Aristel Networks Pty Ltd

Aristel
brigate
G3

USER MANUAL

CONTENT

OAM program for Brigate g3

(Operation, Administration and Maintenance)

1. GENERAL DESCRIPTION

1.1. Installing the program

This OAM program is intended for the configuration and administration of the BRIGATE G3 equipment via serial port.
Also, the program allows you to send and receive SMS messages from the computer that is connected to the equipment or to perform SMS to e-mail and e-mail to SMS automated conversions.
The serial connection is made by means the special serial cable (supplied in the BRIGATE G3 package).
This cable features a RJ-11 connector for connection to the BRIGATE G3 unit and a standard DB-9 connector for the COM port of the desktop PC or notebook computer you use to configure and administrate the equipment.

The installation CD / diskette supplied with the equipment, includes the OAM (Operation, Administration, and Maintenance) software.

The **isdncfg.exe** program is a self-contained Win 32 executable and may run on any desktop PC or laptop that fulfils the following minimal requirements:
- Operating system: Windows 95 or later versions
- Minimum processor 486
- Recommended minimum 500 MB free space on HDD
- Minimum 32 MB of RAM
- One serial port free (available)
- Graphics resolution 1024 by 768 pixels - colors High Color (16bit) or True Color (32bit)

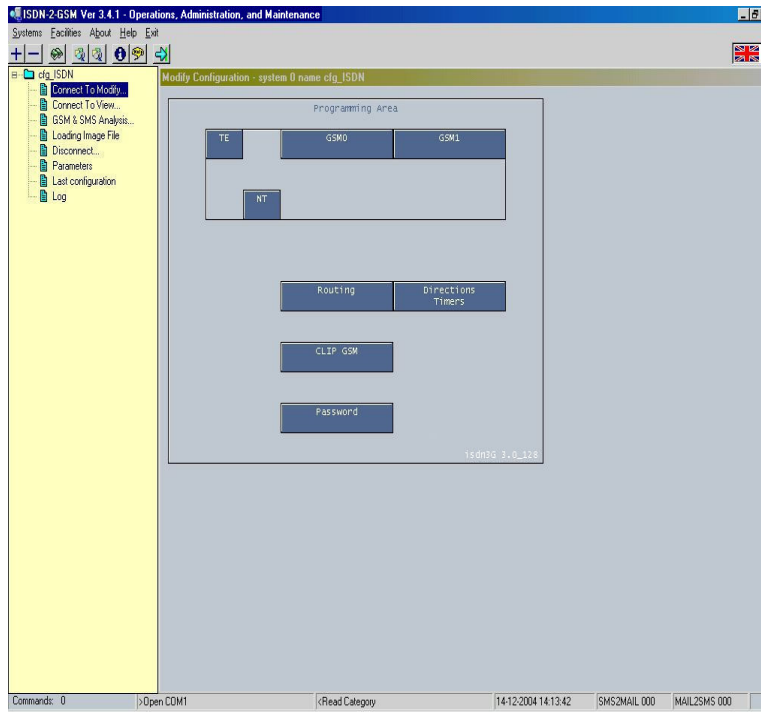
To install the program on a desktop PC or a laptop, insert the diskette or CD into the respective disk drive unit and copy the structure of folders and files to your hard disk drive.

Then run the file isdncfg.exe from the directory on your hard disk.

The program includes an on-line help (in English).
The names of the windows, menus and icons can be displayed in several languages.

1.2. Structure of the graphic interface

The screen of the OAM program for Brigate g3 includes several elements: Title bar, Menu Bar, Toolbar (a set of buttons with icons), tree commands (Connect, Lading, Parameters) and different „Programming Area" or „Info" screens (for SMS, for UMTS modules, for the TE or NT interfaces).



All these elements of the isdncfg.exe program will be thoroughly described in the paragraphs that follow.
Then, concluding the first chapter, you will see a paragraph detailing issues of the program's installation.

1.2. Menu description

The menu bar is the fist on top of the screen, just below the title bar that shows “ISDN-2-UMTS Ver. 3.4.1” OAM” or upper version within 3.4.

Menu items are: Systems, Facilities, About, Help and Exit.

Systems	
- Add	Adds a BRIGATE G3 system in the tree-like structure
- Remove	Removes a system from the structure
Facilities	
- Font	Chooses the font type for the text in the windows that are displaying configuration: - "Modify Configuration" - "Viewing Configuration" - "Analyzing UMTS modules" - "Last Configuration". Each of those windows is corresponding to a selection over a tree command: "Connect To Modify...", "Connect To View...", "UMTS Analysis..." and "Last configuration";
- Color signification	Shows the significance of colors used in the windows that are displaying configuration. The colors are used in the representation of the 3G/3G modules, NT and TE interfaces. The user is allowed to modify the colors as he likes.
- View print files	Opens a window in which you may see the text files in which other text files or data information have been printed using the button "Print" (or icon "Print").
About	Shows the version of OAM software
Help	Opens up the window with the help files for the program
Exit	Exit from the OAM program

1.3. Icons description

The toolbar with button icons is located below the Menu. Some buttons are equivalent to options from the Menu or from System.

Definition of the button icons:

Icon	Name / Equivalent to	Significance
	System > Add	Adds a BRIGATE G3 system in the tree-like structure
	System > Eliminate	Removes a BRIGATE G3 system from the structure
	Print	Prints the files, to the printer or in a text file
	Find	Defines text for find
	Find next	Finds next appearance
	Configuration list	Lists the configuration of device
	Saving current configuration	(works only in connected state - option "Connect To Modify...")
	Loading configuration	(works only in connected state - option "Connect To Modify...")
	Password mode	Starts / stops password working mode
	Users	Allows definition of users for OAM software "isdncfg"
	About from the menu	Info about program
	Help from the menu	Help file
	Exit from the menu	Exits the program

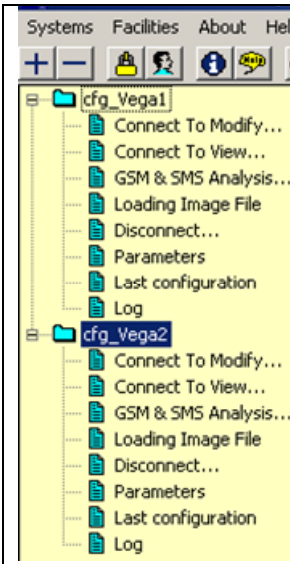
The toolbar with button icons is dynamic, its aspect changes according to actions performed by the user. If a system is connected you will see some icons, if no BRIGATE G3 is connected you will see a different set of icons. When you use a „Connect to View” link, you are not allowed to perform changes, so the „Modify” icons are not available.

Finally, if no BRIGATE G3 equipment is connected, the „Password" and „Login" icons are visible – when you are already connected to a system, you no longer need those two icon options.
The OAM toolbar software can look like this:

A BRIGATE G3 system is connected	
Viewing files for a system	
None of the above situations	

1.4. Tree options

The OAM application for BRIGATE G3 makes use of a tree-like (branching) structure to launch actions over the selected BRIGATE G3 interface. As you see in the image below, the „tree" for each BRIGATE G3 system has several „branches", which are the commands: Connect To …, Loading, Disconnect, Parameters and so on.



Through the OAM program you can configure and manage maximum 20 different BRIGATE G3 devices. Here you may see a unit called "Vega1" and another "Vega2". Each of these has associated a directory folder (in the same location with the executable application "isdncfg.exe") and a subdirectory for the log and authentication files.
All systems can be sequentially accessed via serial cable in order to be configured and maintained (of course, you may connect to only **one** BRIGATE G3 equipment at a time).
The OAM program sees the Brigate g3 systems in a tree-like structure, where every equipment has its own „branches". You can perform settings upon the first (default) configuration or save a configuration and then load it on the next Brigate g3 system , etc.

1.4.1. Description of the tree structure

cfg_	Significance
Connect To Modify...	Initiates a connection to the selected Brigate g3 system in order to download system configuration and perform changes over it;
Connect To View...	Initiates a connection to the selected ISDN-to-UMTS system in order to download the system configuration and view it;
UMTS & SMS Analysis...	Initiates a connection to the selected BRIGATE G3 system and allows the analysis of UMTS modules. Allows you to send and receive SMS messages from the computer;
Loading Image File	Initiates a connection to the equipment and allows the loading of a new software image into that system;
Disconnect	Disconnect the connection to the system if this connection was on; it is used to terminate the connection in each of the four cases shown above;
Parameters	Displays the parameters of the connection to the BRIGATE G3 system;
Last configuration	Displays the configuration received at the time of latest status inquiry to the system;
Log	Displays the log and lch files;

1.5. Language option

On the bar with the icon buttons, in the upper right corner of the screen, there is also a listbox () which allows you to change the language that is used in all menus, dialog boxes, windows and messages of the program. The default language is English, shown by the corresponding flag. You may select English, French or Romanian:

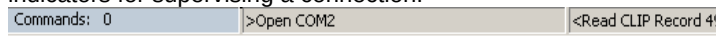
 - English language

 - Romanian language

 - French

1.6. Status bar

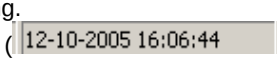
The **status bar** is divided into seven columns.
The first three columns (starting from the left side) display indicators for supervising a connection.



These three fields are filled only in a state of connection between the "isdncfg" software and a BRIGATE G3 unit.
A state of connection (between the OAM software and the BRIGATE G3 system) can occur if one of the following three options is selected:

-"Connect To Modify..." or "Connect To View...",
- "UMTS Analysis..."
- "Loading Image File".

First column " 

" indicates the number of commands that will be sent to the system. Every modification (changes of system configuration) or data request that is performed on the system is translated into commands. Those commands are sent to the BRIGATE G3 equipment; the **second** and the **third** columns show protocol messages. The protocol is implemented between "isdncfg" software running on the PC and the BRIGATE G3 system that connected to it.
The second column contains messages which begin with character ">" and corresponds to the messages **sent** from the OAM software to the BRIGATE G3 system.
The third column contains messages which begin with character "<" and corresponds to the messages **received** by the OAM software from the BRIGATE G3 system.
In the example, image of status bar, the text is "Read CLIP Record 49" which corresponds to the reading of the record number 49 from the CLIP table);
The **fourth** column displays the date and time of the computer system where isdncfg program is running.
Date format is dd-mm-yyyy hh-mm-ss (

);
The **fifth** column is used to indicate the length of the SMS2MAIL queue (the queue accepts maximum 1.000 messages);
The **sixth** column is used to indicate the length of the MAIL2SMS queue (the queue accepts maximum 1.000 messages);
The **seventh** and rightmost column is a color indicator for the connection: light blue when the OAM program is connected to a BRIGATE G3unit (
) or red if the program is NOT connected to a system (
).

1.7. Display issues

The panel located to right side of the tree window is used by two different types of windows.
First type of window is used for displaying the configuration of the BRIGATE G3 system, in the commands: **"Modify Configuration", "Viewing Configuration", "Analyzing UMTS modules"** and **"Last Configuration".** In those windows the right mouse button is used as follows:
- for the windows "**Modify Configuration", "Viewing Configuration" and "Analyzing UMTS modules"** the serial port is opened. If you click the right mouse button over the status bar, a message ("Do you wish to disconnect?") will be displayed, asking you if you want to disconnect the connection to Brigate g3.
- for the second case, when **"Last Configuration"** window is displayed, the right mouse button is used to hide the window. The confirmation message asks you: "Do you wish to hide last configuration?".
All those windows include in the title bar the name of the connected/viewed BRIGATE G3 system. For windows "**Modify Configuration", "Viewing Configuration"** and **"Analyzing UMTS modules",** only a click upon the tree command called "Disconnect" for the Aristel system that is connected or viewed will caused the disconnection of the link between OAM and the connected system for the windows. In second case, the same "Disconnect" command will cause the display of the "Do you wish to hide configuration?" message.

The **second** kind of window is the one used to display the log files as a result of an action over the "Log" tree option. In this situation the title of the window includes the words "Local Viewer" and the system name. A right-click with the mouse will cause the message "Do you wish to hide?" to be displayed.
The content of that second window can be updated with other data simply by selecting another option from the tree structure.

Note1): if any of the following commands: "Connect To Modify...", "Connect To View...", "UMTS Analysis..." and "Last configuration" is used while "Local Viewer" window is displayed, then the "Local Viewer" window will be hidden.

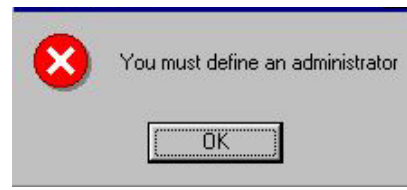
Note2): if "Local Viewer" command is used while any kind of window from the first type presented is displayed, then the "Local Viewer" window will be displayed **over** the other window. The user must hide (using the right mouse button) the "Local Viewer" window to see again the window which was displayed before.

1.8. Files

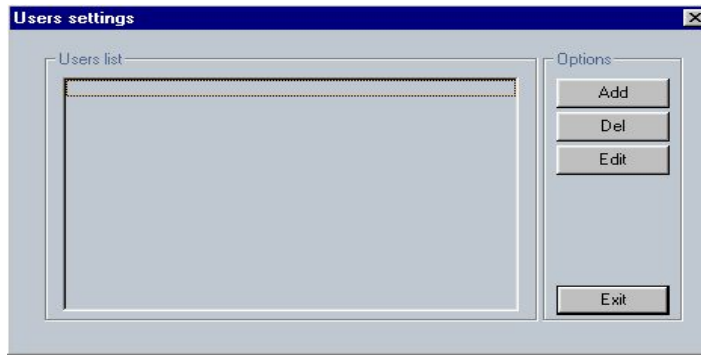
The ISDNCFG program uses several types of files: for events, for saving current configuration (your settings), system software image file (application software to be sent to a BRIGATE G3 unit), etc.
The **log** files are saved in the "Log" subdirectory for each BRIGATE G3 system: they contain the moments of time for the connections to the system, the configuration read from the system and any modification performed on that configuration.
The **configuration** of a BRIGATE G3 system can be downloaded and saved in a file named by the user. The file will have extension "cfg" and will be located in the "CONFIG" directory, in the same place where the program "isdncfg.exe" is located. After you save the configuration of one BRIGATE G3 system you can load it into several other Aristel systems.
The **software image** file has "hex" extension. It is a downloadable image of the software application that runs on the BRIGATE G3 equipment. Such kind of file can be located anywhere on the Hard Disk. The user will open the file from a dialog window and the software image will be send into the respective BRIGATE G3 system.

1.9. Password protected mode

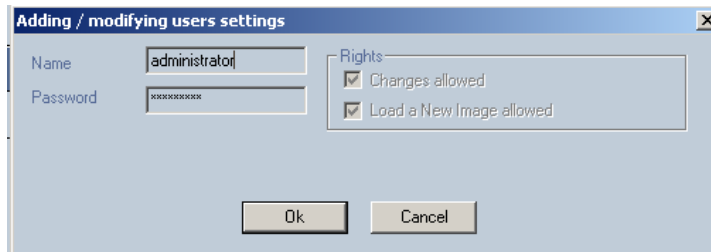
The "isdncfg" software includes a multiple (hierarchical) password protection implementation.
Password protection mode is useful when several users are working with "isdncfg" software and certain actions on BRIGATE G3 system(s) must be performed carefully. According to the hierarchy, different users may have different rights. The implementation assumes that one user is the **administrator** of the "isdncfg" software and the first step is to create such a privileged user.
The icons that refer to the password mode of operation are the following:  . By default, the OAM application displays the first and second icon as being inhibited (not active). After you define the administrator you will be allowed access to the first icon ("  ").
If you go to password protected mode without first defining of an administrator, it won't work and the following error message will show up:



For defining an **administrator** you must choose the option "User definition" ("  "). You enter the default password "Aristel" in the access password window, the next image will appear to show you that you must enter the identification data for the administrator.
After pressing the "OK" button to confirm you will be asked to type user settings:

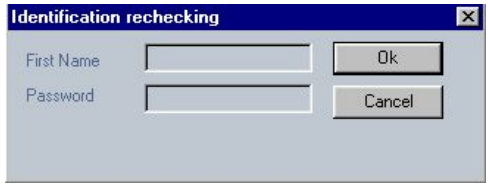


At the beginning the list is empty, you must first **add** an user to the list by selecting the "Add" button to the right. Afterwards, you may delete or edit the already existing users:

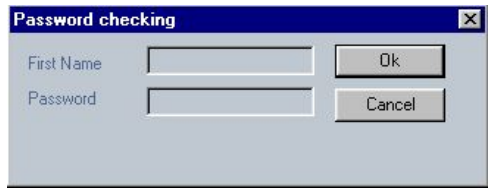


In case of the definition for the administrator, the two boxes for possible rights are already selected: "Changes allowed" and "Load a New Image allowed", because the administrator has all the rights.

