters in ICgraph.cfg

```
#####  
# any element below can be commented by # -> will disappear
```

Each ICgraph element is described by one line in CFG file. Generally the order of elements is free, but you should follow logic – if a new element configuration has reference to another element, then this element should be described before. Any element can be commented by “#” char in the first position of configuration line – after restart ICgraph will not use the commented element anymore.

```
# [-] marker does any element as invisible with start  
# [#] marker does any element Name as invisible  
# N is element Name, must be unique for all ICgraph
```

The main parameter for any ICgraph element is Name! The Name must be unique in all ICgraph because other elements can use the Name of this element as reference. If need, you can use the special optional markers before name:

- marker “~” will hide this element constantly or temporary, i.e. ICgraph will operate with this element as usual, but the element will be invisible – such element in future can become visible again by using the proper marker “=” in macro button (see below)
- marker “#” will hide only name of this element – it can be useful, for example, to locate transparent elements on map picture that already has all necessary decorations

Some ICgraph elements (volume slider, info windows) have optional names – you should use a name only if you are going to control visibility of these elements by macro buttons (see below).

At last, for any ICgraph element you can use the name with HTML formatting for multi-line output, specific colour or font, or other decoration. The same you can use also for optional alternative names and mouse point comments (see below).

```
# X,Y,W,H are coordinates and sizes of rectangle element  
# if 0W, any element will be transparent in passive state
```

The coordinates (X,Y) and sizes (W,H) of rectangle area for a element always follow the element name. Also you can constantly hide the element by using zero values for width and height of the element. Beside that the leading zero before “width” value has a special sense – the element will be transparent in passive state, e.g. it can be useful for viewing background map picture.

```
# N2 is optional alternative name in pressed/active state
```

Some elements (toggle command buttons) can have this optional different name in the active state

(usually shown with yellow background colour). If you want to use the same name, just repeat the element name in this parameter. If you want to hide the name in the active state, just leave this parameter empty.

FS is optional font size for text in element (default 12)

TC is optional text color (RGB,R:16-23,G:8-15,B:0-7 bits)

Some elements (info windows) can use these optional parameters for additional decoration. You can tune the size of text and text colour as RGB value (see BC description above). If parameters are omitted, the ICgraph will use the default size 12 and the black foreground colour.

At last, for any ICgraph element you can use in the end of its CFG line the mouse point comment that starts after char “#” – The ICgraph will show this comment automatically when the mouse will shortly stop over this element.

According with logic, usually you should place the elements in following order:

- command buttons and windows
- point buttons (first individual points, then group points)
- message buttons and label elements
- macro buttons

Command buttons and windows configuration in ICgraph.cfg



```
# Clear button
# CB:[~][#]N:X:Y:W:H:[[:]]
CB:Clear All:10:10:0120:30::: # total clearing and disconnect
```

The Clear button is usually a necessary element that allows very fast to restore the source passive state for all points and to stop intercom or page stream to Barix devices. This example shows the Clear button with name “**Clear All**”, proper coordinates and sizes, transparent, and mouse point comment “**total clearing and disconnect**”.

```
# Voice & mUte buttons
# VB:[~][#]N:X:Y:W:H:N2:[:]
# UB:[~][#]N:X:Y:W:H:N2:[:]
VB:Start voice:10:50:0120:30:Stop voice:: # start/stop voice mode
UB:Mute ON: 10:90:0120:30:Mute OFF:: # Mute ON/OFF
```

These buttons are used for the standard intercom voice connection with active points. Usually for intercom mode the Voice button is constantly active and an operator switches real connections by mouse clicking on the necessary points. If need to switch own microphone OFF, an operator can press Mute button. Because these buttons are toggle buttons, you can use the alternative button name in active/pressed state.

```
# PaGe button (usually for BARP paging & control)
# PG:[~][#]N:X:Y:W:H:N2:Pr:IP:port_a:port_c:port_s:
# Pr is BARP Priority parameter 0-255 (default 100)
# IP is multi/broadcast IP for audio/control/status (default broadcast)
# port_a is target port for sending audio (default 5555)
# port_c is target port for sending control (default 5556)
# port_s is local port for receiving status (default 5557)
PG:Start page:800:50:120:30:Stop page:200::: # start/stop page
```

The Page button is used for supporting the paging mode of Barix devices with Paging Client SW according with the special BARP protocol. It allows sending the page audio stream to many Barix devices simultaneously by using multicast or broadcast and given priority. The parameters of Page button allow agreeing ICgraph paging with proper parameters of Barix devices in network.

