MAINTENANCE AND OPERATION
INSTRUCTION MANUAL

DB4000

Server System
Version 5

DEVA® BROADCAST

07/29/10/09/18

Contents

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65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Introduction

Deva Broadcast Ltd. was established in 1997 as a broadcasting and telecommunications equipment importer for Bulgaria and Eastern Europe regions. Subsequently, Deva Broadcast Ltd. has developed and produced a wide range of low and mid power transmitters, RDS/RBDS Encoders and Decoders, Modulation Monitors, Remote Controls, Site monitoring and other systems for many companies. Our high degree engineers accomplish their bright ideas through successful engineering, marketing and management in Deva Broadcast's Headquarter in Bulgaria.

During the last ten years the company products have become our partners' best sellers. After detailed marketing analysis, our team has decided to launch its own brand products based on the latest technologies in the broadcasting business. The company's main goal is to design, develop and offer a complete line of high quality and competitive products for FM and Digital Radio, Radio Networks, Telecommunication Operators and regulation authorities. We base our market authority position on our good after sales support and relation with the clients.

Since 2003 Deva Broadcast Ltd has been ISO 9001:2000 certificated by SGS quality certification bureau.

The contractors of Deva Broadcast Ltd. are satisfied with the permanent business comfort and to their own confession they owe it to a great extent as well as their prosperity to the loyal partnership of our company.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

General Information

DB4000 Server System is the most cost effective system for permanent monitoring of the quality and continuity of up to 50 FM Radio Stations with innovative features such as TCP/IP connectivity, audio streaming and automatic alerts on out of predefined ranges in regards with ITU-R. In case of any faults in the transmission the maintenance staff will be immediately alerted via E-mail or SMS which allows the technicians to restore a normal service as soon as possible. This tool enhances the radio stations' quality control management.

DB4000 Server System allows you through its TCP/IP and GSM Connectivity to monitor all the RDS/RBDS and some other signal parameters from anywhere. You can easily receive the channel status or listen to the audio from anywhere, using your mobile phone. You can listen to, skim and record the audio from any station.

DB4000 Server System enables you to monitor your own frequency continuously and at the same time to be informed about your neighboring stations. The included PC software allows you to control unlimited number of field installed units, to observe from the monitoring sites all the parameters and measurement values of your network. DB4000 Server System is a total control solution for remote monitoring networks. The map interface enables getting immediate and clear view of the monitoring location or the whole network. Due to the universal cartographic interface any kind of maps can be used. The user can access the equipment and the alarm directly from the map just by a click on the desired location.

DB4000's Server System is the best solution for the management of multi-site remote DB4000 devices. It is a server-based system that can manage alarms, measurements and data from the field units. The controlling software offers a very intuitive interface to create schedules for full control of single or big number of monitored radio stations.

The Band Analyzer function presents an overview of all the FM parameters together with the RF signal strength of the station. The Band Scanning is possible within FM band limits. The generated spectrum diagram shows the RF Level vs. the Frequency.