For each new user two fields must be always filled: "Name" and associated "Password".
An additional window is used to **confirm** name and password.



Only the administrator can perform actions over definition of users. He can add, edit and delete other users. There is a restriction that specifies that the administrator **cannot be deleted**.
Once the definition of an administrator is done, the subsequent access to the icon "Users definition" ("  ") will require administrator name and password:



Also, when you selected the icon option "Password mode" ("  "), the administrator name and password is required. Operation in Protected mode is indicated on the title bar of the "isdncfg" software by the words "protected mode" at the end.

When the protected mode is launched, then a second click on the icon "Password mode" will end this mode.

After protected mode is started, then all access (connections) to the BRIGATE G3 system(s) will be protected by additionally requiring user identifications as follows:
- for command "**Connect To Modify...**" - the user name and password are requested. The user must have the right to perform changes on system configuration ("Changes allowed"). If the user or password are wrong then the "Incorrect identification" message will be displayed. If the user hasn't the right to change configuration then the message "Operation not allowed" will be shown.
- for command "**Connect To View**..." - the user name and password are requested. It is not necessary for the user to have any right. If the user or password are wrong then the "Incorrect identification" message will be displayed.
- for command "**UMTS & SMS Analysis**..." - the user name and password are requested. It is necessary for the user to have the right to perform changes on system configuration ("Changes allowed").

If the user or password are wrong then the "Incorrect identification" message will be displayed. If the user hasn't the permission to change configuration then the message "Operation not allowed" will be shown.

- for command "**Loading Image File**" - the user name and password are requested. The user must have the right to load new image file on the system ("Load a New Image allowed"). If the user or password are not correct then the "Incorrect identification" message will be displayed. If the user hasn't the right to load a new image then the message "Operation not allowed" will be shown.

1.10 Details about installing the OAM application

Before establishing a first connection to BRIGATE G3 first you must check that the serial cable for programming is connected to the corresponding COM port of your computer.

To start, you must **add** a BRIGATE G3 interface to the tree-like structure of connections, since in the beginning there is no equipment connected.

Select the options **Systems->Add.** To ensure communication with the respective BRIGATE G3 interface, in the field “Serial Parameters” you must select the number of the serial port where the equipment is connected.

Before you achieve the first connection to a BRIGATE G3 system, you should decide whether to use or not the password protected (hierarchical) mode of operation, which is shown in chapter 2.8.

If you decide NOT to use the password mode, then you can go directly to the achievement of a connection to the respective Brigate g3 system.

There are three basic types of options for connection, respectively:

- Connecting for changes or viewing the configuration (chapter 2.2)
- Loading a new software image (chapter 5)
- Settings related to the analysis of the UMTS/UMTS modules and of the SIM cards (IMSI codes and the operator where the SIM is registered - chapter 3), or sending / receiving SMS messages. All these options are valid only if the BRIGATE G3 equipment has inserted a SIM card that is registered to the 3G/3G mobile network.

If you decide to use the password-protected mode, then you must follow the procedure described in chapter 1.9, that is:

- Define an administrator, then add one or several users
- Go to the password-protected mode of operation
- Quit (exit from) the OAM application
- From now on, when you start again the OAM application, the password protected mode of work is active, so you may go on to connect to a BRIGATE G3 interface.

2. CONNECT...

2.1. Connecting steps

There are four kinds of connections to a BRIGATE G3system:
(a)- "Connect To Modify..."
(b)- "Connect To View..."
(c)- "UMTS & SMS Analysis..."
(d)- "Loading Image File"

Both options (a) and (b) allow the user to connect to the BRIGATE G3 system and download the configuration.

Option (a) the downloading of the configuration data is protected by a password. If the password is recognize by the equipment, the downloading process is started. The user will be able to perform changes over the configuration.

Option (b) situation the password will be not requested and the configuration will only be readable (you can't modify it).

Option (c) is used without a password request and implies only actions that can be done over the UMTS/GPRS modules.

Option (d) allows the user to load a new image file (a new software) into the BRIGATE G3 system. See later on details about loading a new image file. See also the ***important notices*** related to loading a new version of the application software to the BRIGATE G3 equipment!

Once the password is recognized by the BRIGATE G3 interface - as a result of a connection started by the options a) or d) - the password will no longer be requested from the user. From now on the password is automatically filled by the OAM application.

2.2 "Connect To Modify..." and "Connect To View..."

(case a) and case b))

First click on the respective "Connect" action you want to perform.
In case of a connection to make changes over the system configuration (command "Connect To Modify..."), when the connection is successfully established a dialog window will appear.
The login procedure on the remote equipment will follow:

By pressing the <ENTER> key the user will validate password and close the "Login Window". The user can abort the login procedure by typing the <ESC> key in the "Login Window".
In case of unsuccessfully login (password mismatch), the password will be asked one more time.

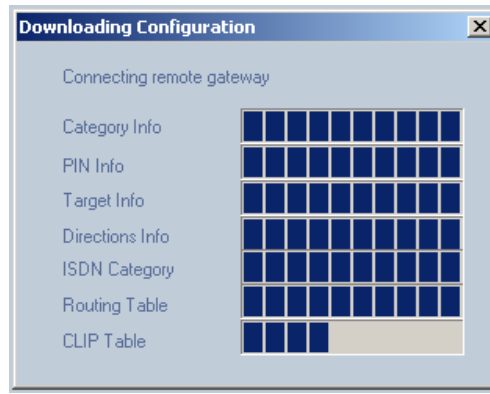
The message which shows the unsuccessful login is "Authentication failed".
The "Login Window" will be displayed one more time.

The total number of attempts to login into the BRIGATE G3 system is **four**.
If the total number of attempts is exceeded, the user will see an error message indication "Passing Authentication Retry Error"

A dialog box will appear and in case of connection successfully established the OAM program tries to download the configuration information.
There are seven configuration files to be loaded, as follows:

- settings of the 3G/3G mobile modules ("Category Info", “PIN Info” and "Target Info");
- directions allocation (both on UMTS/GPRS modules and on TE - "Directions Info");
- settings for TE and NT connections ("ISDN Category");
- routing table
- CLIP table

For each of these data files there is a progress indicator, as shown in the next image:



Note1: The OAM program communicates with the connected ISDN3UMTS system by sending and receiving messages. Each message send from the OAM software must be confirmed by the system. If the confirmation message is not received, then the OAM software resends the last sent message. There is a total number of four retries that can occur, after which an error message will be displayed: "Passing Connection Retry Error".

Note2: If you are already connected to one BRIGATE G3 system, you cannot connect to a different system; you must first disconnect from the first one.

Note 3: If you are connected to a BRIGATE G3 system with one option and you select **another** of the four connecting options, the OAM software performs an automated "Disconnect" command. The OAM application first disconnects form the current connection option then connects again, using the connection option you have selected.

Note 4: The „Password" window mentioned above is displayed only the FIRST time you connect to the system or in case of successive **authentication errors**. Such errors can occur, for instance, when you switch (interchange) the devices. Suppose you have at least two connections with two different Aristel BRIGATE G3 devices that may be connected to the same PC, and each has its own password.

Normally, you use connection 1 for the equipment 1, and connection 2 with the equipment 2. If by mistake you physically switch the two devices (you place equipment 2 on connection1, but this equipment needs a different password from the one stored by the OAM application for the respective position) an error will occur. This is what happens:

i) first, the authentication error is signaled, you will see the message "Authentication failed"

ii) then the OAM program attempts up to four times to connect, then gives up and displays the message "Passing Authentication Retry Error"

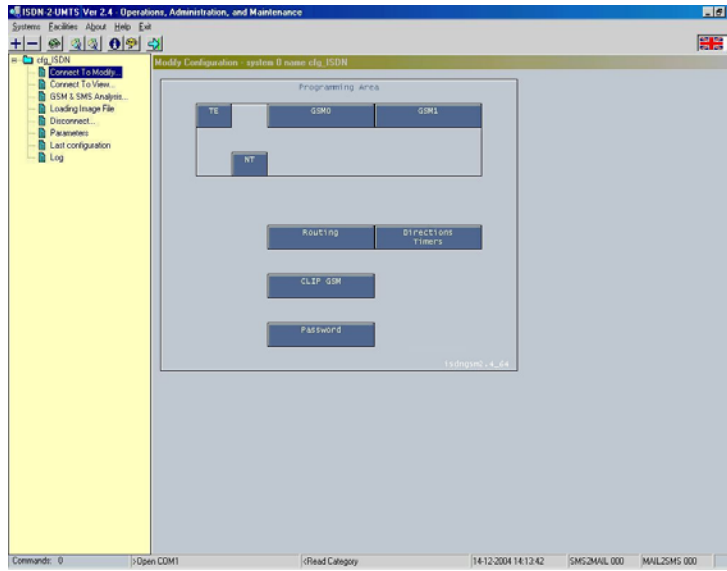
ii) finally, the Password window shows up, allowing you to enter the correct password for the new BRIGATE G3 system (no 2)

iv) further on, if you keep the correct connections, the "Password" window doesn't show up anymore, you are no longer required to enter the password, because it is stored by the OAM program.

2.3. "Modify Configuration" and "Viewing Configuration"

Once the configuration is downloaded, in the right pane of the window will be displayed **either "Modify Configuration"** (case a) or **"Viewing Configuration"** (case b).

By means of these windows, the user can change and respectively view the current configuration (settings) of the BRIGATE G3 equipment which is connected to the OAM computer.

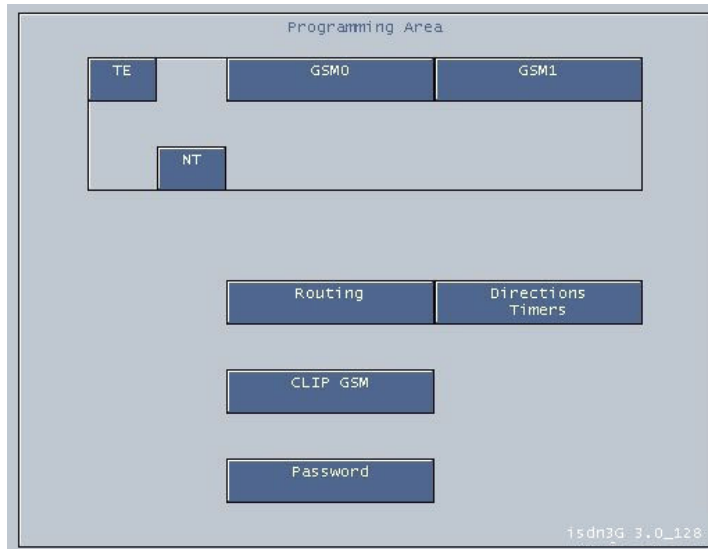


In the previous image you should notice:
- on top, a title bar showing the version of the OAM program running on your PC, such as Ver. 3.4.12
- a menu bar with the names "Systems", "Facilities", "About", "Help" and "Exit";
- underneath it, a toolbar with different buttons marked with icons;
- to the left, the tree-like structure of installed BRIGATE G3 interfaces (one or several Aristel equipments that may be connected to the OAM program);
- the right panel, blue, which is the main window, with title Modify (of View) Configuration System 0 name …;
- the flag indicating the language used for displaying information;
- at the bottom, the status bar

The blue configuration pane of the OAM window displays a zone called “**Programming Area**”.
Here you can program (establish the settings) the BRIGATE G3 unit.
In the Programming Area are shown the two UMTS ports and respectively the NT and TE interfaces.
Also in this area you can select "Routing", "CLIP UMTS", “Directions and Timers” or "Password" options.
With "Routing" option you can operate modifications over the routing table, with "CLIP UMTS" option you perform modifications over the CLIP table.

The "Password" option is used to change the password used to connect to a BRIGATE G3 system for modifications.

2.4. Programming Area



In the Programming area you see a graphic representation of the BRIGATE G3 equipment, featuring:

- the two UMTS modules (numbered UMTS0 and UMTS1)
- the TE and NT interfaces of the equipment.

There are also zones with names "Routing", “Directions Timers”, “Password” and "CLIP UMTS" used for editing the "Routing Table" and respectively the "CLIP UMTS table", overflow directions and timers, and the Password option.
With “Directions/Timers” you may establish the first and second directions for overflow and the two timer values, used for sending the UMTS call and respectively for the callback feature.

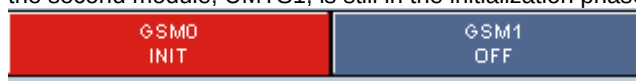
Firmware version
The bottom right corner of the Programming Area shows the current version of the firmware application running on BRIGATE G3 written with white letters on blue background.
In the above example you may see “isdn3G 3.0_128” meaning that the application running on BRIGATE G3 is version 3.0 and the processor type is “128”.
The digits following the underscore character are a code for the processor of the BRIGATE G3 unit. There are two types of processors, coded as _64 and respectively_128.

This is important when you perform a firmware update (Tree option "Loading image file"): you must check that you load the type of firmware image that is adequate for your equipment. If your equipment has a processor type "_128", you must upload only image files of that kind, for instance with name "isdngs_si_30_128_c.hex".
If you have an older equipment, which does not show the Processor Type, but only the version, such as "isdnUMTS1.9", you should upload only image files of the type "_64".
Each port of the Brigate g3 equipment (UMTS0, UMTS1, NT and TE interfaces) may be individually configured by clicking on the corresponding rectangle.

Color indication

In the "Programming Area", the 3G modules of the equipment are shown with different colors, depending upon their current status. Dark blue indicates an inactive module, red shows a module in the initialization phase, light blue is for a module that has successfully registered with the UMTS mobile network, and so on.
For instance:

this means the first module, UMTS0, is already registered, while the second module, UMTS1, is still in the initialization phase.



Now the second module is OFF while the first is in the initialization phase.

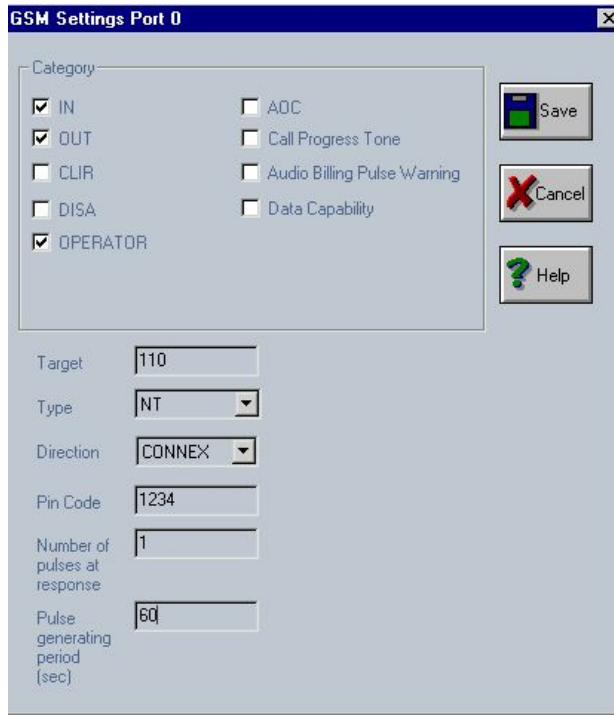
In this case, the first module has successfully registered with the respective mobile network, while the second mobile module is OFF.

The second module (white color) is searching for network.

In the following paragraphs you will see a description of settings for the 3G modules and NT and TE interfaces, for the Routing table, etc, a few examples of ISDN-2-UMTS working modes (connections to the PBX) will be explained.

2.4.1. Configuring a 3G module

To configure a UMTS module (0 or 1) click on it and the “UMTS Settings” window shows up, allowing you to specify the operating parameters for the respective UMTS module:



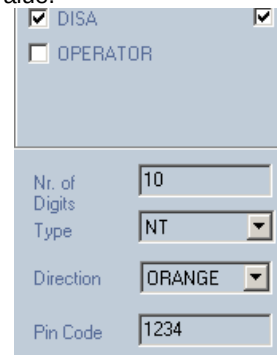
Depending of the selected 3G/3G module the title of the window will be "UMTS Settings Port 0" for the first 3G/3G module and "UMTS Settings Port 1" for the second UMTS module.