ICgraph allows to configure the Voice and Page buttons simultaneously, but you can use them only alternate (if try to use both simultaneously, the Voice intercom mode will have priority) because they must use the same active points set. However theoretically it is possible to develop the combination of full duplex intercom SW and Paging Client SW on the same Barix devices and to use both modes in the same network simultaneously (especially in Multi-master mode).

```
# Speaker Volume slider
# SV:[~][#]N:X:Y:W:H:[[:]]
# if W>H -> horizontal, else vertical slider
SV::140:10:020:230::: # current Speaker Volume
```

The Speaker Volume slider allows changing the ICgraph output volume on-the-fly. Unfortunately this feature is HW and OS dependent , ICgraph usually sends message to Log if using the Speaker Volume slider is not possible. The slider allows not only changing the volume from ICgraph, but and shows the external volume changing from other PC applications, if exist.

```
# Log Button & Log Window
# LW:[~][#]N:X:Y:W:H:[FS:[TC:]]
```

```
# LB:[~][#]N:X:Y:W:H:N2:[:]
# if LB is absent -> LW is visible constantly (if no ~)
LW::180:10:520:230::39168: #
LB>Show LOG:10:250:0120:30:Hide LOG:: # show/hide Log Window
```

Despite you always can use a Log file (by console redirection in your OS) you can also see the Log output on-the-fly by using Log button and window. Log button controls visibility of Log window, although now you can use the macro button for it instead. If Log button is absent, the Log window will be shown constantly (if you did not use marker “~” and optional name to prevent it).

```
# Event Button & Event Window
# EW:[~][#]N:X:Y:W:H:[FS:[TC:]]
# EB:[~][#]N:X:Y:W:H:N2:[:]
# if EB is absent -> EW is visible constantly (if no ~)
EW::180:440:520:100:20:16711680: #
EB>Show events:10:290:0120:30:Hide events: # show/hide Event Table
```

These button and window you can use like previous for event control, the window shows on-the-fly the table of recent events with points. It allows seeing the time order of the latest events (voice and ring requests, changing operational mode, etc.) and to react properly and maximal fast.

```
# Table Button & Table Window
# TW:[~][#]N:X:Y:W:H:[FS:[TC:]]
# TB:[~][#]N:X:Y:W:H:N2:[:]
# if TB is absent -> TW is visible constantly (if no ~)
TW::180:550:520:100:20:255: #
TB>Show table:10:330:0120:30:Hide table: # show/hide Table View
```

These button and window you can use like previous for table control, the window shows on-the-fly the table of points and allows to use table view instead or together with graphical view.

```
# Record Button
# RB:[~][#]N:X:Y:W:H:N2:[:]
RB=Start record:10:370:0120:30:Stop record: # start/stop talk recording...
```

The Record button is used to record the current conversation on-the-fly, just click this button for start of recording and then again for finish. The ICgraph automatically saves the full-duplex (non-MP3 stream) conversation in Stereo MP3 file with proper sample rate in directory RECORDS with name YYYY_MM_DD_hh_mm_ss_[name]_S.mp3, where “name” is name of active point for this conversation, and suffix “_S” means that the file recorded as quasi Stereo – left channel for “ICgraph to point” direction, and right channel for “point to ICgraph” direction. However, if you select a group point (when obviously you use only one direction to notify) or use half-duplex (MP3 stream) conversation the ICgraph records only Mono MP3 file with suffix “_M”. Such files you can use in future for announcement too (see below).

Call you attention that for saving your disk space this ICgraph version does not support recording to WAV format anymore (only to MP3 file). Therefore, if you want to use the recording feature then you must have installed the proper MP3 extension libraries (please see section „Installation“).

```
# PlaY Button & PlaY Window
# YW:[~][#]N:X:Y:W:H:[FS:[TC:]]
# YB:[~][#]N:X:Y:W:H:N2:[:]
# if YB is absent -> YW is visible constantly (if no ~)
YW::180:245:520:100:20:: #
```

YB:Show records:10:410:0120:30:Hide records: # show/hide Records Table

These button and window you can use for direct access to files recorded by Record button (see above). Play button controls visibility of Play window that shows the list of MP3 files in RECORDS directory. You can select any file and play it in ICgraph by mouse double-click. To stop playback before finish you can just select another file in this list or close Play window by clicking on Play button again (here this button will have at this moment the alternative optional name "Hide records"). If the played file is Mono and has the current ICgraph sample rate format, you can play this file in ICgraph and simultaneously send this audio stream to selected points in active Voice or Page mode as announcement (see below).

```
# Announcement/Playing Buttons
# AB:[~][#]N:X:Y:W:H:N2:AF:
# AF is path to audio file, for playing -> any audio format,
# for announcement -> only MONO with proper sample rate accepted
AB:Start ANN:10:450:0120:30:Stop ANN:barix.mp3: # play "Welcome to Barix"
announcement
AB:RING ON: 10:490:0120:30:RING OFF:ringin.wav: # playing usual RING sound
```

The Announcement/Playing buttons allow you to play any WAV or MP3 files from any given place of your PC. You should just point the necessary path to the desirable file in configuration line. As soon as you click this button, ICgraph will play this file until you click the button again or file will finish itself (then the button automatically return to source passive state and name). If the played file is Mono and has the current ICgraph sample rate format, you can play this file on ICgraph-PC and simultaneously send this audio stream to selected points in active Voice or Page mode as announcement or pre-gong. ICgraph sends during playback the important info in Log, and you can check directly in Log the original file format, converted formats, availability of the file for announcement, etc. By using macro (see below) you can send the necessary announcements, voice commands or pre-saved directives to different points or group automatically.