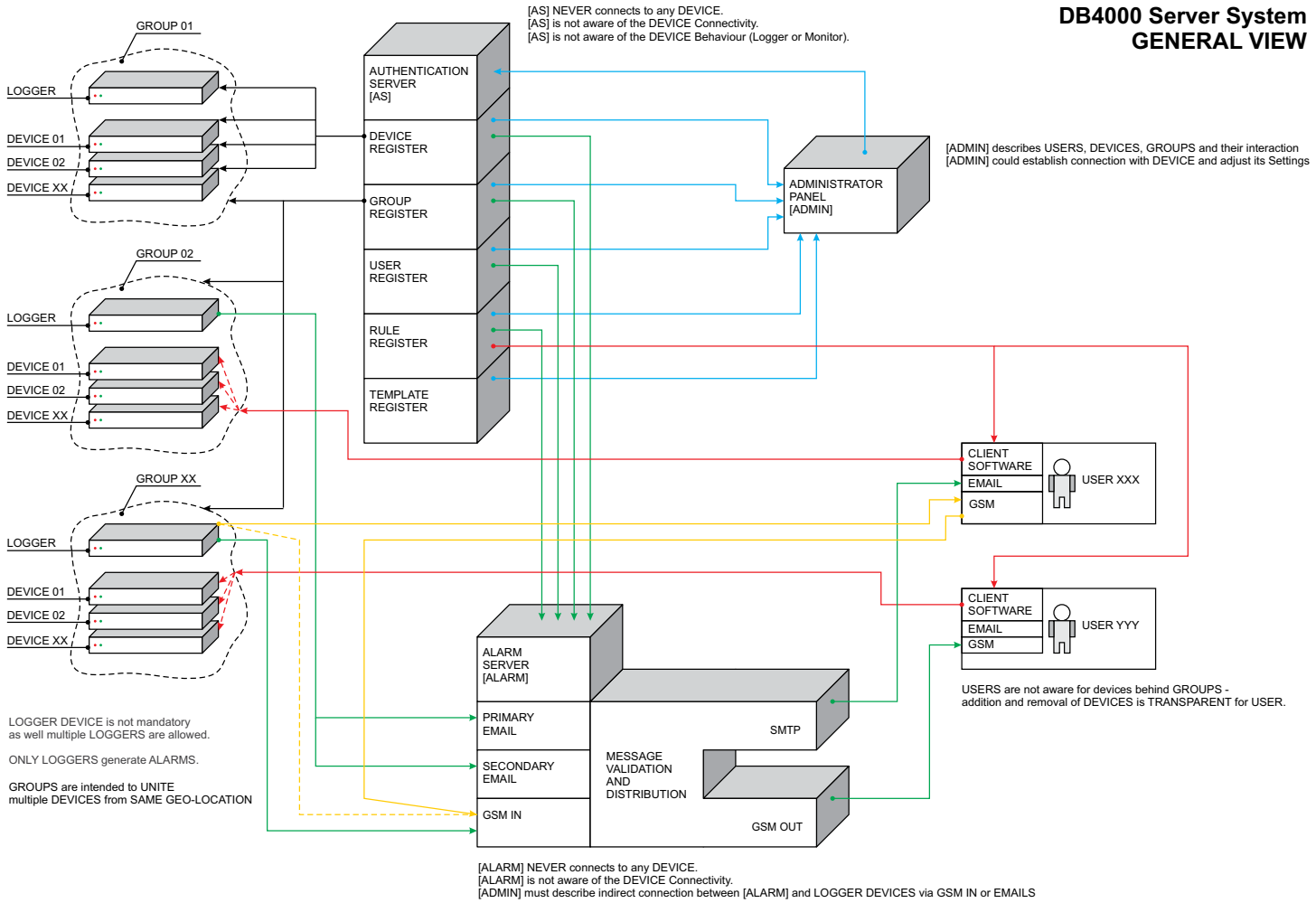
The Deva Broadcast's DB4000 Server System is a superb controlling system, a solution designed as a powerful tool for permanent off-air monitoring of your stations.

Our product DB4000 Server System is a powerful monitoring system, built on our long-standing expertise in the broadcasting equipment industry. We have created this product in the spirit of innovation and the latest technologies. This is a very important project to us, developed to meet the needs of the most demanding professional radio broadcasting operators and regulatory authorities.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

System Description

BLOCK DIAGRAM



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E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

FEATURES

- TCP/IP Remote System Management and control via Internet
- Very Intuitive Application Interface
- Alarm Management Centralization
- Alarm dispatch via E-mail and/or SMS
- Complete status reporting with SMS
- Remote RF and RDS Measurements
- Remote Listening via optional GSM modem
- Audio Program MP3 Streaming
- Cartographic interface with site location
- Remote DB4000 devices configuration
- FM Band 87 - 108 MHz Basic Spectrum Analyzer
- Selectable wide/narrow IF bandwidth
- MPX, PILOT & RDS deviation meters
- Stereo Decoder; Stereo Presence Detection
- LEFT and RIGHT demodulated audio level meters
- RDS and RBDS decoder with BER meter