Installed - when this option is enabled, it allows the activation of the port;
IN - input, port used only for incoming calls; if this option is disabled then no incoming call will be accepted from the 3G/3G network on this module;
If this option is disabled, the incoming calls will be rejected!
OUT - output, the port will be used for outgoing calls;
CLIR - if this option is checked then identity of the call will not be sent (identity restricted);
The next two options **DISA** and **OPERATOR** are used for directing incoming calls from the 3G/3G network. The option DISA and OPERATOR are mutually exclusive, only one of them can be enabled by the user at a moment time.

The mode of usage for the options is as follows:
- if **either** OPERATOR **or** DISA checkboxes are enabled, that is a wrong situation because no method to deal with the incoming call is defined. If the user does not want to allow incoming calls on a 2G/3G module, then the best method is to disable the "IN" checkbox.
- if **OPERATOR** checkbox is enabled, as shown previously, the call will be forwarded to the PABX port through the NT or TE interface. Then the operator decides which local extension to call. The interface is specified in the "Type" field. An ISDN SETUP message will be generated with the number specified in the "Target" field through the selected interface. The maximum size for the target field is 4 digits. If you type "---" characters you can specify an empty target (no number). In such a situation the ISDN-SETUP message will contain an empty called party number and the call will be routed to the operator of the PABX (if such a setting is validated in the PABX).

Note: the "Target" field can contain only digits from "0" to "9" and characters "---" to indicate an empty value.

- if **DISA** checkbox is enabled instead of OPERATOR, the incoming call will also be forwarded to a port of the PABX through the NT or TE interface, but the aspect of the window for settings will change, as shown here:



Instead of the “Target” field, a “number of digits” field shows up.

The incoming call will be answered by the BRIGATE G3 device and a DISA tone will be provided to the calling party. On this tonality the caller can dial (using DTMF codes) a local extension of the PBX or an external number to get out of the phone exchange.

Important! *When DISA checkbox is selected, the field “Target” becomes “Nr. Of Digits” and instead of the target, it represents the maximum number of digits that are waited to come from the 3G/3G network. When this number is reached, the call is forwarded, even if digits are still coming.*
You may specify at most 20 digits in this field.
If you enter “0” no digits will be waited for. This means the ISDN-SETUP message will be sent without any called party number in it.

AOC – Abbreviation from “Advice of Charge”, a signaling protocol used to send charge (billing) pulses to the PBX where BRIGATE G3 is connected. AOC is the charge for the call, computed by the UMTS terminal and expressed in terms of Home Units. The charge pulses are sent at the beginning of the call and during the call, according to two elements that you may program at the bottom of the window. The two items are the number of initial pulses ("**Number of pulses at response**") and the time delay between two billing pulses ("**Pulse generating period**").

If the option "**Audio Billing Pulse Warning**" is set the billing pulses can produce an audio (sound) confirmation at the calling party.

Data capability –provides the equipment with data capabilities.

Depending upon the type of mobile modules of Brigate, you may use the respective module as a mobile modem.

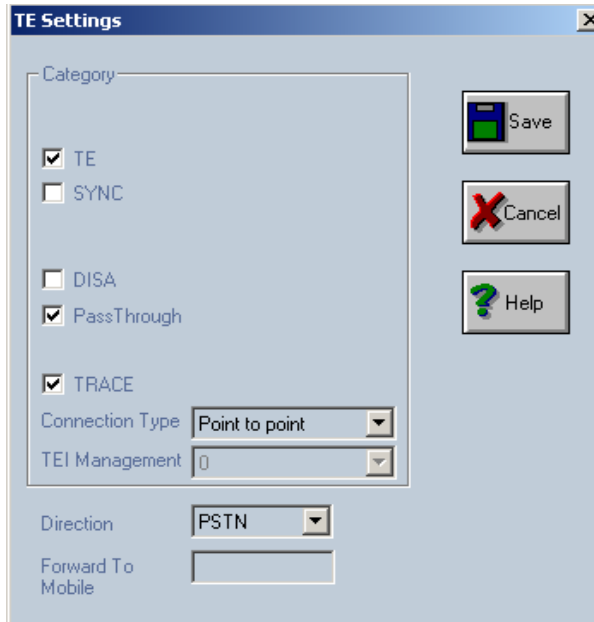
If the checkbox is marked, after an AT command the UMTS module may be used as a wireless modem. You may use it for GPRS, CSD (circuit switched data) or digital fax.

Direction - the “direction” or trunk group to which the port belongs. There are four possible directions: 0, 1, 2 and 3. To the first three values you may assigned names, such as the names of mobile carriers (Orange, Vodafone). The names of the directions are established in the “Directions Timers” section of the OAM program. The fourth direction cannot be renamed, since it is not a real one, it is used to forbid access to certain prefixes.

Pin Code - the PIN Code used by the system as PIN code of the selected 3G/3G module.
This value is used in the situation that the PIN code is required by the SIM card.
The length of the field "Pin Code" must be 4 digits, with individual values between '0' and '9'.

2.4.2. Configuring the TE Interface

To configure the ISDN-TE interface, click on the TE representation in the "Programming Area" and the windows with the port settings will appear, as shown:



TE - if it is enabled, that this is a TE-type ISDN interface;
SYNC - this option specifies that the TE interface will be used only for synchronization from the public network. (See chapter about “Modes of Connection of Brigate g3” for details about connecting several units and synchronizing them).

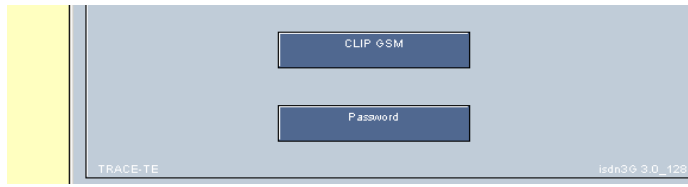
*Note: Only **one** of the options "TE" or "SYNC" can be selected at the same time;*

DISA - this option is used in case of incoming calls on TE ISDN interface. The TE interface of Brigate device is connected to the NT interface of a PABX exchange. The NT interface of the PABX is a local interface, so the TE interface will be called with the number of a local extension of the PABX. The Brigate system will answer to the call and give a DISA tone, allowing the calling party to dial numbers through DTMF tones. Then the called number will go on in the routing table analysis.

Pass Through - this option is used in case of incoming calls from the Public ISDN network on the TE ISDN interface (situation presented in the case 3 in the subchapter 2.3.8.). In this situation the call will be forwarded transparently to the PABX, it just passes through the Aristel Brigate g3 unit. The BRIGATE G3 unit is inserted transparently between the ISDN public telephony network and the ISDN phone exchange.

TRACE - this option is used for enabling **trace** facility on the TE interface. On the HDD of the computer where OAM application is running, a log file will be created, with the name given by the current day. Format of the log file is dd-mm-yy.log.
The Tracing action is running until the first disconnect between OAM software and the Brigate g3 equipment. Later, the log files can be analyzed by means of the Ethereal “Network protocol analyzer” application.

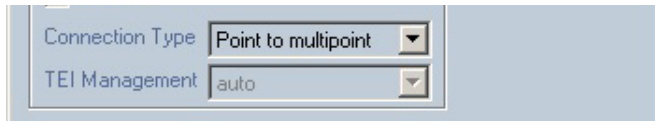
The indication of trace enabling is shown on the OAM screen. For the TE interface the indication will be the "TRACE-TE" text, which will be displayed with white letters in the bottom left side of the system panel, as shown in the image below:



Connection Type – refers to the ISDN connection. You should select this according to the type of the equipment (digital PBX or telephone) that Brigate g3 is connected to. Available options are “Point-to-point” (default) and “Point-to-Multipoint”. The Point-to-Point is used to connect only two devices, and it uses the DDI service (Direct Dialing In). You should use this in the most usual case, when Brigate g3 is connected to an ISDN phone exchange. But when you have the Brigate g3 unit connected to one or several ISDN phones or modem, you can no longer use the Point-to-Point.

Instead, you must use the option “Point-to-Multipoint”, which allows you to connect several ISDN equipments (form two up to eight). Instead of DDI, it uses the MSN service (Multiple Subscriber Number). The “Point-to-Multipoint” connection should be used for ISDN phones or other ISDN terminals.

TEI Management – establishes the administration of TEI.
"Terminal Equipment Identification" is an internal ISDN identification of connected phones.
Allowed values are "0" or "auto", and this is related to the previous setting – the type of ISDN connection.
For the default point-to-point connection, a value of "zero" must be used for TEI. (It can be changed only in exceptional cases.)

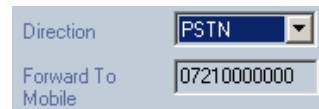


If you select "Point-to-multipoint" as connection type, TEI Management field automatically switches to "Auto", which is the value that must be used for the point-to-multipoint connection.

Direction - the direction to which the port is belonging. There are four possible directions, out of which only three are active: UMTS1, UMTS2 and PSTN.

Forward – call forwarding.

If you enter a mobile phone number in this field, the incoming calls (from the PSTN network) will be routed through the UMTS module and forwarded to the respective mobile number).



Warning: *after performing changes to the TE interface you should reset the equipment if you want your settings to be valid. The new values for the parameters will be enabled only after a RESET. To perform a reset of the ISDN-2-UMTS unit, pull out the power supply jack. Wait at least ten seconds, then plug the jack back in. The BRIGATE G3 will start working with the new parameters.*

2.4.3. Configuring the NT Interface

The NT interface has just a few programmable functions:

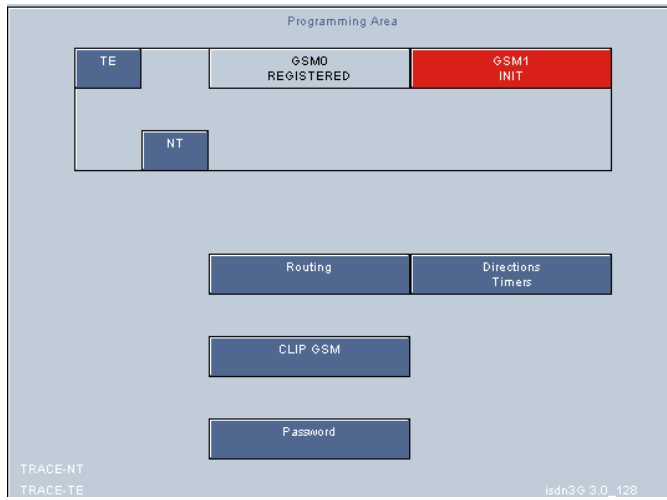
PH-DISACT - When checked this setting establishes that the ISDN Layer 1 is deactivated (disabled) when there are no calls. The Layer 1 of ISDN protocol is the Physical connection. The inactivation of the physical layer or the connection may be required in some instances when synchronization error could occur otherwise.

Please note that not all ISDN phone exchanges support the disabling of the physical layer!

TRACE - this option is used for enabling trace facility on the NT interface. On the HDD of the computer where OAM application is running is creating a log file with the name given by the current day. Format of the log file is dd-mm-yy. log (format day-month-year). Trace action is running until the first disconnect between OAM software and the ISDN-2-UMTS equipment. The log files created can be analyzed later by means of a program such as the Ethereal application.

The indication of trace enabling is presented on OAM panel. For NT interface the indication will be the "TRACE-NT" text (TRACE-NT), which will bet displayed in the left side of the system panel.

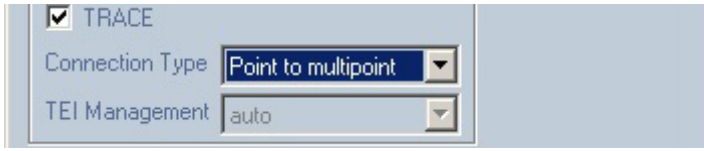
See below an illustration of the situation when “TRACE” has been enabled both on TE and NT interfaces. In the lower left corner of the Programming Area you will see with black writing over blue background “TRACE-NT” and “TRACE-TE”:



Connection Type – refers to the ISDN connection.

You must select this according to the type of the equipment (digital PBX or telephone) that Brigate g3 is connected to.
Available options are “Point to point” (default) and “Point to Multipoint”. The Point-to-Point is used to connect only two devices, and it uses the DDI service (Direct Dialing In).
You should use this in the most usual case, when Brigate g3 is connected to an ISDN phone exchange. But when you have the Brigate g3 unit connected to one or several ISDN phones or modem, you can no longer use the Point-to-Point.
Instead, you must use the option “Point-to-Multipoint”, which allows you to connect several ISDN equipments (form two up to eight). Instead of DDI, it uses the MSN service (Multiple Subscriber Number). The “Point-to-Multipoint” connection should be used for ISDN phones or other ISDN terminals.

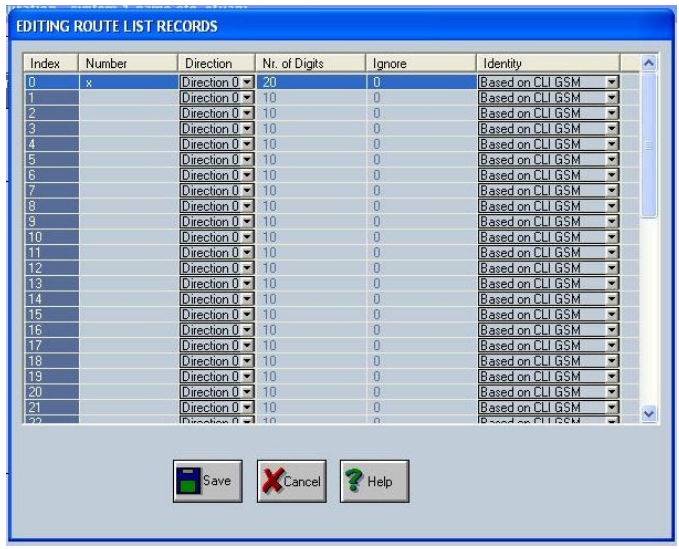
TEI Management – establishes the administration of TEI.
"Terminal Equipment Identification" is an internal ISDN identification of connected phones. Allowed values are "0" or "auto", and this is related to the previous setting – the type of ISDN connection.
For the default point-to-point connection, a value of "zero" must be used for TEI. (It can be changed only in exceptional cases.)



If you select "Point to multipoint" as connection type, you can see that the "TEI Management" field automatically switches to "Auto", which is the value that must be used for the Point to multipoint ISDN connection.

2.4.4. Routing Table

By selecting the "Routing" rectangle in the "Programming Area" the "EDITING ROUTE LIST RECORDS" window will be displayed.



Important: *For Brigate GSM application in the first line of EDITING ROUTE LIST RECORDS table, you have to fill* ***"X"*** *in the "****number"*** *field with" and* ***"20"*** *in the* ***"Nr of Digits"*** *field. These values are mandatory.*

The routing table is a collection of maximum 20 records, each records containing:

- index (colored in dark blue to indicate that is not editable)

- number (the prefix - the number for which a certain direction will be chosen. The total length of the "Number" field is 8 digits. The allowed characters are digits from '0' to '9'. Also the user can insert in whatever place inside the number the characters 'x' which will be interpreted by the ISDN-2-UMTS system as any figure (digit).

- direction - the direction (four possible values, assigned in “Directions Timers” to which the call with the prefix specified in the "Number" field will be routed.

- number of digits - this is the number of digits expected to be received before forwarding the call through a resource.

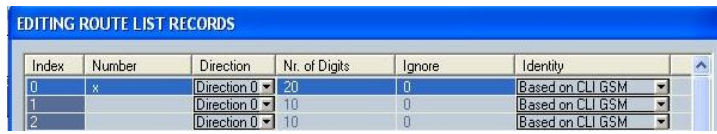
- ignore – the number of digits to be ignored from the received number.For instance, if you set it to 2, the first two digits will be ignored. This is useful when assigning higher priority for certain outgoing calls. The phone exchange inserts a digits at the beginning of phone numbers dialled by the high priority extension. The two mobile modules are assigned to the same carrier, but one of them is reserved for the numbers dialled by the local subscribers with high priority. But the firs digit is a „false” one, so in the Routing Table you must specify „Ignore 1”, in order to ignore the first digit, which has been used only internally, to assign a higher priority.

When making an outgoing call, the BRIGATE G3 will wait until the dialing of the requested number is completely terminated. Waiting for completion can generate a certain delay between dialing of mobile number and actual selection. If this is annoying, you may set the option “Number” accordingly to destinations most frequently called.
Then, for these records, BRIGATE G3 will dial i**mmediately** (as soon as it receives the last digit), without waiting anymore.