Point button configuration in ICgraph.cfg

```
# Points buttons (each can be with some IP items for group)
# PB:[~][#][*]N:X:Y:W:H:IP1:port1:[IP2:port2:]...[[+|-]ring file:]
# [*] asterisk is used for Operator points in Multi Master Mode
# if name has "=N" extension -> BARP ID number is N (1-1024)
# Please, set individual IP points before group IP points!
```

The Point buttons are graphical equivalents of Barix devices. By common sense there are three main kinds of Point buttons:

- individual (a separate Barix device – Annunicom, Instreamer, Exstreamer, Barionet)
- master (any copy of ICgraph in Multi-master mode)
- group (join point for some individual or master points together)

Formally all kinds of points are equivalent each other – ICgraph fulfills all actions for all points by the same way and generally you can use only individual points (especially by using macro buttons for grouping). Nevertheless the ICgraph uses the difference for some additional services, i.e. for exchanging status and sync messages between ICgraph operators (i.e. master points that have prefix “*” before name). Also for supporting BARP protocol a point name can use suffix “=N” where **N** means an ID number of a Barix device.

Generally the order of points in CFG is free. But for decreasing ICgraph start time it is strongly recommended to use a logical order, e.g. to locate the individual points before the group points because the group points can use references to the individual points. Else ICgraph will try to recognize any such reference as external DNS name and spend the considerable time for it.

if IPx is empty -> dynamic IP will be gotten from "name" unit

Usually it is possible only for the individual points that use the dynamical IP address from DHCP server (it is considerably more comfortable for Administrator of a big LAN and easier for possible replacement of Barix devices). ICgraph will try automatically to recognize such Barix devices by its own Name / ID with using DISCOVER method or BARP status messages. Also an additional advantage is that you can see on-line status of all devices and react to a possible damage.

If this field is not empty then ICgraph will try to recognize it as real IP. Therefore you can use also a DNS name . If ICgraph can get the real IP the point will be shown as light gray or transparent.

if IPx is "name" -> fix or dyn IP of previous "name" will be used

It is possible only for the group points that use the names of individual points as references / aliases. The group point will be shown as recognized only when all aliases used in its CFG line are recognized by ICgraph.

if portx is empty -> port of "name" (else LP) will be used

Usually for voice streaming to any Barix device of your LAN you use the same port (typically the LP from the main "IC" line, default 3030). However by your own reasons you can tune the local voice port of any point individually and send the stream to different ports. For example, it could allow decreasing traffic in a big LAN by using the broadcast stream from individual points to the specific ports for the specific groups instead using the group points that really send many unicast streams. Also theoretically you can write for Barix device an application that will receive the voice stream to several different ports and use it from one or some ICgraph for access to different names of the same physical Barix device. If you omitted the port parameter the ICgraph will take automatically for group point the port of the proper individual point (by alias name) or, if this port is also omitted, the general LP port.

optional ring file for the point, if empty -> no sound

if optional ring file is absent -> RF will be used

[+|-] optional RING action -> to make active/passive

Usually you use the same RING sound (RF from main CFG line) for any ring request. But for each point you can use a specific sound (an optional ring file), then the operator will react automatically to the ring request by ear. If this parameter field is used but empty the sound for this point will not be played at all, i.e. by such way you can cancel RF parameter for specific individual point.

Beside that by using the prefix you can use the ring request to make the proper point automatically active (prefix "+") or passive (prefix "-"). For example, it can be useful if you would like to answer to this point automatically by ring request, then (if Voice mode is already active) such ring request will automatically activate this point and start voice conversation. Or vice versa, you want to use the ICgraph in order to see and log who is late to job place – then (if firstly all points were selected and each person should press ring button on his device) you can see all truants at any moment.

Some examples:

PB:brcst:650:200:070:30:192.168.1.255:: # broadcast

This formally individual point can be used as real "all group" point by using the broadcast IP for this LAN. You can page your messages to all points by using usual Voice mode, because the IP address is fixed the point is automatically recognized (transparent immediately).

PB:INstr:650:250:070:30:: # Instreamer

It is a usual point but you are going to use it for listening from Instreamer (mono only). The ICgraph must automatically discover the Barix Instreamer with own name “**INstr**”, show that this device is accessible (transparent) and workable (green blinking), then you can activate this button (yellow) and listen the stream from Instreamer, however in such case ICgraph will work in full duplex mode and automatically send the useless voice stream to Instreamer, therefore it is better to double-click the point (green) and stop sending from ICgraph.