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Web: www.devabroadcast.com

Before you start

MINIMUM SYSTEM REQUIREMENTS

Pentium(R) Processor or Compatible
Windows XP SP2 or higher
Windows Vista
Windows 7
1 GB RAM
50MB free hard drive space for installation
16 or 24-bit graphics color depth
1024 by 768 pixels screen resolution
Screen DPI setting to 96 dpi
Universal Serial Bus 2.0

OPERATING RECOMMENDATIONS

It is highly recommended to install the system on a dedicated computer accessible by the engineering staff only. To prevent non authorized access it is recommended the Server System to be installed on a PC with limited access.

For the normal and reliable operation of the DB4000 Server System and reaching higher stability and results we recommend to follow the next list of instructions:

• Please, install the PC only at places with good air conditioning and an ambient temperature range extending from 10 to 50°C. But because adjacent, less efficient equipment may radiate substantial second-hand heat, be sure that the equipment rack is adequately ventilated to keep its internal temperature below the specified maximum ambient temperature.

• We do not recommend installation in rooms with high humidity, dusty places or other aggressive conditions.

• Please, use only already checked power supply cables and sources. Using of shielded cables is strongly recommended.

• We strongly recommend connecting the DB4000 Server PC only to reliable power supply sources. In case of unstable power supply, please use UPS (Uninterruptible Power Supply).

• Please, use DB4000 Server PC only with placed top cover to avoid any electromagnetic anomalies which may cause problems of the normal functionality of the unit.

• Please, connect DB4000 Server PC only to good quality Internet connection. This is very important for the normal remote operation of the System.

• Please, check if your network settings pass through all the data traffic required for the DB4000 Server System.

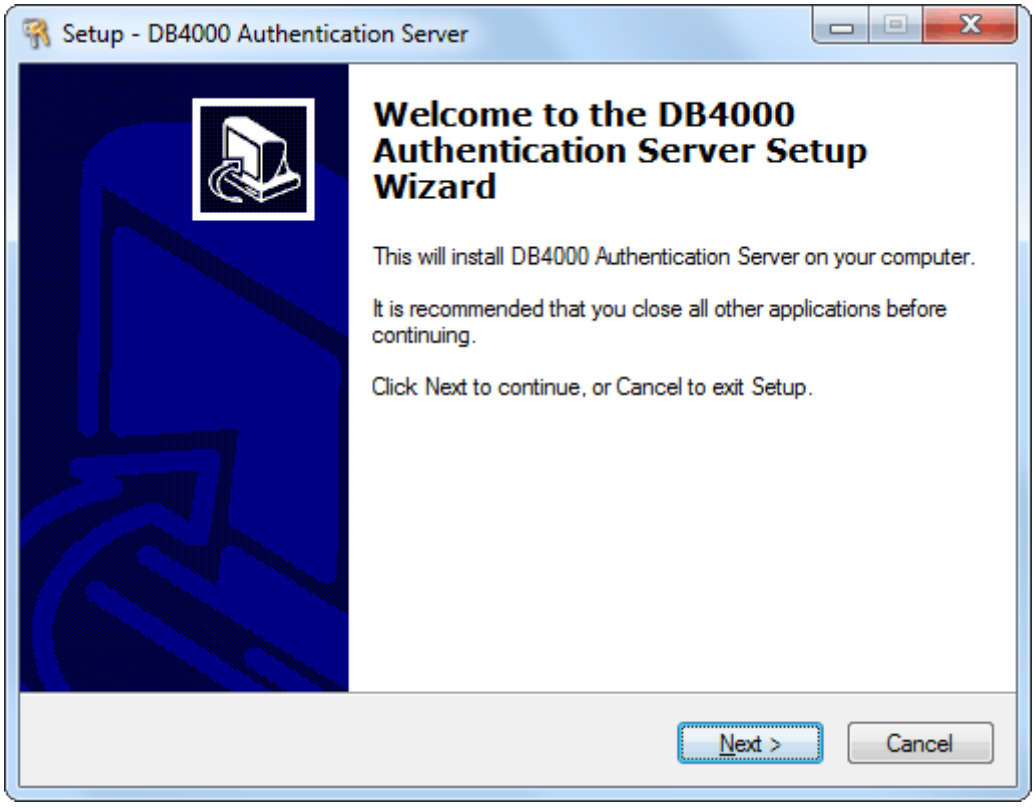
65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