The resource (port) is allocated to the direction specified in the "Direction" field (the maximum value allowed is 20).
You may user edit each field from the columns "Number", "Direction" and "Nr.of Digits" (columns colored in light blue).

You must point with the mouse on the field that you want to modify. That field will be highlighted with a black rectangle indicating that it may be edited.

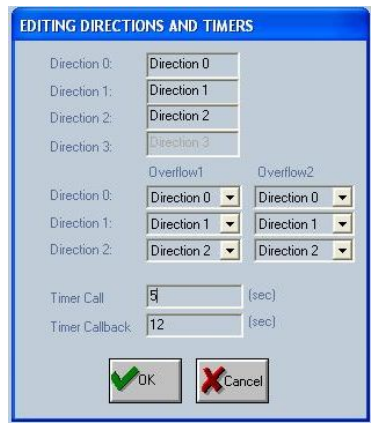
You can delete or add characters. If you want to save the new value, press the <ENTER> key; if you want to preserve the old value, press the <ESC> key instead.
If the value is not correctly filled in, a message error ("Wrong value") will be displayed
The "Save" action is used to load all the records into the BRIGATE G3 system that is connected. Before the loading process, all 20 records are sorted in ascending order.
In case of a connection started with command "Connect To View..." all columns will be displayed in dark blue.



This means you can only **view** the values, no edit action can be performed in this case.

2.4.5. Directions and Timers

If you select the "Directions and Timers" rectangle in the "Programming Area" the "EDITING DIRECTIONS AND TIMERS" window will be displayed.



Directions:
Here you can:
- define the direction names;
- complete the value for timer call, is mandatory **"5"**
- fill-in the overflow rules to be used in operation. The Brigate g3 unit box can handle a maximum of **three** directions.

The direction can be assigned one to each UMTS port and the third to PSTN (on the "TE" interface).

You may change the name for directions 0,1 and 2 from the default names "Direction 0","Direction 1" and "Direction 2". Usually, you should assign to them the names of the respective mobile carriers, such as Orange and Vodafone. The "Direction 3" name can't be change – it is shown in gray colour. This fourth direction is not a real direction for routing the calls, it may used in the routing table to force some prefixes to “non-existent”.

Usually, the two mobile modules are assigned each to a network operator, in order to ensure the routing of calls for minimum costs.
But if a group of subscribers have higher priority, you may assign both mobile modules for the same carriers, with direction names such as Orange1 and Orange2. The direction Orange 1 is reserved for the usage of the group of subscribers with higher priority.

Overflow
in the previous image there are three “**Direction**” rows with two “Overflow” columns.
Each line is used for one direction and establishes the first and the second overflow option.
The direction numbers can be Direction 0, 1 and 2.

If you want to specify that a direction does not have an overflow, simply set that field to the same name as the direction name.
For example at the direction "1" - named "Vodafone" if you specify "Overflow1" = "Vodafone" then no overflow will be set. This is the default configuration.
If you specify "ORANGE" then when the direction "CONNEX" is unavailable or busy, the direction "ORANGE" will be used to route the call. You can also select a second overflow direction (Overflow2) to be used in case the first overflow direction also becomes unavailable or busy.

You may also use the Overflow feature to implement a higher priority for a group of subscribers. Only these are assigned to the direction Orange1, but if this direction is unavailable (the respective mobile module is busy), it will overflow over the direction Orange2, which is used by all the local subscribers.

Timers:

"**Timer Call**" – you set the time interval while BRIGATE G3 waits for the phone number to be dialed. For each record in the "Routing Table" the expected number of digits must be dialed in specified interval. Here you may specify a time interval, in seconds, during which each digit is expected.
After the expiration of this period (12 sec in the above example) the call will be routed out with the received digits.

"**Timer Callback**" - used to implement the callback service.
The incoming calls are treated according to the "Action", "Type" and "Target / Nr. of Digits" fields.
First, the ID of the incoming calls is matched to the values stored in the CLIP table. If the calling party whose identity is found the in CLIP table (with the callback option) drops the call in a time period less than "Timer Callback", then the BRIGATE G3 will callback the calling party.
In the same conditions, if the calling part does not end the call before the "Timer Callback" seconds expires, the call will be again treated according to the "Action", "Type" and "Target / Nr. of Digits", but callback action will **not be performed**.

Note: A validation check is performed upon the values that you enter in the "Timer" fields.

If you enter some letters, the respective timer will be set to zero.

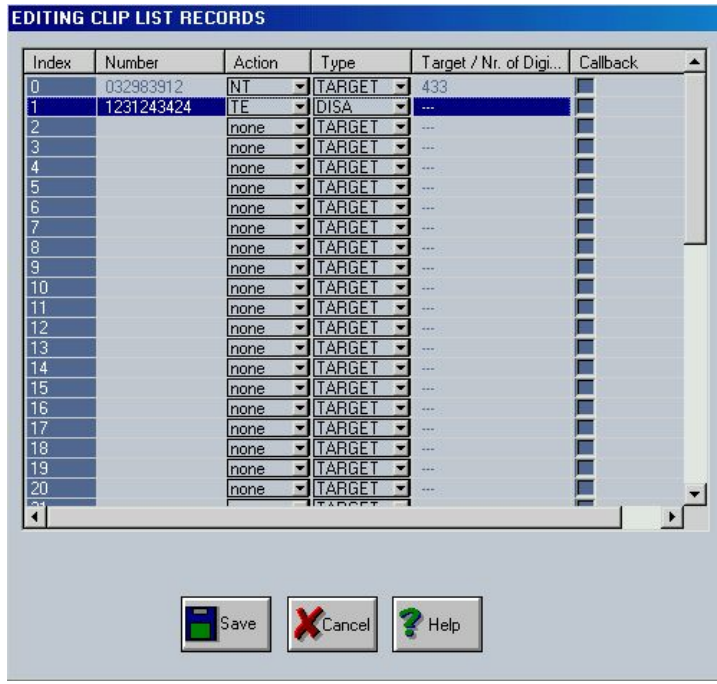
But if you enter an integer number larger than 12, you will see an error message:

and the field that is in error will be shown with red color:

For both timers, the maximum value is 12 seconds.

2.4.6. CLIP-UMTS Table

If you click the rectangle "CLIP UMTS" in the "Programming Area", the "EDITING CLIP LIST RECORDS" window will be displayed:



For incoming calls, first the table with CLIP list is checked for the received identity. If the identity is not found in the CLIP table then the UMTS settings (DISA, OPERATOR and "Target" field) will be analyzed.

The CLIP table is a collection of maximum 50 records, each records containing:

- index (0 to 49, colored in dark blue to indicate that is not editable)
- number (the identity number for which a certain "Target" will be selected. The total length of the "Number" field is 10 figures. The allowed values are digits from '0' to '9'.
- list of actions to be performed; allowed values are "NT", "TE" and "none". If you select "none" action for a line then the number (identity) specified on that line will make no action. Values "NT" and "TE" are used in the same manner as for the 3G modules settings.

The functionality is specified from the "Type" list and the target for the call is filled in the "Target / Nr. of Digits" field.

The last column, “Callback”, contains checkboxes. If a box is checked, the callback feature is enabled for the respective phone number.
If "TARGET" is selected from the "Type" list then an ISDN SETUP message will be sent through the ISDN interface specified in the "Action" list, having as called party number the with the number read from the "Target" field.
If "DISA" is selected from the "Type" list, then the call will be answered and an ISDN SETUP message will be sent through the ISDN interface specified in the "Action" list. The setup message may include or not the called party number.

Callback operation
When **DISA** is selected as “Type”, the caller party rings and hangs up. Brigate g3 calls back and provides a DISA-like dial tone, allowing the remote caller to dial a local extension.
When in the field “Type” you select TARGET instead of DISA, the caller also party rings and hangs up. Brigate g3 calls the TARGET extension. The local extension picks up the phone and gets call-back tone. At the same time, a call to the UMTS/UMTS subscriber is initiated. The remote UMTS/UMTS subscriber answers and is connected with the TARGET local extension.

All other incoming calls with the missing Caller ID or with identity not found in the CLIP table will be routed accordingly to the 3G/3G module settings: for example to the Operator of your PABX.

Also, if the ring lasts longer than the “Timer Callback” value, the call will NOT be treated as a callback one.

Note: If in the column “Type” you have “DISA” then the meaning of the field “Target / Nr. of Digits” is different: instead of intended target, you will have “Nr. of Digits”, the maximum number of digits that are waited from the mobile network. You may specify at most 20 digits.
If you enter “0” for this field, it means no digits will be waited for from the mobile network. The ISDN SETUP message will be sent without any called party number in it.

You may edit each field from the columns: "Number" and "Target" (colored in light blue). You must point with the mouse on the field which you want to modify. That field will be highlighted with a black rectangle, indicating that it can be edited.
You can delete or add characters. If you press the <ENTER> key the new value will be saved, if you press <ESC> key the old value will be preserved.
If the value you filled in is not correct, an error message ("Wrong value") will be displayed.

You can select values for the fields "Action" and "Type". Those fields are displayed as combo-box fields. The "Save" action is used to load the modified records into the Brigate system.

In case of a connection that was started with command "Connect To View..." all columns will be displayed in dark blue. This shows that you can only see the values; you are not allowed to perform editing actions.

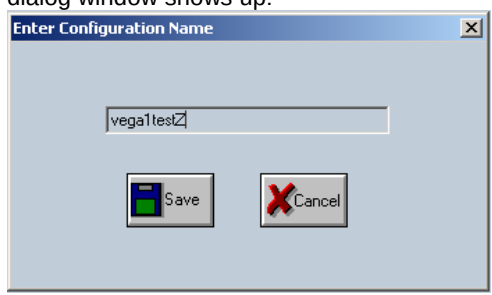
2.4.7. Password

This option is used to modify the password which is used for protection of the Brigate unit whenever you require the option to modify the configuration.

You must fill the password first in "New Password" then type it again in "Confirm Password" fields.
If the two fields contain the same strings then the new password will be sent to the program.
Note1: The maximum length for both fields is 8 characters.
Note2: The default password is "Aristel"; you should change it to a password of your own choice.

2.4.8. Saving and loading system configurations

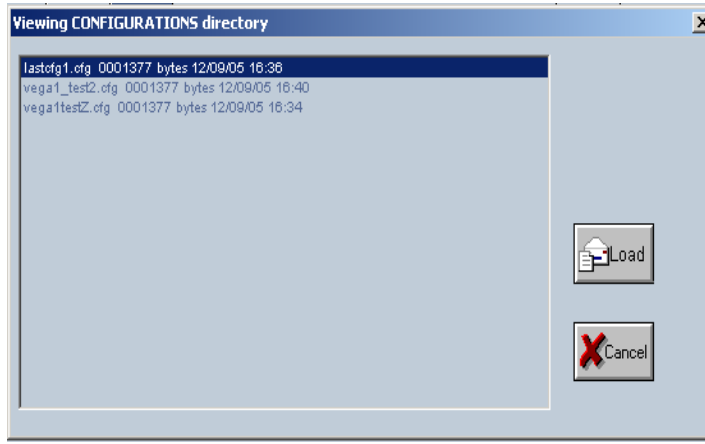
There are two icons ("  ","  " for saving and respectively loading configurations. Those icons are valid only in the situation when the connection is established by the tree command "Connect To Modify...".
To save a configuration click the “Save” icon and the following dialog window shows up:



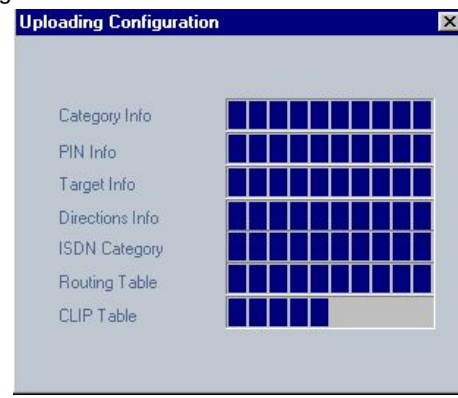
Enter the name you want. The configuration will be saved in the "CONFIG" directory (located in the same directory as "isdncfg" software). The "cfg" extension will be added to the name filled by the user.
The configuration contains the categories, PIN codes, targets, routing table, CLIP-UMTS table and the password.

Loading a configuration:

Click the “Load” icon to view the directory that contains all the saved configurations.



You must select the desired configuration from the list, then press the Load button. The configuration will be uploaded into the BRIGATE G3 interface. You will see a progress indicator for each of the configuration files transferred:



Note1: *when the user disconnects the connection (in case a. or b. then automatically the configuration will be saved in the directory "CONFIG" with the name "lastcfgx", where the last character 'x' is indicating the system for which the configuration is used. In the "Viewing CONFIGURATIONS directory" window shown previously you can notice such a automatically saved configuration, named lastcfg1.*

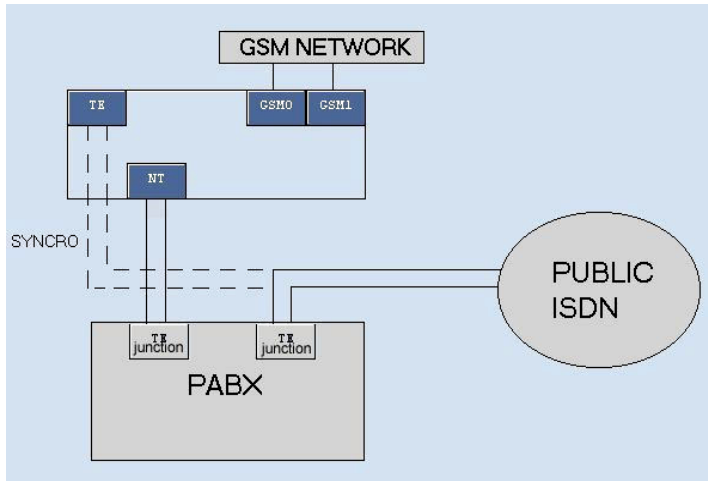
Note2: *It is strongly recommended that before loading a new image file you save the current configuration, then load it again when BRIGATE G3 operates with the new firmware. This way you are sure that your settings will be kept.*

2.4.9. Connection Examples

Some samples of interconnecting the BRIGATE G3 equipment:

1) **ISDN3UMTS connected on its NT interface with a PABX TE interface.**

NT connector of the ISDN-2-UMTS linked to TE of the PABX, TE of the PABX goes to the public ISND, and TE of the ISDN-2-UMTS linked to the TE of the PABX only for synchronization.
The SYNCRO clock (dotted lines) is received from the PUBLIC ISDN. The TE interface of the PABX is acting as a junction.



Outgoing from PABX

If the call is to mobile networks, the PABX routes it to through the ARISTEL BRIGATE G3 unit. The numbering is sent through the TE junction of the PBX to the NT connector of the BRIGATE G3 interface. BRIGATE G3 performs further routing, it uses one or two directions for the calls received from the PBX: DIR0 for module UMTS0, one mobile network, DIR1 for module UMTS1, the other mobile operator. The call will be routed according to the number dialed to the respective mobile operator

If the number dialed is for the public ISDN network, the PABX routes it through the TE junction connected directly to the public network.

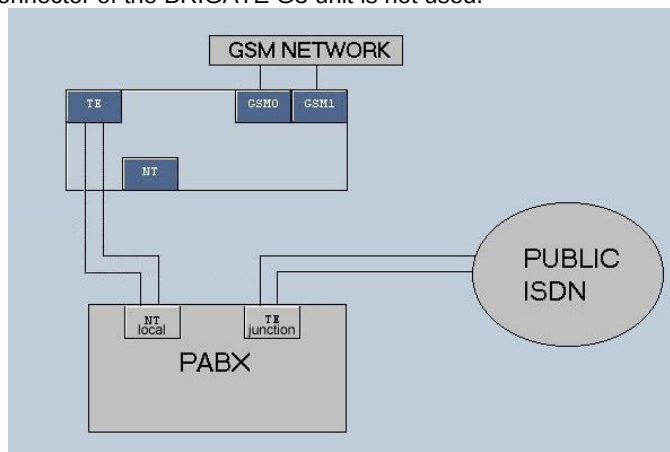
Incoming UMTS to PABX

From the 3G/3G network an incoming call will be forwarded to the NT interface. The decision is taken depending upon the CLIP UMTS table. If the incoming phone no. is not found in the table, decision is taken depending on routes from the UMTS module. The options involved are DISA, OPERATOR and the Target settings (from the CLIP table or from the UMTS settings).