PB:door=41: 650:300:070:30::: # Vernosti 48

This point has suffix “=41”, i.e. can be used in ICgraph Page mode. According with BARP protocol, if this point is active, the ICgraph in Page mode will send the special binary messages to target control port (port_c) where will mark the bit 41 in the point Bitmap field. The Paging Client SW on this Barix device will accept these messages and (if the current ICgraph page priority level is enough) to activate receiving the page stream on to the target audio port (port_a).

PB:home: 650:350:070:30::: # Hammerstattstrasse 70

This point is a typical Barix intercom device with own name “**home**” and dynamical IP.

PB:work: 400:400:070:30:::notify.mp3: # Karlstrasse 47

This point is the same as above but has the specific ring tone from file “**notify.mp3**”.

PB:*ak50:750:450:070:30:192.168.1.50:: # Master Operator
PB:*ak53:750:500:070:30:192.168.1.53:: # additional Operator

These points are the master points – usually the master points have the fixed IP. The ICgraph automatically marks the own point as busy (red). Also if another operator talks with a point, the sync messages show this info on the screen of your ICgraph also as busy (red) for both. The similar sync messages also show the info about ring request activation/deactivation even if this request is gotten another master. It allows each operator to see the same state of your intercom network and to act independently. Beside that, if need, the operator can talk each other as with any another point and agree their actions. Call you attention that Multi-Master mode works correct only when all operators use the copies of the ICgraph with the same CFG file.

PB:all: 650:400:070:30:home::work:: # home&work together

This is a group point, practically using this point is the same as using macro (see below) for a ctivation these individual points (“**home**” and “**work**”) together.

Message buttons and label elements in the ICgraph.cfg

```
# Messages buttons (can have some IP items for direct commands)
# MB:[~][#]N:X:Y:W:H:[>|#]text command:[IP1:port1:[IP2:port2:]...[SP:]
```

The Message buttons are used to send a command to the Barix device or call a command line. The ICgraph uses the following variants of Message buttons:

- active (sends UDP message to all active points)
 - direct (sends UDP message to the sockets specified in CFG line)
 - local (calls the OS command line with parameters of the active point)
-

Formally the Message buttons of ICgraph you can use to control any Barix or other devices. The advantage of Barix devices is that you can easy program them and agree the commands and replies in order to create the very complex system by easy means.

[>] marker is used to execute local command in this OS, where
also possible substitutions <NAME> and <IP> for active points

The marker ">" as start char of the text command means that it is the local Message button and the following message (text command) is the call of the command line for this OS. You can use in this command line two types of substitutions: the name and the IP address of the active point. If you have activated some points the calls will be fulfilled in series. Call you attention that generally you must close these call windows before exit from ICgraph at all.

[#] marker converts HEX to binary command, where also possible
substitutions <ID> and <BM> for own ID and active points Bitmap

The marker "#" as start char of the text command means that the following text is a hex string that ICgraph must convert to binary array and send as active or direct message. Usually it is used for supporting the commands of BARP protocol. Therefore you can use here two specific BARP substitutions: the own ID number of the master point of this ICgraph (if known, else 2 zero bytes) and the point Bitmap field (1024 bits with set bits of the active points). However generally you can use the binary messages instead text messages anywhere (for example, by security reasons).

optional IP items are used for direct commands (without points)
if IPx is "name" -> fix or dyn IP of point "name" will be used
if an optional port is empty -> CP will be used
SP is optional sending period, sec, if 0 or empty -> disable

If after text command there is a list of sockets it is the direct Message button and this message will be sent directly to these sockets. You can use the fixed IP (including DNS names) or alias names of already mentioned Point buttons – obviously, the message will be sent really only if the proper IP is already resolved or recognized. Also if the port is omitted the ICgraph will use CP from the main CFG line (default 12301).

The direct message can be sent manually by clicking on this button, but also can be sent periodically and automatically if its CFG line has the optional sending period. Usually it is used for getting automatic replies from the Barix devices in order to control on-the-fly their status and to show it on the ICgraph application screen by using dynamical Labels (see below).

Some examples:

MB:AN Open Door:10:130:0120:30:c=80: # open door for 3 sec for active points

This Message button sends the command (**c=80**) to all selected points (Annuncicoms).

MB:AN dir Open: 10:170:0120:30:c=80:work::0: # open door for 3 sec directly

But this Message button sends the same command only to Annuncicom with own name "**work**".

MB:Settings:10:210:0120:30:>/Program Files/Internet Explorer/iexplore.exe <IP>::

This local Message button is used to call WEB settings for any active point by using IE browser.

```
LL:~ak.jpg:0:0:1000:1000::: # ak
```

```
# if name is "[IP]/[tag]" -> dynamic Label (by gotten reply)
# if IP is empty -> reply from any IP will be checked
# if IP is "name" -> fix or dyn IP of point "name" will be used
# if tag is empty -> all one-line reply text will be shown
# if tag is "<HTML>" -> all multi-line reply text with HTML formatting
# if tag is "<xxxx>" -> one-line reply text between <xxxx> and </xxxx>
# else -> only one-line reply text after "tag" will be shown
```

If the name of Label starts with slash char “/” the ICgraph understands it as dynamic Label and will check all non-standard messages gotten on ring or BARP status port on matching the conditions given in CFG line. The name of dynamic Label can include two optional fields: IP of remote Barix device and (after next obligatory slash char) the search text tag. As usually the IP can be replaced by proper point name . The proper IP will be used automatically after the point will be resolved or recognized.