DB4000 Authentication Server

Authentication Server is an indispensable module of DB4000 Server System that must be installed and launched on the Server's PC, providing for the normal operation of the system. Procedures of its installation and configuration will be explained below. Its connection and correlation to the other DB4000 Server System modules can be traced on the Block Diagram of DB4000 Server System (see "Block Diagram" on page 8).

INSTALLATION

Insert the supplied CD. The software has an 'autorun' utility to automatically begin the installation routine. However, in the event that the Setup Wizard does not automatically start, click Start, then My Computer, and then double-click the CD Drive (D:). Within folder "Software" double click the file: "DB4000 Authentication Server.exe" to launch the Wizard (shown below) that will guide you through the several installation steps.



Unless you have a specific reason to make changes simply accept the default recommendations and click Next> at each step.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

STARTING

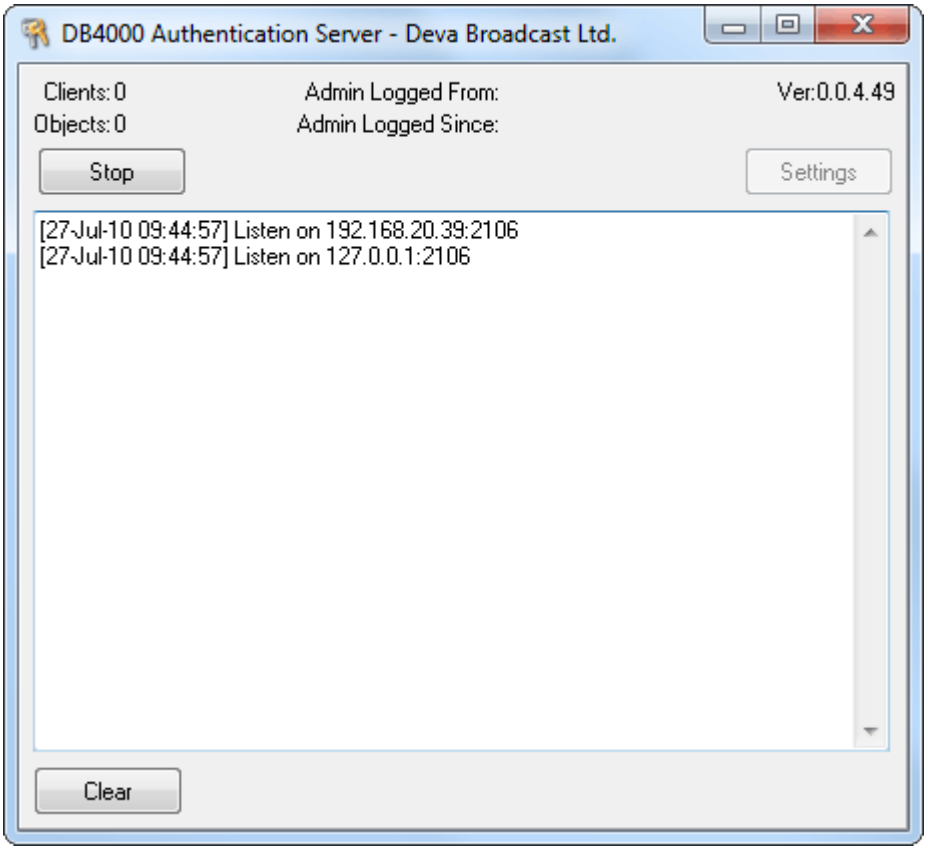
You can launch the program by using Start\Programs\DB4000 Authentication Server\DB4000 Authentication Server or any of the shortcuts that were created on the Desktop or Quick Launch Area (if such shortcuts were created depending on your choice at the time of installation).