The destination of the call will be a specific local extension of the PABX or the PABX operator.

2) **ISDN3UMTS connected on its TE interface to a PABX NT local.**

The TE connector of the ARISTEL BRIGATE G3 is connected to the NT of a local board of the PABX. Calls to public network go out of the PABX through a TE junction. Note that in this case the NT connector of the BRIGATE G3 unit is not used.



Outgoing from PABX

The local subscriber dials the number of the local extension (NT local) position where the BRIGATE G3 is connected. BRIGATE G3 answers with dial tone. The DISA option must be established in the settings for TE interface. The subscriber will dial the outgoing mobile number. The call will be routed on a 3G/3G module by applying the routing table policy (the call is sent out into the adequate 3G/3G network for least costs).

Note that the number of the UMTS subscriber must be dialed in DTMF mode!

If the dialed number is for the public ISDN network, the PABX will route the call through its TE junction which is connected directly to the public network.

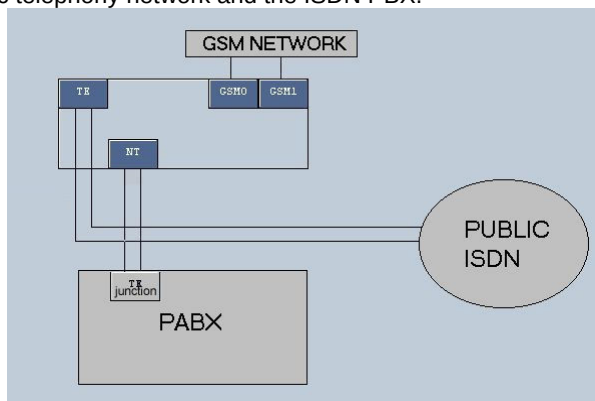
Incoming to PABX

The calls coming from the mobile networks can be routed to their destination either through DISA or with help of an operator.

An incoming call from the 3G/3G networks will be forwarded to the TE interface by checking the identity in the CLIP-UMTS table. In case of missing Caller ID or the number is not found in the records, the routing is performed by checking the UMTS settings. The involved options are DISA, OPERATOR and the Target settings (from the CLIP table or from the UMTS settings). The destination of the call will be an extension of the PABX or the operator.

3) **ISDN3UMTS connected on its NT interface with PABX and with the TE interface with the public ISDN**.

Only one TE junction of the PABX is used. BRIGATE G3 is connected through its TE interface directly to the public telephony network. BRIGATE G3 unit is inserted transparently between the public telephony network and the ISDN PBX.



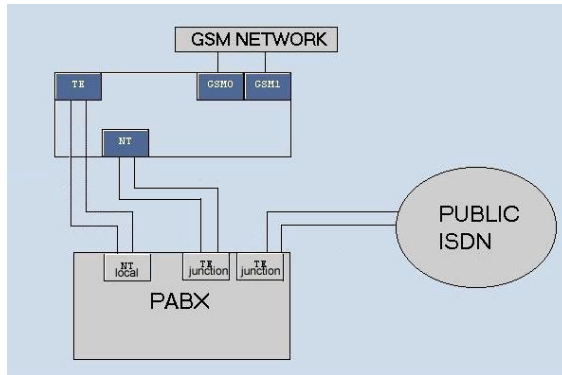
Outgoing from PABX

The PABX exchange will forward the calls to the ARISTEL ISDN3UMTS system. The numbering is sent directly from the TE junction into the NT connector of Brigate g3. In this case calls coming in through NT connector can be routed through one of three directions: UMTS0, UMTS1 and TE (to public network).
The routing is performed by the BRIGATE G3 unit, not by the PBX.
The call will be routed according to the number dialed either through UMTS0, UMTS1 or the TE interface. The user can place the module UMTS 0 on direction 0 and the UMTS1 on direction 1. The TE interface will be placed on the direction 2, mandatory.

Incoming to PABX

The calls from the public ISDN are transferred transparently towards the PABX. For this, in the configuration window of TE interface you must select the “PassThrough” option.
The "TE" from the PABX will act as a junction.
The calls coming in from the 3G/3G networks are analyzed by checking the identity in the CLIP-UMTS table.
If the ID is missing or the caller is not found in the CLIP-UMTS records, routing will be performed by BRIGATE G3 according to the settings of the UMTS module.
The incoming calls from the mobile network can be routed either through DISA or with help of human operator.

4) **ISDN3UMTS connected on its NT interface with TE interface of PABX and with its TE interface with NT interface of the same PABX**.
The NT connector of the BRIGATE G3 linked to TE of the PABX (one junction board). Another TE junction of the PABX goes to the public ISDN network. The TE connector of the ISDN3UMTS goes to the NT of a local board of the PABX.



Outgoing from PABX

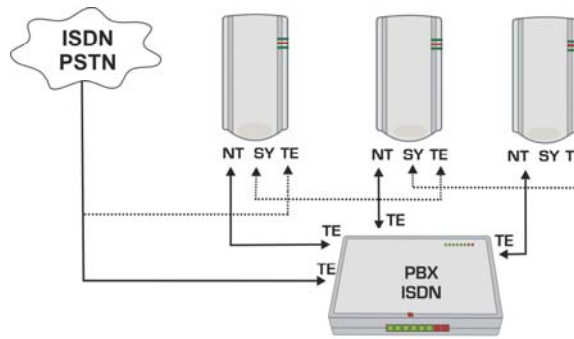
The outgoing calls exit through the TE connector of the PABX junction. The PABX directs the calls to mobile networks through the BRIGATE G3 unit. The calls will be routed according to the number dialed through UMTS0 or UMTS1 placed on one of two directions (for example 0 and 1). If the number dialed is for the public ISDN network, the PABX will route the call through another TE junction directly to the public network.

Incoming to PABX

Calls from mobile networks get into PABX via TE connector of the BRIGATE G3 unit. When a UMTS call comes in, if the setting in the UMTS window is OPERATOR, the call will go to the local extension you have specified in the field “Target”.
From the PABX acts as a local call!
If the setting is DISA, the caller gets a DISA tone and he can dial any local subscriber he wishes. Also, he can make calls to the public network, acting as a local subscriber of the PBX.
Incoming calls from the 3G/3G networks will be forwarded to the TE interface by checking the identity in the CLIP-UMTS table and in case of missing ID or number not found in the records, by checking the UMTS port settings. The UMTS options are DISA, OPERATOR and the Target.

5) Using several BRIGATE G3 units

It is possible that you need to connect more than one BRIGATE G3 to the same PABX. For example, you want to use more than two mobile operators for optimal routing. Alternately, you want to have several 3G/3G modules for the same operator, if there is an intense UMTS traffic or if one 3G/3G module is busy, the call to be routed through another module. In this case several one BRIGATE G3 units (2, 3 or more) will be used with the same PABX. You must ensure synchronization of all the BRIGATE G3 units.

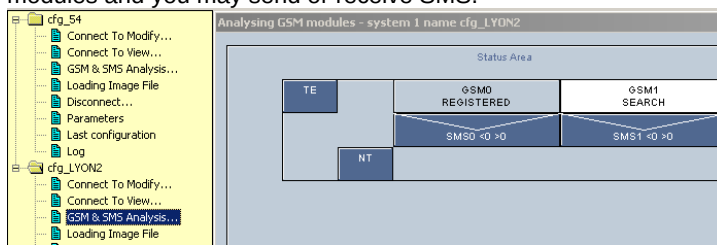


For this, clock synchronization is taken from the Public ISDN and goes to the TE connector of the first Brigate.
Then the clock signal goes out through the SY connector of that BRIGATE G3 to the TE connector of the second device, and so on. You can have as many BRIGATE G3 units as you need.

Remember, the last BRIGATE G3 unit in the chain must have the termination resistors for the TE interface activated.

2.5. "UMTS & SMS Analysis..."

With this option the user can see online the status of the 3G modules and you may send or receive SMS.



The status of those modules is automatically read at time interval of five seconds.
The possible states of each 3G module are:
- *"OFF"* - the module is not activated (on screen the module is drawn in dark blue and the text "OFF" will be displayed)
- "*Initialization*" - the module is initiated by the application running on BRIGATE G3 (on screen the module is drawn in red and the text "INIT" will be displayed)
- "Search" - the module is searching for a 3G/3G network (on screen the module is drawn in white and the text "SEARCH" will be displayed)
- *"Registered"* - the module is registered (on screen the module is drawn in light blue and the text "REGISTERED" will be displayed)
- *"Alert"* - there are two situations: when RING signal is encountered on the input or when an outgoing call is in process (until the called party will answer). On screen the module is drawn in gray and the text "ALERT" will be displayed
- *"Speaking"* - a voice call is in progress through the respective UMTS/UMTS module (on screen the module is drawn in dark blue and the text "SPEAKING" will be displayed)

2.5.1 SMS Activity

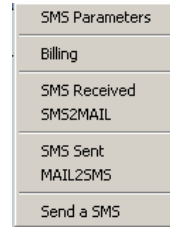
Under each 3G module indicator, on the OAM screen there is a box that indicate the SMS activity for that module, SMS0 and respectively SMS1:

You can see two numbers, first number indicates the SMS messages which were received by the UMTS module (after the character "<") and the second number indicates the SMS messages sent by the 3G module of BRIGATE G3 (after the character ">").

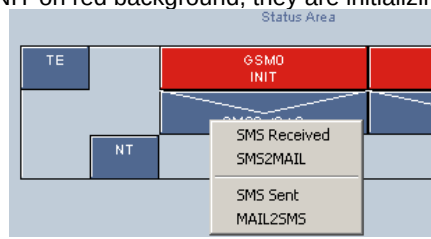
When you select the option "UMTS Analysis..." then an interrogation is performed on each 3G module about newly received SMS. If new SMS are found, then the corresponding box "SMS0" or "SMS1" will become colored in light blue as shown in the following image: 

. To the right side of the "SMS0" respective "SMS1" character strings there is a figure which displays the number of the new SMS that have been read.

On each SMS rectangle (both for 3G/3G module 0 and 3G/3G module 1), if you click the left button of the mouse then a SMS menu will be displayed.
This menu allows you to send and receive SMS either directly from your PC or via e-mail:



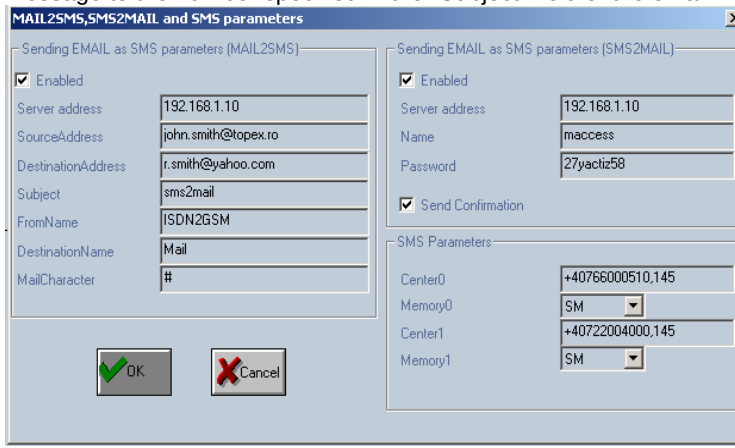
Note: the seven menu options shown above will be displayed only if the respective 3G module is registered to the mobile network.
In the example below, the UMTS modules are not yet registered (they show INIT on red background, they are initializing):



Consequently, you will see only **four** options in the menu, because obviously you cannot “Send a SMS” if the respective module is not registered to the mobile network.

2.5.2. SMS Parameters

This group of options regards to the facility to send the received SMS to an email address and respective the possibility to retrieve the emails from a mail server and to send the text content as SMS message to the number specified in the "Subject" field of the email.



The number extracted from the subject is sent through one of the two possible SIMs by analyzing the routing table. If the SIM which is supposed to be used is not available (no SIM installed, initializing phase, searching for network, or in alert phase) then the application will use the other SIM. If the subject of a retrieved e-mail is not a number, or if the mail includes attachments, then the email is deleted from the mail server. Thus, it is better to use an email account specially dedicated for this application (email to SMS via Brigate).

The options for sending a SMS message as MAIL are:

- ***"Enabled"*** - If the checkbox is selected then the facility to send all received SMS to an email address is validated;
- "***Server"*** - this field contains the IP address of the mail server.
- ***"Source Address"*** - the source email address
- ***"Destination Address"*** - the destination email address. This address is the default destination address; the OAM software can also check for an email address in the beginning of a SMS message. If "Mail Character" (in the example the used character is '#') or '@' is found before the first space character, then the SMS content will be sent to the e-mail address found there. If no mail character is found, the SMS message will be sent to the default e-mail address.
- ***"Subject"*** - this field followed by the number from where the SMS was received will be displayed in the "Subject" column of the mail client.

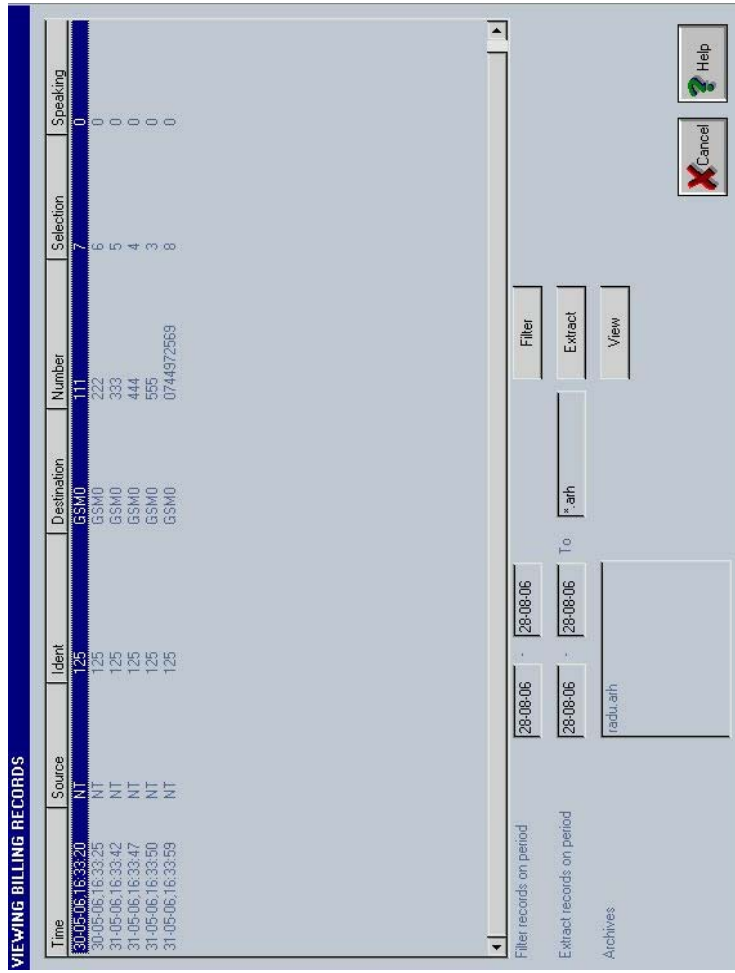
- "**From Name**" - this field will be displayed in the mail client in the "From" column;
- "**Destination Name**" - this field will be displayed in the mail client in the "To" column;

The options for receiving MAIL messages in order to be sent as SMS messages are:
- "**Enabled**" - If the checkbox is selected then the facility to connect and retrieve mail messages is validated;
- **"Server**" - this filed contains the IP address of the mail server.
- "**Name**" - the name to be used to connect to the mail server
- **"Password"** - the password to be used to connect to the mail server
- "**Send Confirmation"** - if this option is enabled, then a confirmation of sending the SMS message (from the email message) will be send to the email address from which the email was sent.