If IP in CFG line is omitted then ICgraph will check for this Label the message from any remote Barix device, else it will pass only the message from the given IP. Call you attention that if this remote Barix device should be recognized by discover or BARP status method and will be lost, the ICgraph will automatically clean the dynamic Labels with proper IP.

If the search text tag is omitted then ICgraph will output all gotten one-line message into this Label. If it is necessary to output the multi-line message, you should use the “<HTML>” tag. Then ICgraph will automatically add the start (<html>) and end (</html>) tags, and insert new line tag (
) after each line of the gotten multi-line message, for example:

```
LL:/home/<HTML>:730:50:200:290::: #<html>multi-line dyn Label<br>with HTML
formatting</html>
```

Generally speaking, if it is necessary to output the message with specific format, you should program the remote Barix device to send the message with proper HTML formatting (then you can use empty tag here – ICgraph will automatically recognize HTML format and fulfill the proper output).

If the search text **tag** is enclosed by angle brackets the ICgraph will search in the gotten message and output the text between the XML tags: **<tag>** and **</tag>**. It can be useful if you must select the specific part from a big XML info string, for example:

```
MB:<html>Get State for<br>Exstreamer</html>:800:60:120:60:L=getstate.ack:home::20:
LL:/home/<SONG>:730:350:200:30::: # dynamic Label
```

These two CFG lines allow to send each 20 seconds the status requests to Exstreamer with name “home”, select from Exstreamer reply the current song between tags **<SONG>** and **</SONG>**, and output it in this dynamic Label.

If the tag is just usual search text, ICgraph will search in the gotten message this text and output all one-line text after this tag, for example:

```
MB:Relay status:600:720:140:30:getio,1:192.168.1.55:12301: #asks Barionet for relay 1 state
LL:/192.168.1.55/,1,:400:720:150:30::0: # Barionet Status Relay 1
```

On getting the request “getio,1”, the Barionet will send reply “state,1,0” or “state,1,1”. Therefore, after the search text “,1,” the Label will find and output the necessary Relay status line: “0” or “1”. At last, if both parameters (IP and tag) are omitted, you can catch all messages from all remote Barix

devices (including the DOOR RING requests from Barix Annuncicoms), for example:

#LL://:0:0:0:0: #total LOG for all replies

Such dynamic Label outputs nothing, but all remote messages will be printed in ICgraph Log. It allow using the very powerful means of ICgraph macro. By catching in Log the given text you can create instead standard reaction any special reaction by starting the proper Macro button...

Macro function in the ICgraph.cfg

ICgraph offers also an Macro function, this can be use to combine any activities or change the design of ICgraph. Macros cannot be changed/created over the menu, Macros can be created/edited only in the ICgraph.cfg file!

The Macro buttons allow using the macro sequences that can imitate the operator actions, control visibility and activity of ICgraph elements or changing some parameters of these elements on-the-fly. They can be used to combine any activities or change the design of ICgraph. As any buttons the Macro buttons can start by mouse clicking, but also they can start automatically by event when the proper search text will be found in ICgraph Log. Typically the Log text has time stamp and short text description of internal ICgraph events, actions of operator, and caught external UDP messages. Therefore you can create any macro reaction for any ICgraph event that you can see in Log, for example:

- create scheduled macro by using the time stamp from Log string
- use a keyword (IP, name, file, etc) in standard Log for proper ICgraph action/reaction
- create secret reaction for specific string sent by UDP from another or the same PC, etc

To change the ICgraph design the following operators are available :

- = makes an element visible
- ~ makes an element invisible
- + activates a Point button (yellow state)
- deactivates a Point button (light grey state)

These markers control visibility and activity of ICgraph elements, they set this new state independently on previous state. Sometimes, in order to be sure in initial state of the elements you should use these markers before start of your main macro sequence.

```
#####  
# Macro buttons  
# XB:[~][#]N:X:Y:W:H:event:[=|~|+|-|#]name1:[[=|~|+|-|#]name2:]...  
# event is LOG text that will call this macro automatically
```

Here are some simple examples :

```
>> to bring a point button into the listening (green) state  
e.g. XB:listening Joe:20.20:120:25::+Joe:Joe:Joe:  
+Joe means activate the button "Joe", each further listing of Joe in this command line is  
according to one mouse click.
```

```
>> or change multiple item states at once  
e.g. XB:select all:10:530:0120:30::+home:home:home:+work:
```

Up to 100 elements (same or different) you can combine in one macro, including other macro buttons.