Upon starting DB4000 Authentication Server will run minimized in the System Tray.

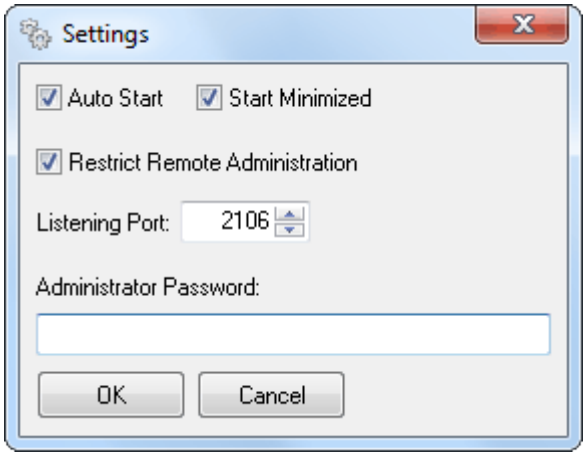
65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

CONFIGURATION

To configure DB4000 Authentication Server right-click its icon loaded into System Tray and select “Restore”. A window as the one shown below will appear.



To start the configuration process you must stop running the Authentication Server software by clicking “Stop” button followed by clicking “Settings” button. A window as the one shown below will appear:



Auto Start - if checked the application will become active upon its launching. Otherwise it must be started manually by clicking on the "Start" button.

Start Minimized - if checked the application will be minimized in the System Tray upon it's launching.

Restrict Remote Administration - if checked all remote administration will be disabled and administration of the Server can be performed only from the PC where the Server is installed.

Listening Port - this is the port used for interconnection with other System modules.

Administrator Password - enter the password, required to access Authentication Server from other DB4000 modules. Password must be *exact* 40 symbols long.

ATTENTION: It is reccomended not to use the default password!

NOTE: To bring into effect the setting made, please restart the software.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
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E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

MAINTENANCE

Once started the DB4000 Authentication Server do not require any further immediate attention. For security reasons application will log all incoming connections from other DB4000 System modules. Last activities will be shown into application window. Detailed log could be found under the “logs” folder where application is installed.

IMPORTANT: Only one Administration Session is allowed no matter remote or local. Also Administration Sessions that are inactive for more than 15 minutes will be automatically disconnected.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