SMS Parameters:
- **"Center0"** - the phone number of the center for SMS of the respective UMTS operator - for UMTS0;
- **"Memory0"**- SMS memory location for UMTS0: "MT" (module) or "SM" (SIM);
- **"Center1"** - the phone number of the center for SMS of the respective UMTS operator - for UMTS1;
- **"Memory1"**- SMS memory location for UMTS1: "MT" (module) or "SM" (SIM);

2.5.3 Billing

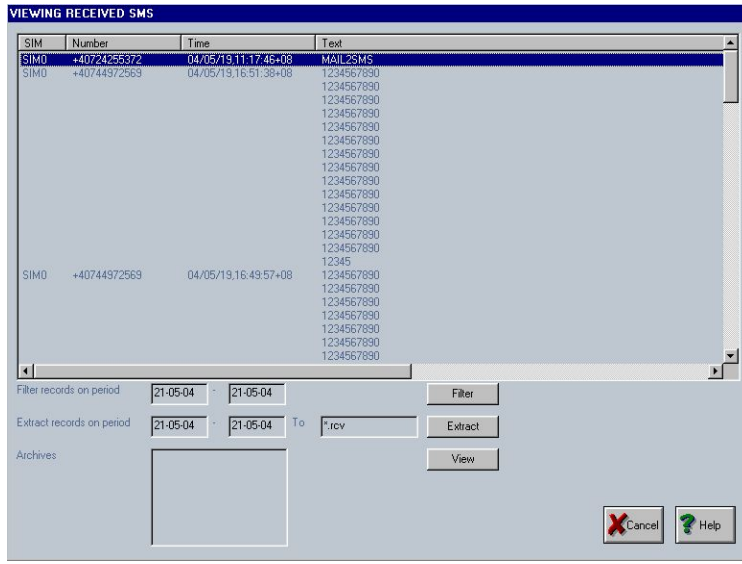
Performs billing (taxation) over the routed calls.
Once the OAM application is connected to a Brigate g3 system, the OAM program will query at predefined time intervals, the equipment on billing records.
The ISDN billing information contains the following fields:
- ***time of the call -*** is filled when the ISDN system is equipped with a RTC chip.
- ***source of the call*** (UMTS0, UMTS1, NT or TE). In case of call-back calls the indication will be for UMTS - "cbt" for callback with target or "cbd" for call-back on DISA.
- **identity of the call**
- **destination** (UMTS0, UMTS1, NT or TE, none)
- **number dialled**
- **selection time** (call connecting time in seconds)
- **speaking time** (call time in seconds)



Using the fields at the bottom, you can filter records by filling the time periods and selecting the "Filter" button, or extract records through "Extract" button and extract periods. Records are extracted into the archive defined in "To" field. Archives content can be viewed through the "View" button.

2.5.4. Viewing Received SMS

To view all SMS messages received on both 3G/3G modules you must select the option "SMS Received" from the menu shown above. A new window (called "VIEWING RECEIVED SMS") will be displayed; the window contains all the SMS received by the BRIGATE G3 unit.



The window contains several columns:

- "SIM" - number of the sim card, 0 or 1. Indicates the 3G/3G module from which the SMS is received (SIM0 or SIM1);
- "Number" - the phone number from which the SMS was send;
- "Time" - the time and date when the SMS was received;
- "Text" - the received text from the SMS. The text is separated on several lines if inside the text there are found characters <CR> or <LF>;

The incoming SMS, for each BRIGATE G3 system, are stored into a file called "readsms.bin", file located in the system directory.

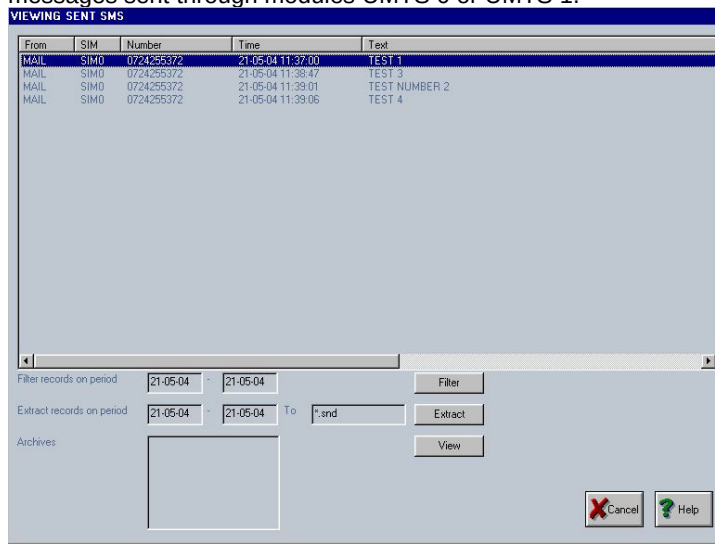
You may use the filter "Filter records on period" for displaying records on a selected period of time. To activate the filter click the button "Filter".

You can also extract records from the current SMS file ("readsms.bin") by means of the filter "Extract records on period". You must fill the time periods and the destination file (this file must have "rcv" extension and will be located in the "ARCHIVES" subdirectory of the system directory). The button to activate the command is "Extract".

Received messages are stored in “rcv” binary files. All files with "rcv" extension from the "ARCHIVES" directory are displayed in the "Archives" list. Then you can select a file from this list and view the content with "View" button.

2.5.5. Viewing Sent SMS

To view all SMS that were sent on both UMTS modules you must select the option "SMS Sent". A new window (called "VIEWING SENT SMS") will be displayed, the window contains all the SMS messages sent through modules UMTS 0 or UMTS 1.

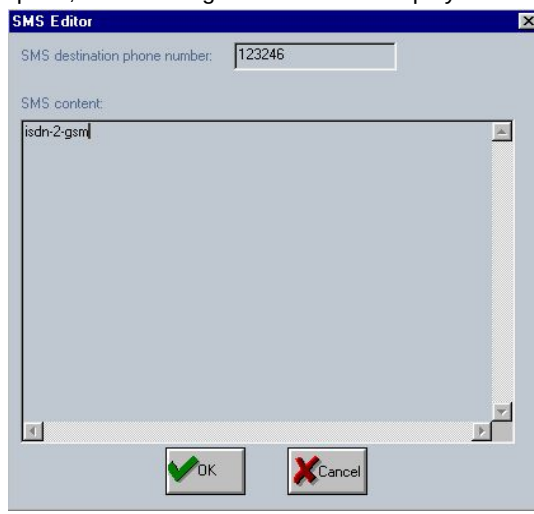


This window also contains several columns, like the one for received messages:
- "From" - the source of the SMS message; the SMS can be sent from "MAIL" (e-mail) or "PC" (the computer where OAM program is running).
- "SIM" - number of the SIM card, 0 or 1. Indicates the 3G/3G module through which the SMS was sent (SIM0 or SIM1);
- "Number" - the phone number where the SMS was sent;
- "Time" - the time when the SMS was sent. If the time is displayed together with the “ER” letters it means an error occurred when sending the SMS. In case of successful transmission, it receives an OK from the 3G/3G module. BRIGATE G3 tries to transmit the text messages up to three times, then gives up. The unsuccessful message is deleted from the queue and the “ER” letters are shown to indicate the error;

- "Text" - the text of the SMS was sent. The text is separated on several lines if <CR> or <LF> characters are found inside the text;
The sent SMS messages are stored for each BRIGATE G3 system into a file called "sendsms.bin", file located in the system directory (the dedicated folder that contains the files for every defined system).
You can use the filter "Filter records on period" for displaying SMS records on a selected time period. The button to activate the filter is "Filter".
Also, you may extract SMS records from the current file ("sendsms.bin"), using the filter "Extract records on period". You have to fill the time periods and the destination file name for the extracted SMSs. This file must have "snd" extension and will be located in the "ARCHIVES" subdirectory of the directory for the respective BRIGATE G3 system. The button to activate the extraction command is "Extract".
All files with "snd" extension from the "ARCHIVES" directory are displayed in the "Archives" list. You can select a file from this list and view the content with "View" button.

2.5.6. Sending a SMS from the PC

The option "Send a SMS" from the SMS menu allows you to send out a SMS message from the computer, where OAM program is running. This option is displayed only if the UMTS module is in the state "Registered" or "Speaking". You may send out SMS messages on both modules 3G/3G modules. If you click the "Send a SMS" option, the following window will be displayed:



You must type the destination of the SMS in the "SMS destination phone number" field and then enter the text to be transmitted by SMS in the area "SMS content". You can write it directly or import it from another application with “Copy” and “Paste” commands from the Windows operating system.

2.5.7. SMS2MAIL and MAIL2SMS

Besides sending SMS from the computer connected to Brigate g3, the OAM program performs for you email-to-sms and sms-to-email conversion functions. Those two options concern the facility to send the received SMS to an email address and respectively to retrieve the e-mails from a mail server and to send the text content as a SMS message. The SMS is sent to the phone to the number specified in the "Subject" field of the email.

If the Subject of a mail message is not a number or of the mail include attachments, then the respective e-mails will be deleted from the server.

Thus, it is better to use an e-mail account specially dedicated for this application (email-2-SMS via Brigate g3).

Based upon the number extracted from the “Subject” field, the SMS is sent through one of the two possible 3G/3G modules by analyzing the routing table. If the 3G/3G module which is supposed to be used is not available then the application will use the other module instead. The 3G/3G module may be unavailable because: no SIM card installed, initializing phase, searching for network, or in alert phase.
For using this feature, in the same directory where the "isdncfg.exe" is located a text file must be created in order to define the parameters for sending and receiving MAIL. The name of that file must be "smsinfo.txt". This configuration file is automatically created by means of the option “SMS Parameters”.
The program also features automatic selection of the destination e-mail address (see detailed description).

The options for **sending** a SMS form e-mail are:
- "Allow" - options are: "yes" or "no". The facility to send all received SMS to an email address is validated if the "yes" option is selected;
- "Server" - this field contains the IP address of the mail server.
- "Source Address" - the source email address
- "Destination Address" - the destination email address. This is the default destination address.

The OAM software can also check for an email address in the beginning of a SMS message. If "Mail Character" (in the example the used character is '#') or '@' is found before the first space character, then the SMS content will be sent to the e-mail address found there. If no mail character is found, the SMS message will be sent to the default e-mail address.
- "Subject" - this field (followed by the number from where the SMS was received) will be displayed in the "Subject" column of the mail client.
- "From Name" - this field will be displayed in the mail client in the "From" column;
- "Destination Name" - this field will be displayed in the mail client in the "To" column;

Note: all those fields are preceded by the characters "s ", from send. You must fill the "…" fields after the comma character (",").

The options for **receiving** SMS from e-mail are:
- "Allow" - options are: "yes" or "no". If the "yes" option is selected then the facility to connect and retrieve mail messages is validated;
- "Server" - this filed contains the IP address of the mail server.
- "Name" - the user name to be used to connect to the mail server
- "Password" - the password to be used to connect to the mail server
- "Confirmation" - if the "yes" option is selected then a confirmation message will be send at the e-mail address from which the SMS has been sent

Note: all those fields are preceded by the characters "r ", from received. An example is provided below where all fields are shown. You must fill the "…" fields after the comma character (",").
Content of the "smsinfo.txt" file:
#send MAIL parameters
s Allow, yes
s Server,...
s Source Address,...
s Destination Address,...
s Subject,...
s From Name,...
s Destination Name,...
s Mail Character, #
receive MAIL parameters
r Allow, yes
r Server,...
r Name,...
r Password,...
r Confirmation, yes (or no)

The option "**SMS2MAIL**" will display a list of the SMS received on both 3G/3G modules and sent to the email address specified in the file "smsinfo.txt". There is a waiting queue which can store (in absence of a connection to the mail server) up to 1.000 messages to be sent later to an email address.

The window called "VIEWING SMS2MAIL REPORT" will contain all e-mails sent to the mail server.
The columns displayed are:
- "Subject" - the subject of the mail;
- "Time" - the time and date when the SMS was received;
- "SIM" – 0 or 1, the indication of the UMTS/UMTS module from where the SMS was received;
- "Status" - the status of the mail: "Sent" when the mail was sent or "Unsent" when the mail was not sent yet;
- "Send Time" - the time when the mail was sent; this field is filled only when the "Status" field is indicating a sent mail;
- "Text" - the text of the mail. Each character <CR> or <LF> is replaced with a space character (" ");

The user can delete records from the queue by filling the "Delete" filter and by selecting the "Delete" button.
The option "**MAIL2SMS**" will display a list of the mail messages retrieved from a mail server. There is a waiting queue which can store up to 1.000 messages to be sent out through a 3G/3G module.

The window called "VIEWING MAIL2SMS REPORT" will contain all emails received from the mail server and sent out through a 3G/3G module as SMS messages.
The displayed columns are:
- "Number" - the destination mobile phone number;
- "Address" - the e-mail address from where the mail was received;
- "Receive Time" - the time and date when the mail was received;
- "Status" - the status of the SMS: "Sent" when the SMS was sent or "Unsent" if the SMS was not yet sent;
- "SIM" - the indication of the UMTS module through which the SMS was sent;
- "Send Time" - the time when the SMS was sent; this field is filled only when the "Status" field is indicating a sent SMS;
- "Text" - the text of the SMS. Each character <CR> or <LF> is replaced with a space character (" ");

The user can delete records from the waiting queue by filling the "Delete" filter and by clicking the "Delete" button.

***Note**: the application connects to the mail server and retrieves all the mails. A SMS message will be sent only for the mails which contain as "Subject" the destination phone number. If the "Subject" contains non-digit characters, then the respective message will be deleted.*
Also the messages are deleted if they do contain attachments.

Auto select

A very useful feature of the SMS2MAIL routine is its “automatic address selection” capability. The program searches the text of the SMS for the Mail Character, which may be **“#” or the well-known** "@" symbol. If such a symbol is found before the first blank space, the program extracts the mail address from the text of the message.

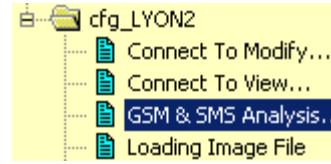
If the specified mail address is valid, then the e-mail message will be sent to the respective address. If the address does not exist, the e-mail will be sent as usual, to the address specified in the configuration file "smsinfo.txt"

Example:

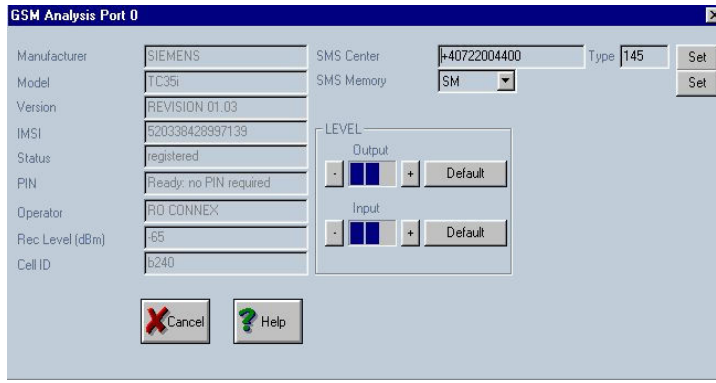
If the text of the SMS is x.name@provider.com greetings! this means that the text “greetings!” will be sent by e-mail to the address x.name@provider.com, if this is a valid e-mail address.

2.5.8. Analyzing a GSM /UMTS port

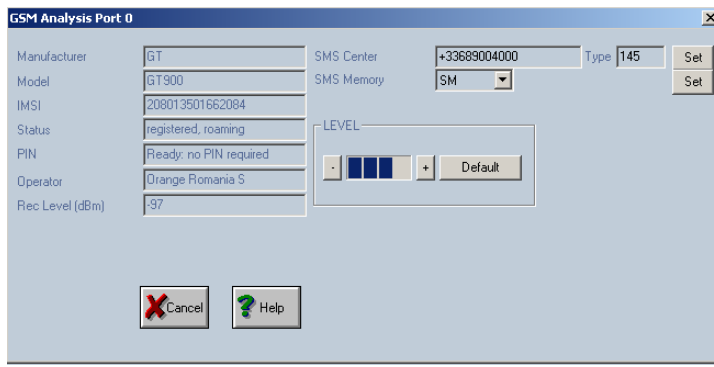
Click the “UMTS & SMS Analysis” option of the tree-like structure then go to an active mobile module.



If you select a 3G/3G module which is in the state "Registered" or "Speaking" then the “UMTS Analysis Port 0/1” window will be displayed. The images will be a little different, according to the type of the modules, which may be either UMTS module or UMTS module.
A UMTS module will display this info:



While an UMTS module will show:

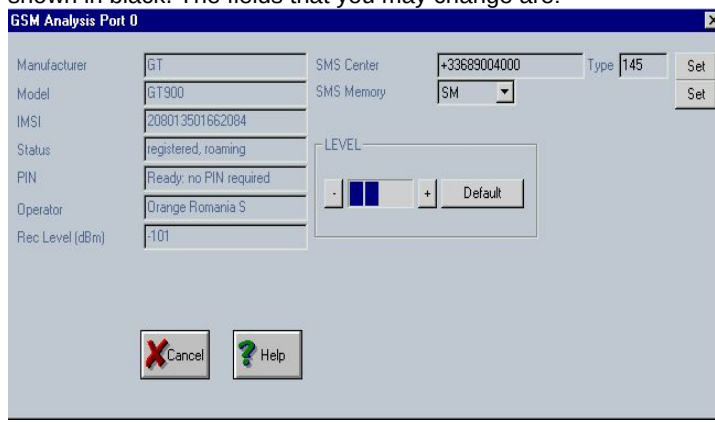


As shown above, the "UMTS Analysis Port x" for one of the ports 0 or 1 will contain several zones, as follows:

- information about the 3G/3G module and the mobile network, the fields shown below:
  - the manufacturer
  - the model
  - the version of the respective UMTS module
  - IMSI (International Mobile Subscriber Identity) code
  - Status of registering to the network (such as registered and roaming above)
  - PIN code (if the PIN code is required) or status (ready if no PIN code is need)
  - name of the operator for the respective mobile network
  - level of the received signal (in dBm)
  - identification of the respective mobile cell, if the network and the module support this feature.