Practically you can always organize the nested calls of the macros like calls of the subroutines with usual programming. However you cannot use the direct or indirect recursive calls (else the ICgraph will be cycling endless).

With macros you can easily also change background picture of ICgraph, e.g. to display an intro or to change to another visual design/location.

For that the following is required:

- a second picture in the ICgraph folder, e.g. ak.jpg
- an LL: entry to define the position of the new picture
e.g. LL:~ak.jpg:0:0:1000:1000:::
- the macro which automates the operation
e.g.
XB:~welcome:0:0:0:0:end of initialization:=ak.jpg:Start ANN:
XB:~wel_end:0:0:0:0:Stop ANN:~ak.jpg:

This example is changing the background picture plus playing an intro audio file.

(For the intro audio file an AB button is additionally required e.g. AB:Start ANN:10:450:0120:30:Stop ANN:barix.mp3:)

Here there are two hidden macros “welcome” and “wel_end” that together fulfill the audio-visual greeting after start of ICgraph. The first macro “welcome” starts automatically when ICgraph finishes the initialization and messages in Log the phrase “end of initialization”, for example:

12:39:06 > **end of initialization**

Then this macro shows (prefix “=”) the picture “ak.jpg” (hidden before) and starts the announcement by quasi “clicking” the Announcement button “Start ANN”. Then ICgraph plays the file “barix.mp3” as announcement with proper messages into Log:

12:39:07 > playing: barix.mp3 @ MPEG2DOT5L3 8000.0 Hz, unknown bits per sample, mono, unknown frame rate,
12:39:07 > barix.mp3 is converted to PCM_SIGNED 8000.0 Hz, 16 bit, mono, 2 bytes/frame, big-endian
12:39:07 > File barix.mp3 is NOT possible for announcement
12:39:08 > gotten remote DISCOVER reply from [work=10->192.168.1.56]. Dynamic IP is resolved.
12:39:08 > gotten remote DISCOVER reply from [home=40->192.168.1.51]. Dynamic IP is resolved.
12:39:12 > playing has finished for file barix.mp3

When the audio file finishes then ICgraph automatically “clicks” the Announcement button again in order to return the Announcement button in start state with proper message:

12:39:12 > clicked AB [**Stop ANN**], new state: silent

This phrase “Stop ANN” runs the second macro “wel_end” that just hides (prefix “~”) again the picture “ak.jpg” and returns the ICgraph in source state.

Also for dynamic Labels it is used for the specific action that operator cannot do by mouse. To clean a current text of a dynamic Label. It can be used in scheduled macro in order to clean in time the false values gotten long time ago from lost Barix devices to avoid confusion.

>> open/close door (as FLIP button) with little displayed status pictures:e.g.

```
MB:open: 0:0:0:0:c=78: # invisible Open Door
MB:close:0:0:0:0:c=79: # invisible Close Door
LL:door_closed.gif: 140:570:030:30::: # current state picture - closed door
LL:~door_opened.gif:140:570:030:30::: # current state picture - opened door
```

```
# example of text/color/picture/command/announcement combination in macro as flip button
XB:<html><body bgcolor="red">[ Open Door ]</body></html>: 10:570:0120:30:open door from
UDP:
=<html><body bgcolor="lime">[ Close Door ]</body></html>:
~<html><body bgcolor="red">[ Open Door ]</body></html>:
open:=door_opened.gif:~door_closed.gif:welcome:
XB:~<html><body bgcolor="lime">[ Close Door ]</body></html>:10:570:0120:30::
=<html><body bgcolor="red">[ Open Door ]</body></html>:
~<html><body bgcolor="lime">[ Close Door ]</body></html>:
close:=door_closed.gif:~door_opened.gif:
```

Here there are two macros with HTML formatting (therefore the names are so long and the macros conventionally are shown as multi-line although really the CFG line is only one long line for each macro). Call your attention that the Macro buttons have the same location and size, and the first Macro button is visible with start state, but the second Macro button is invisible with start state. It allows to create the flip-flop effect when these macros alternate each other in the same place.

In source state this “flip” button the first Macro button is visible and has red colour (that means: door is closed now) and picture shows the same (graphical Label “**door_closed.gif**” is visible too). The name of the first macro shows the possible action (“...**Open Door**...”) and you can click the Macro button in order to open the door for an active point (alternative start is possible by using the secret external UDP command “**open door from UDP**” to ring port that will be shown in Log and call this macro).

If you click the button, the first macro fulfills the following actions:

- shows alternative flip macro (prefix “**=**”) – the second Macro button
- hides itself (prefix “**~**”)
- clicks the Message button in order to open door really (“**open**”)
- shows alternative flip picture (“**=door_opened.gif**”)
- hides previous flip picture (“**~door_closed.gif**”)
- and fulfills the greeting macro (“**welcome**”) described above for visitor invitation

Now you can see the “flip” state: the second Macro button is visible and has lime colour (that means: door is opened now) and picture shows the same (the graphical Label “**door_opened.gif**” is visible too). The name of the second macro shows the possible action (“...**Close Door**...”) and you can click the Macro button in order to close the door for an active point.