The window periodically runs monitoring over the respective UMTS module, in order to read the reception level (shown in dBm) and the identification of the current mobile cell (for Brigate system - which is working with UMTS modules).

All of the previous fields are read-only (they are just displayed, they can't be edited). The read-only values are written with dark grey color. But the fields to the right can be edited; their values are shown in black. The fields that you may change are:

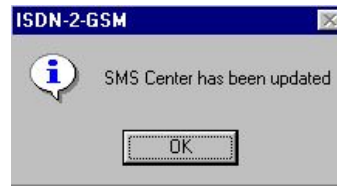


- **Level**

Depending on UMTS or UMTS modules type, the level is presented in different format: for UMTS modules there is just one LEVEL; for UMTS modules there is a level for input and another for output.

- **SMS Center**. It is the phone number of the center for SMS of the respective UMTS operator. The SMS Center is the one through which SMS originated from mobiles are transmitted. To find out this address for your current 3G/3G provider, use a mobile phone where you insert the SIM card. Get into the Menu of the mobile phone, option “Messages”. Select “messages settings” and then “default profile”. Now the screen of the mobile telephone should display something like “+40722004000”, that is the phone number of the message center. If no number is shown, you should enter it and save it with “Ok”. The maximum length of this address is 20 digits.
"**Type**" field refers to the type of address for the SMS Center. To make the changes, the buttons "Set" located on the same line as "SMS Center" and "Type" must be also be pressed.

The confirmation message is "SMS Center has been updated" as shown below:



- SMS memory. The location of the memory, where the SMS messages will be stored.
From the drop list you can select either "MT" for the memory of the UMTS/UMTS module or "SM" for the memory of the SIM card.
If you choose SM, the messages are stored into the SIM, so you may take the respective SIM card off the BRIGATE G3 unit and read it in another mobile phone.
To make changes for memory location, you must press the button "Set" located on the same line as "SMS Memory". The confirmation message is "The memory location has been changed".

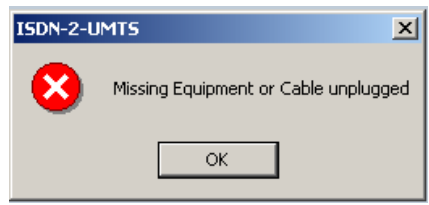
The message above also shows a set of figures related to stored SMS: the storage capacity of the SIM is of 40 received messages, but currently there are none (0) stored.
The second set of figures refers to transmitted SMS, etc.

- **LEVEL**

You can modify the audio level both for the output (hearing). The range of audio level is 0 to 3.
The sound levels can be decreased or increased individually with the buttons "-" and respectively "+".
The selected level is shown as a bar-graph.
You may use the "Default" button located to the right to restore the default level for input and/or output.
This default value is 1, in a range from 0 to 3.

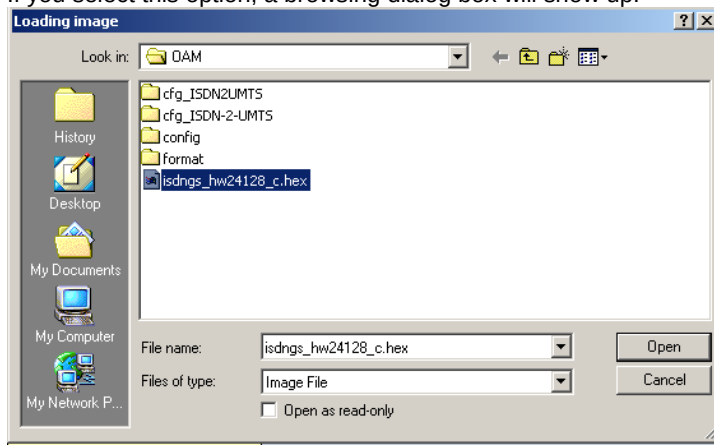
Note1: *Do not change these parameters unless absolutely necessary, as this may affect the voice quality.*

Note2: *If you make a connection with a BRIGATE G3 unit through one of the options: "Connect To View…", "Connect To Modify…" or "UMTS Analysis" and there is a supply voltage failure or the connection cable is unplugged you will get an error message: "Missing Equipment or Cable Unplugged".*



2.6. "Loading Image File"

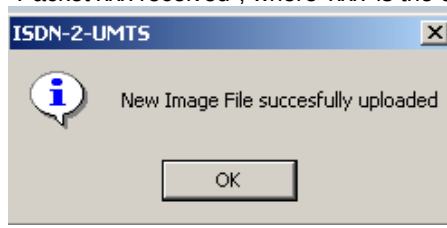
This facility allows you to load a new version of the firmware application running on the BRIGATE G3 system (to perform a firmware update).
The image files have the extension "hex" and are available form the website of the ARISTEL company.
If you select this option, a browsing dialog box will show up:



You must select the new software image to be loaded (with "hex" extension), then the program will ask you for the system's access password:

You can follow the upload process in the window called "Loading new image".

Also, you may follow the progress of the upload on the status bar, in the columns 2 and 3 (from left to right). The new software image is divided in packets which are sent to the Brigate g3 system. The reception of each packet must be confirmed.
The second column will display the text ">Loading Packet xxx From yyy", where "xxx" is the current loaded packet and 'yyy' is the total number of packets to be received. The third column displays "<Packet xxx received", where 'xxx' is the current confirmed packet.



When the loading process is ended without errors, you will see this confirmation message:

Important notices related to the loading of a new version of application software into Brigate: *Be careful when you load an update file. If you select a wrong kind of file, or if for different reasons firmware upgrading fails, the BRIGATE G3 equipment will no longer operate correctly. In some cases you will need to contact the manufacturer for repairs. To avoid this, follow carefully the rules indicated here***:**

- **Always backup**!

Before loading of the image file (menu "Loading Image File") it is strongly recommended that you save the current configuration of your Brigate g3 unit. Click the icon "Save current configuration". Then, after you performed the loading of image file, reload the saved configuration by clicking the icon "Load configuration".
If you don't do this your settings may be lost upon loading a new image file.

- **Correct version**

Make sure that you get the correct version. First, you want to make sure that the file you load is newer than your current firmware version. Second, check that it is the variant that is right for your equipment. The BRIGATE G3 devices may have two types of processors: codes are _64 and respectively _128.
Make sure that the image file that you load is suited for your processor. If you have older equipment, that doesn't show the _64 or _128 termination, it means you must look for firmware versions type _64.

- **No interruption**

Never turn off the BRIGATE G3 equipment or the computer while the firmware is being overwritten.
Make sure that the adapter and your PC don't turn off during update. It is better to use an uninterruptible power supply (UPS) for this purpose.

- **Always backup**!

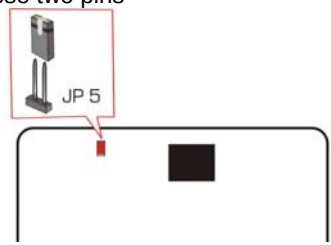
Remember that updating the firmware on the BRIGATE G3 equipment could cause some or all of the configuration settings to be lost, depending on the degree of change in the firmware. Therefore it is highly recommended that you save your current configuration before updating, then you restore it. To backup your settings, perform a Save, update the firmware, and then Load the saved settings, after you have updated the firmware.

- **Resuming after an interruption**:

If the loading of the image file is interrupted (the mains power fails, the operating system on the PC stops, the cable is disconnected, etc) before reaching its normal ending, the new software may not be fully installed so the equipment it won't work.
To correct this, you should first reset Brigate g3 (by taking off the supply jack for 10 seconds) and try again to load the image file.
If this is not successful, you must change a jumper setting to perform forced loading of the application.
JP 5 is located near the top left corner of the printed circuit board of Brigate g3, see indication of its position in the following drawing:

You must follow the procedure steps described below:

- power down Brigate g3 (unplug the supply adapter)
- open the plastic case of the device and look at the printed circuit board
- locate jumper JP5 (top left, near the connector for antenna, as shown in the following drawing) and place a jumper on these two pins



- start up the OAM application with the "l" option. For this you go to the MS-DOS command line and type: "isdncfg.exe–l"
- from the OAM program select the menu "Loading Image File"
- choose the image file you want to load into the BRIGATE G3 equipment. Note that in this forced mode of operation the authentication by password will not be requested anymore
- after the loading of the image file is ended, power down Brigate
- remove the jumper from pins JP5
- close the case of BRIGATE G3 equipment.

Now BRIGATE G3 can be used normally with the new image file.

Explication:
In normal operation, the boot loader is started first, upon power-up of Brigate g3.
When the loading of a new image file has been interrupted before normal termination, the program loaded in memory may be corrupted, so it won't work correctly.
To remediate this, you must place a jumper on pins JP5 to **force** the boot loader to start.
Then it can load the application and download a new (correct) image file for Brigate.

Remember to take the jumper off pins JP5 before resuming normal operation of the BRIGATE G3 equipment!

3. Print options

In all situations involving a print command a dialog box will appear. It features two options:
- print to printer (a printer must be installed into the system of the PC where you run the OAM program)
- print to file (in this case a file name is given, for saving data into that file).

NOTE

Please note that the OAM program uses two different types of windows.
There is a window for viewing content of the files and another window for viewing or modifying system configuration and for analyzing of 3G/3G modules or sending/receiving SMS.
This means that the action required to hide the current window may differ, depending upon what kind of window you are in:

- When you are working with files content you can operate upon the tree commands for the selected BRIGATE G3 system and when you have finished you click the right mouse button to hide the window.
- If you are viewing a configuration, you can hide the window by pressing right button of the mouse. If you are connected to a BRIGATE G3 system and the configuration window is above (on top), when clicking the right button you will be asked if you want to disconnect.

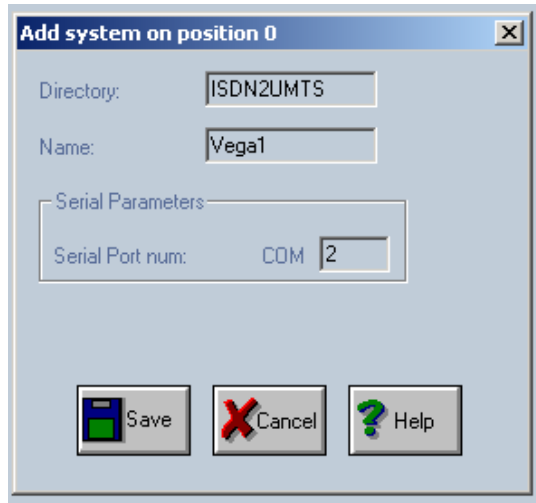
Connection indication

To the right end of the status bar there is a colored connection indication: its color is blue when you are connected to a BRIGATE G3 system and is red when you are not connected to any BRIGATE G3 system.

4. SYSTEMS

4.1. Add

If you select "System > Add" the following window will appear, asking you to add another Brigate g3 system to tree-like structure.

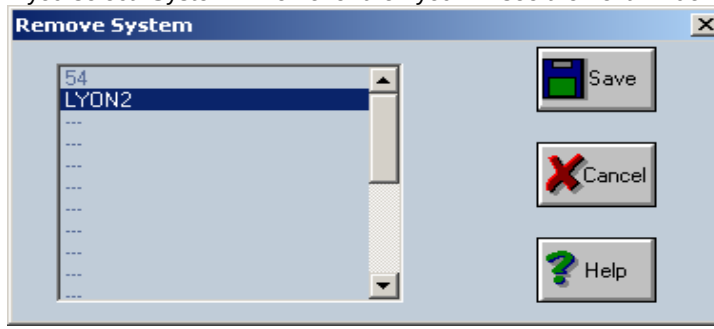


Directory - enter a name for the folder where the files downloaded from the Brigate g3 system will be stored.
On you hard disk there will be created a directory in the following format: "cfg_xxxxxxx" where xxxxxxx is the name typed in the "Directory" field. The folder will be created on your HDD in the same directory where the executable 'isdncfg.exe' is located.
Name - enter a name for the connection to the BRIGATE G3 system. This name is concatenated to "cfg_" and this will be the text used in the tree structure for identifying the respective BRIGATE G3 system.
Serial Port num - enter the serial port used for serial communication with the BRIGATE G3 system. The default value is COM1. This value must be in range COM1-COM12.
There is a text limit of 19 characters for the "Directory" and "Name" fields and 2 digits for the "Serial Port num".
A value check is performed for the serial port value. If the value is not in the range 1 - 12, an error message will be displayed and the incorrect field will be colored in red.

Also, value checks are performed upon the fields "Directory" and "Name". If one of this values is not filled or is the same as an already existing "Directory" or "Name" (which are used for another BRIGATE G3 system), an error message will be displayed and the incorrect field will be colored in red.
Save - saves the setting and adds in the tree structure a system with the modified settings
Cancel - closes the window without saving the settings.

4.2. Remove

If you select "System > Remove" then you will see the next window:



To remove a Brigate g3 system from the tree-like structure, select it, and then click on the 'Save' button: the selected system will be deleted from the tree structure.
Remember that the folder (directory) on your hard disk drive won't be deleted, you must erase it manually. If you select Cancel the window will be closed.

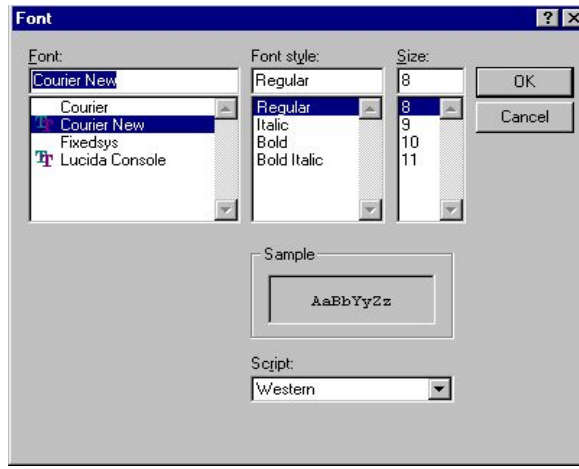
Note: There is also a tree command for **changing** parameters of BRIGATE G3 systems. The parameters you may change are Name and number of serial port where BRIGATE G3 is connected.

5. FACILITIES

This group of command allows you to change the aspect of the graphic interface of the OAM program (fonts, colors), to view or print configuration files, and also to execute different commands.

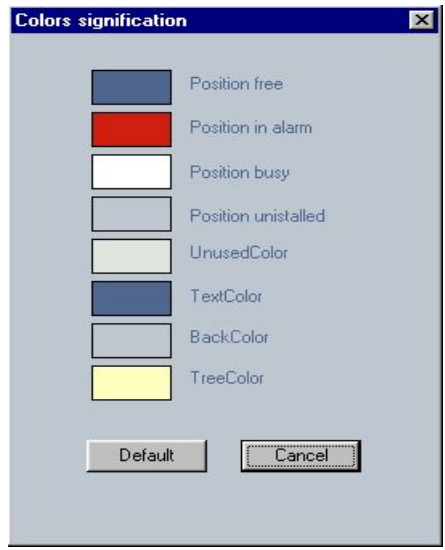
5.1. Font

If you select "Facilities > Font" the following window will be shown:



In this window you can select according to your preferences the font, the style and size of characters. The changes will only affect the windows that are displaying the system configuration.