If you click the button, the second macro fulfills the following actions:

- shows alternative flip macro (prefix “**=**”) – the first Macro button again
- hides itself (prefix “**~**”)
- clicks the Message button in order to close door really (“**close**”)
- shows alternative flip picture (“**=door_closed.gif**”)
- hides previous flip picture (“**~door_opened.gif**”)

Now the ICgraph has returned in source state...

So, you can create many own macros to make your ICgraph as possible as comfortable and smart. Also call your attention that Macro buttons have the highest level on ICgraph screen, i.e.

cover any other elements over (even if transparent).

Examples:

As written above the ICgraph application is extremely flexible.

We have created several demo configurations to give you an idea about the functionality and the flexibility. These Demo configurations are coming with the ICgraph application and are stored in the ICgraph subfolder "Examples". The default example you can see on the first page (Building control & communication).

If you will use it then copy the content of the subfolder into the ICgraph main folder and start the file ICgraph.bat thereafter.

Following is a short description and a screenshot for each example.

Virtual remote control for Exstreamers

The demo sends no audio to the Exstreamer.

It works like the original Exstreamer IR remote control, but over network and the buttons have the same functionality. The button here are invisible / transparent over the IR-remote control picture.

Additional it allows to check the some status of the selected Exstreamer or to open the browser with the Exstreamer config menu.

The advantage, this remote control works also when you are not in the same room or allows to select a single Exstreamer, also if you have multiple Exstreamers in one room. This example contains also the "Label" function to display status information from the Barix devices.

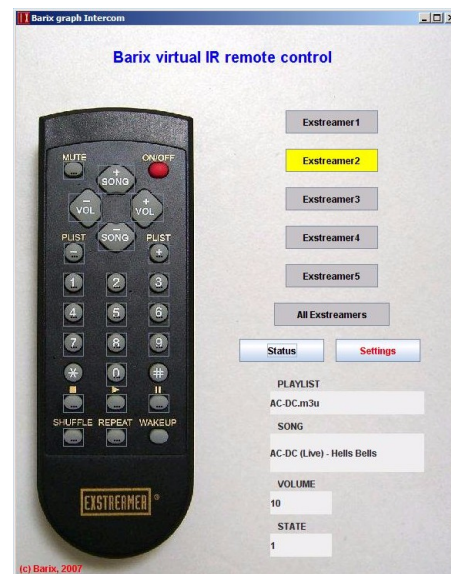
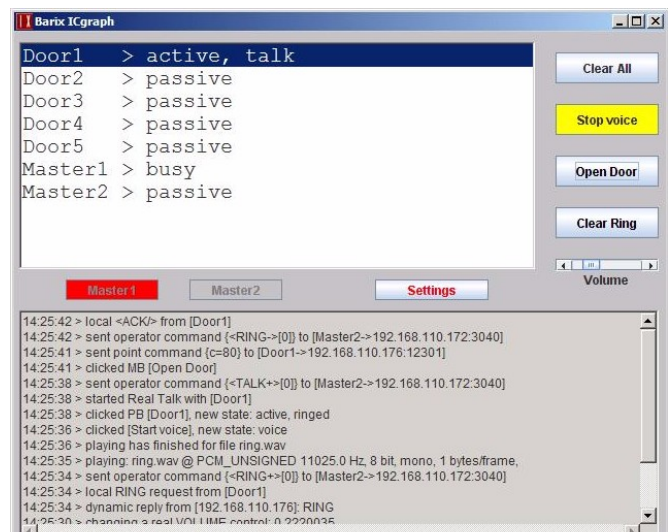


Table view

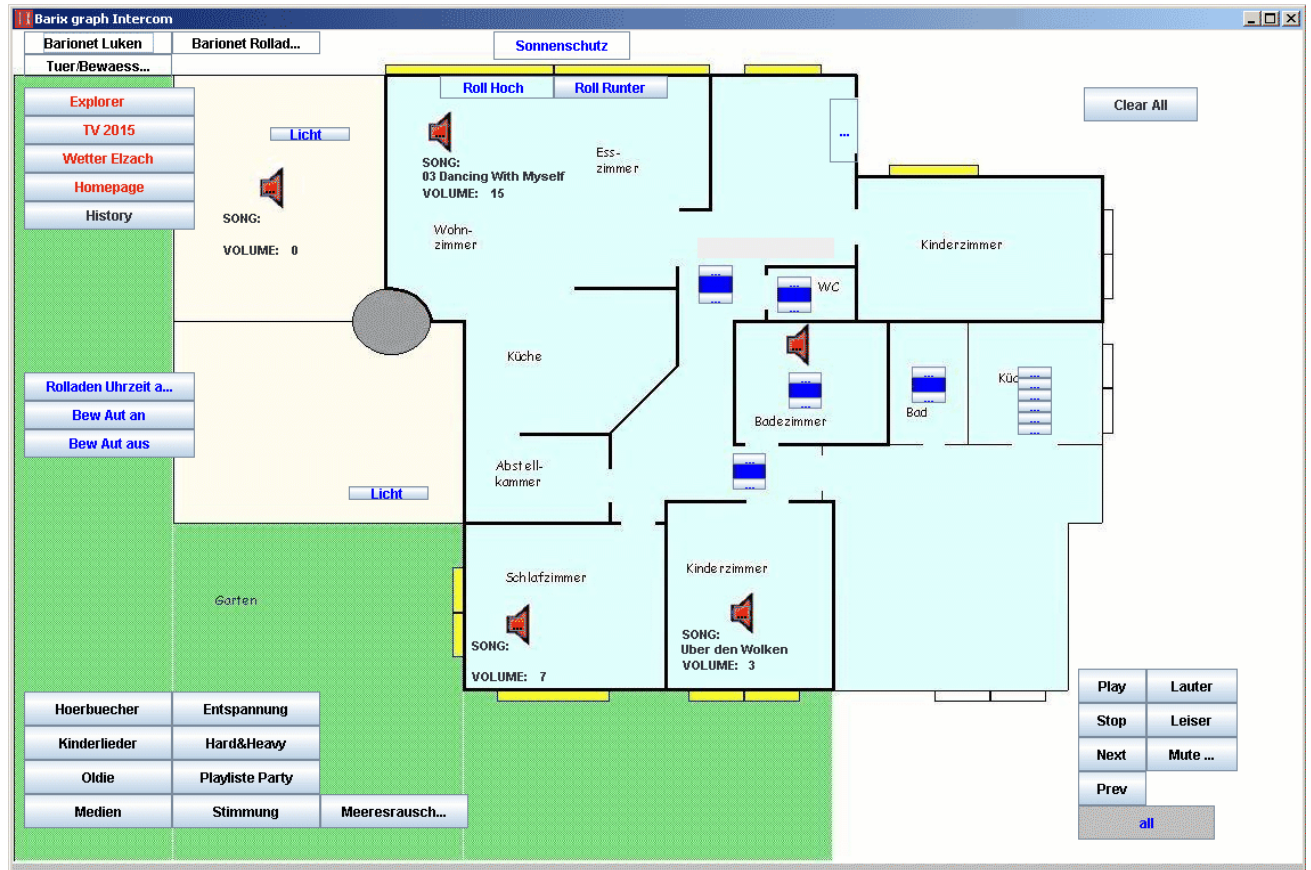
This design is similar to the older SoftIC application. It allows communication (also full-duplex) with multiple Annuncicoms and Exstreamers (unidirectional).

The design is just simpler but it has the same functionality as the graphical design.

Additional it allows to open the door (switching relay) on the selected Annuncicom or to open the browser with the Annuncicom/Exstreamer config menu.



Home automation & control

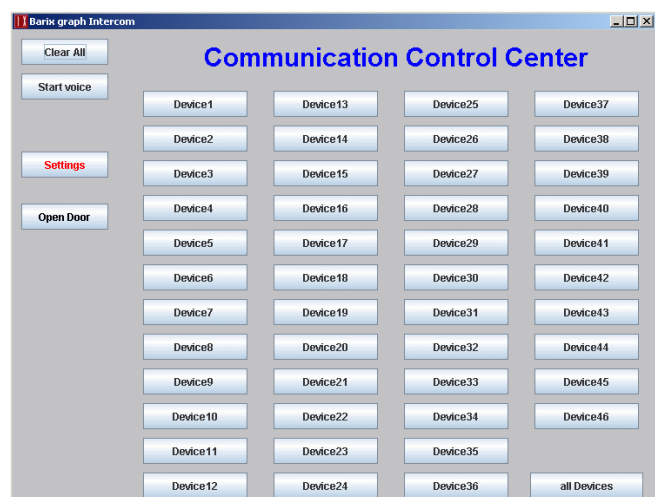


ICgraph is not used for voice intercom here, it is used as control center for the complete home. Many Barionets and Exstreamers are used in this installation. The Barionets do control shades, roof hatches, lights and flower/green irrigation. The Exstreamers are playing music (predefined playlists from webserver) in the house .

Everything can be controlled/monitored by the ICgraph application. This example contains also the "Label" function to display status information from the Barix devices together with hidden message buttons which poll the "L=getstate.ack" command every 15 seconds to the Exstreamers.

46 target buttons

This is a simple example for users who need many targets, so they can save some work. The example is using no background picture, for that reason the size is defined in the "IC" configuration.



Macro + BARP DEMO

This is an advanced example, it shows config examples of some advanced ICgraph functionalities (like macro, dynamic label, multi-master and discovering). Additionally it shows a example for the usage of the BARP protocol (Barix Paging Protocol).