5.2. Colors signification

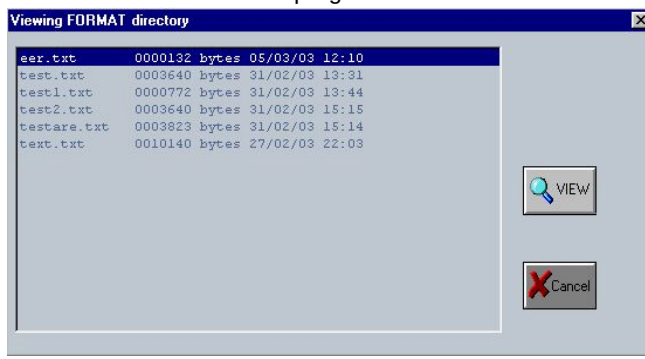


You may alter the allocation of colors used in several windows of the OAM program.
The colors are valid for the windows: "Modify Configuration", "Viewing Configuration", "Analyzing UMTS modules" and "Last Configuration" of the OAM program. The default significance is explained below:
- Dark blue - that position is available (free)
- Red - that position is in alarm
- White - that position is already used (busy)
- Light blue - that position is not installed (the checkbox "Installed" from the window for configuring the settings of the port has not been installed).
The red, white and light blue will be used in further developments.
There are also shown the colors used for "Text Color", "Back Color" and "Tree Color".
All those colors can be modified according to your preferences, by clicking on it.

You select the color you want, either from the predefined "Basic" colors, or from the detailed zone of custom colors. The change of colors is instant, there is no need for a “Save” button.
The "Default" button is used to restore to the original color set.

5.3. View print files

This is a facility for viewing text files located in the "FORMAT" folder. Those files are generated by printing data into files from different locations of the OAM program.



To see a file, select its name from the list and click the button 'View'. A window for viewing/editing the file now appears.
You can also perform searches by using the buttons marked 'FIND' and 'NEXT' or you can send the listing of the file to the printer.

5.4. LOG FILES

There are several types of files used for the OAM program for the BRIGATE G3 equipment.
The log files are named <current date>.log and contain information about the events that took place: date and time for the making and respectively breaking of connections concerning the selected BRIGATE G3 system, file transfer and so on.

Field	Description
Date	dd-mm-yy
Hour	xx:xx:xx
Event	Description of the event that was performed

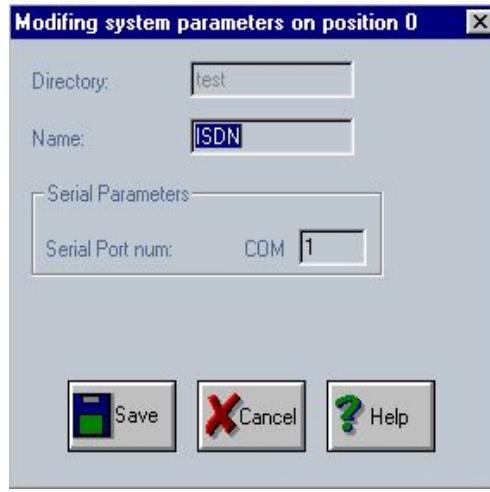
The lch (changes) files are named <current date>.lch and include information about the changes (modifications) performed to the BRIGATE G3 system.

Field	Description
Date of change	dd-mm-yy
Time of change	xx:xx:xx
Modification	Description of the change that was performed
Status	OK - the change was successfully ERROR - the change was not successful

6. TREE COMMANDS

6.1. Modify parameters

If you select "Parameters" tree command the following window it will be shown:



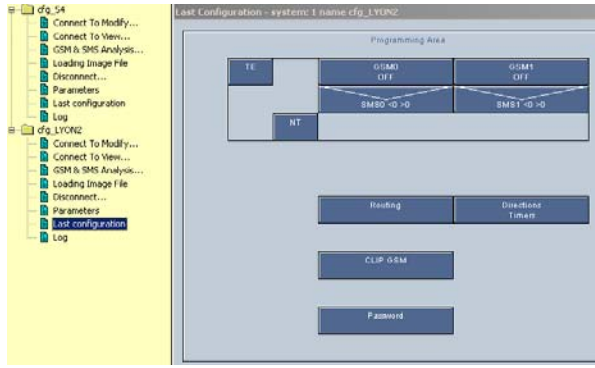
The Directory is shown in gray color because it is already defined, you can't change it.

You are allowed to change the name of the BRIGATE G3 system and the number of the serial port used for connection (in range COM1-COM12).

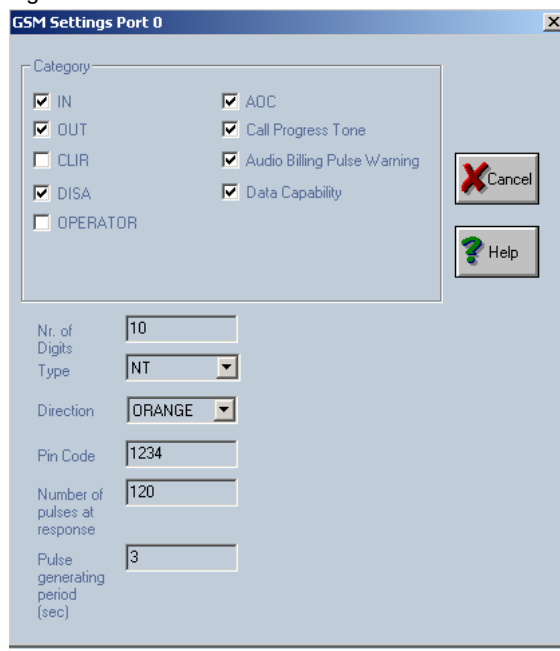
There is a length limit of 19 characters for the "Name" field and 2 digits for the "Serial Port num".
A value check is performed for the serial port value. If the value is not in the range 1 - 12, an error message will be displayed and the incorrect field will be colored in red.
Also, value check is performed upon the "Name" field. If this field is not filled or the name you inserted is already existent, (which is used for another system), an error message will be displayed and the incorrect field will be colored in red.

6.2 LAST CONFIGURATION

With this option we can see last downloaded and possibly modified configuration for the selected BRIGATE G3 system.
If you select this option the "LAST configuration" window will be displayed as shown below:



You will be able to view **offline** the last configuration: route table and CLIP table, the settings for each 3G/3G module.
In the next example you can see the last settings for the UMTS 0 module of the BRIGATE G3 equipment that was connected to the OAM program:



Please note that "Save" button in all windows is hidden, there are visible only the buttons “Help” and “Cancel”.
This means you **cannot perform changes** of the parameters, you are allowed only to look at the already existing settings.
This is applicable for all windows in the “Last Configuration” mode.

6.3 HELP

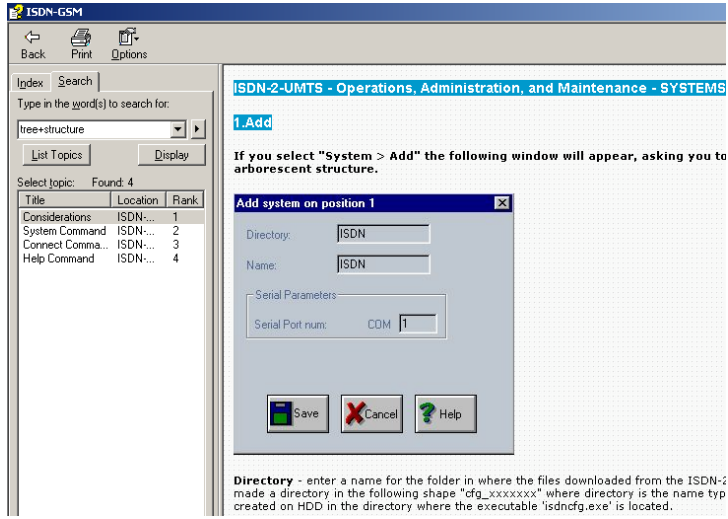
This is the command for showing the User Manual in electronic format.

The left pane of the help window shows an index of pre-defined keywords where you can search for the item (Icon command, menu command, Tree command, general considerations) you want to learn about.

The right pane offers detailed pages structured as "Menu description" (Systems, Facilities and so on) and respectively the "Tree Commands".

The left pane of the help screen also includes the search facilities. You click on the "Search" tab and enter the word or the expression you want to look for, for example <tree structure>, then click "List Topics" to start the search.

The help program will display all the occurrences it has found, together with the name of the help page where they are located and their rank (1, 2, 3 etc).



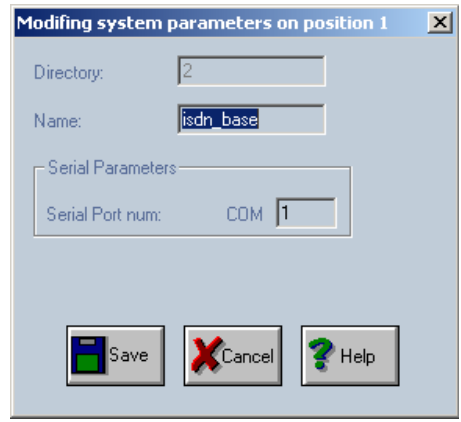
Please note that, according to the general rules for text search, if you enter several words in the "Search field", the help program will look for occurrences of EITHER word. This is like telling the help program <<search for “tree" OR for “structure">>.

If you want to be more specific, you should select the Boolean operator AND instead of OR. For instance, if you want to know about the tree structure, you must search for "tree structure", using quotes. In this case, the help program will display **only** the occurrences where ALL of the words inside the quotes are found together.

You select one of the occurrences and click "Display" to show the respective help page in the right pane. The words or expressions you look for will be highlighted (marked with reverse video). If you want to search further inside the help page, press Ctrl F and a "Find" window will show up. You type the expression to search in the field "Find what". You may select additional options: "Match whole words only" and "Match case" if you want to narrow the search. You must specify the direction of the search inside the page, Up or Down. "Find Next" shows the following occurrence of the word you want to search.

The Search function of the help program remembers the words you entered, even if you close down the help screen.

When you run "Help" next time the same word or expression will be displayed.
The window of each command now has a "Help" button of its own.



This means that you no longer need to issue the "Help" command and then search or the item of interest.
When you run a command, for instance "Parameters", you just click its "Help" button and the respective help window will be displayed, showing you information about that particular command.

7. GLOSSARY

Here you have the explanation of some terms and acronyms used in the user manual for the BRIGATE G3 system.

ANI - Acronym for **Automated Number Identification**; A number (typically telephone number) that is sent along the phone line at the beginning of a call. It identifies the calling party to the receiving party. Named also Caller ID. This is used by the OAM program for automated routing of incoming calls according to their ID.

AOC – Acronym for "Advice of Charge", signaling protocol used to send charging (billing) information to the phone exchange where BRIGATE G3 is connected. Performed by means of billing pulses. AOC is the charge for the call, computed by the mobile phone and expressed in terms of Home Units. The charge pulses are sent at the beginning of the call and during the call, according to two adjustable settings: the number of initial pulses and the time delay between two billing pulses.

Boot loader – bootstrap loader, small program that launches first upon power up and helps loading the operating system. Any computer system can execute only code that is stored in DRAM memory, but the operating system is stored on hard disk drives or Flash memory. In the case of Brigate g3, the boot loader starts first when you power up the equipment and allows loading of the main application that controls the ISDN to UMTS interface.

CAS - Acronym for **Channel-Associated Signaling.** A type of **signaling** in which the signals needed to switch a given telephone circuit are transmitted via the voice circuit itself (the same channel that will afterwards be used for the call). Also, the signaling information can be sent through a signaling channel permanently associated with the voice channel.

CLIP - Acronym for **Calling Line Identity Presentation.** For end-users, this service is handy in order to screen incoming calls, prepare the specific response, greeting the caller by name or looking up for missed or unanswered phone calls. The BRIGATE G3 unit makes use of the CLIP facility to identify the subscribers who called and route the calls according to their Caller ID.

DID - Acronym for **Direct Inward Dialing**. Allows a party calling from outside into a PABX to be connected directly to a local extension, without need for assistance from the operator.

DISA – Acronym for **Direct Inward System Access.** This function allows an outside caller to directly access a local subscriber of the phone exchange by using DTMF codes.

DTMF - Acronym for **Dual Tone Multi Frequency,** also known as "touch tone". Advanced method for dialing a number, instead of the older Pulse mode. When you press a key on the keypad a combination of two audio frequencies is sent on the line.

IMEI - Acronym for International Mobile Equipment Identifier. 15-digit number that uniquely identifies an individual mobile terminal wireless device. While IMSI is subscriber-related, the IMEI is equipment-related. Specific for a certain mobile terminal (phone or modem).

IMSI – Acronym for International Mobile Subscriber Identity. Unique code number (for all the world) that identifies a UMTS subscriber to the network. Linked to the user account information at the network operator. IMSI resides in the SIM card.

ISDN - Acronym for **Integrated Services Digital Network**.
Worldwide digital network providing high-speed connection between the terminal devices, (telephone, fax machines, computers) for a wide range of telecommunication services, using the existing telephony infrastructure. BRIGATE G3 interfaces with an ISND-BRI connection to one or two mobile networks.

ISND Connection Type – The interfaces of Brigate g3 may work either in Point-to-point" mode or in and "Point-to-Multipoint" mode. You should select this according to the type of the equipment (digital PBX or telephone) that Brigate g3 is connected to. The Point-to-Point is used to connect only two devices, and it uses the DDI service (Direct Dialing In). You should use this in the most usual case, when Brigate g3 is connected to an ISDN phone exchange.
But when you have the Brigate g3 unit connected to one or several ISDN phones or modem, you can no longer use the Point-to-Point. Instead, you must use the option "Point-to-Multipoint", which allows you to connect several ISDN equipments (form two up to eight). Instead of DDI, it uses the MSN service (Multiple Subscriber Number). The "Point-to-Multipoint" connection should be used for ISDN phones or other ISDN terminals.

PBX - Acronym for Private Branch eXchange. The PBX is a small, private version of the larger central switching office of the phone company. A PBX is a **private** telephone switch. It is connected to groups of lines (junctions) from one or more central offices and to all of the telephones at the location (subscribers, extensions) served by the PBX. Current exchanges are in fact PABX, automated PBX, which don't require a human operator to route the calls. BRIGATE G3 was designed to work together with an ISDN (digital) PABX to route the calls.

Physical layer: Layer 1 in the Open Systems Interconnection model. OSI is a standard description or "reference model" for how messages are be transmitted in a telecommunication network. Layer 1is the physical level, which conveys the bit stream through the network at the electrical and mechanical level. BRIGATE G3 allows you to de-activate (disable) the physical Layer of the ISDN connection when there are no calls.

PSTN - Acronym for Public Switched Telephone Network (s).
It is the classic international fixed telephony system based on copper wires that carry voice and data. Analog (mostly) or digital technology is used to provide voice grade services for the users that access that network via an **analog** interface.
Signaling – the totality of information exchanged between the phone central office and the terminal device or between two phone exchanges. These information are required in order to establish, maintain, and clear switched telephony connections. The signaling can be type **CAS** or **CCS**.
SMS - Acronym for **Short Message Service**; means the transmission of short text messages to and from cellular phones. The messages must be text only (no images or graphics) and not longer than 160 alpha-numeric characters. Operators of Mobile Phone Networks use a spare data channel to send SMS messages. You may send SMS to another mobile subscriber, the mobile operator can send you phone settings over-the-air or commercial companies may send dedicated content to your mobile terminal. Also, the SMS2MAIL and MAIL2SMS functions of the OAM program perform automatic conversion between e-mail and SMS messages.
TA - Terminal Adapter. The terminal adapters operate adaptation between ISDN interfaces and standard terminals. When you connect a Terminating Equipment (phone, digital fax machine) to ISDN, it must be an ISDN-compatible device (TE-1). Other devices, for example a computer, are called TE-2 and must be connected to ISDN via a Terminal Adapter. If you want to connect analog phones to BRIGATE G3, you must use such a terminal adapter.
TEI Management – Acronym for "Terminal Equipment Identification". This is an internal ISDN identification of connected phones. Brigate g3 lets you set the TEI management either on "0" or on "auto", depending upon the type of ISDN connection used. For the Point-to-point connection (default), a value of "zero" must be used for TEI.
If you change the connection type "Point-to-multipoint", TEI Management field switches to "Auto", which is the value that must be used in case of point-to-multipoint connection (up to eight ISDN devices connected to the same interface).
Timer Call – timer for the interval, while BRIGATE G3 waits for the digits of the phone number to be dialed.
Timer Callback – timer used to implement the callback service. Establishes the time threshold, to discriminate between callback and ordinary calls. If the calling party whose identity is found the CLIP table (with the callback option) drops the call in a time interval less than "Timer Callback", then BRIGATE G3 will call back the calling party. However, if the calling party does not end the call before the "Timer Callback" seconds expires, no callback action will be performed.

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