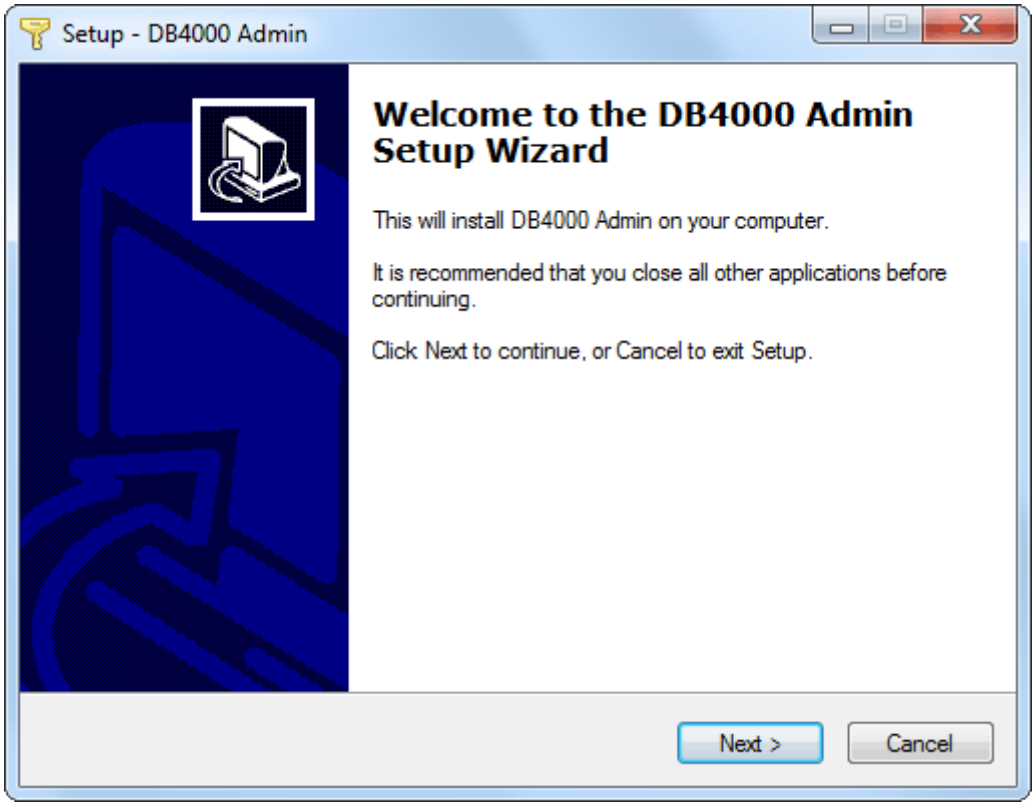
DB4000 Admin

DB4000 Admin Software is a module of DB4000 Server System that is used to add or remove new Devices and to edit their settings. It is software to add new Users or to remove them, to administer their rights by applying Rules and Templates and editing or removing them. It is to add, edit or delete Groups of DB4000 devices and to add or remove devices within a group.

DB4000 Admin Software is the Administrator's tool to manage Users, Devices, Groups and their interactions.

INSTALLATION

Insert the supplied CD. The software has an 'autorun' utility to automatically begin the installation routine. However, in the event that the Setup Wizard does not automatically start, click Start, then My Computer, and then double-click the CD Drive (D:). Within folder "Software" double click the file: "DB4000 Admin.exe" to launch the Wizard (shown below) that will guide you through the several installation steps.



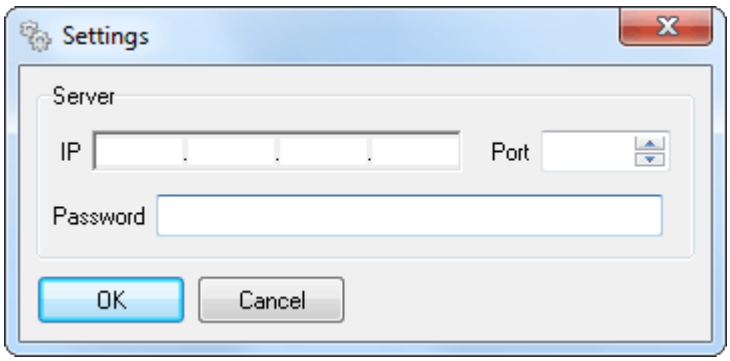
Unless you have a specific reason to make changes simply accept the default recommendations and click Next> at each step.

STARTING

DB4000 Admin can be launched either by using Start\Programs\DB4000 Admin\DB4000 Admin or by any of the shortcuts on the Desktop or Quick Launch Area (depending on the settings used at the time of software's installation).

CONFIGURATION

When started for the first time DB4000 Admin Software will need some initial settings and configuration to be carried out. To perform these settings select "Settings" from menu "Settings". A window as the one shown below will appear:



This is the window where the System Administrator must enter the Server's IP address, Port and Password.

NOTE: Password must be typed exactly as entered into Authentication Server Settings i.e. it is case sensitive.

ATTENTION: Connection to the Server will fail if any of the settings in the above windows is not correct.

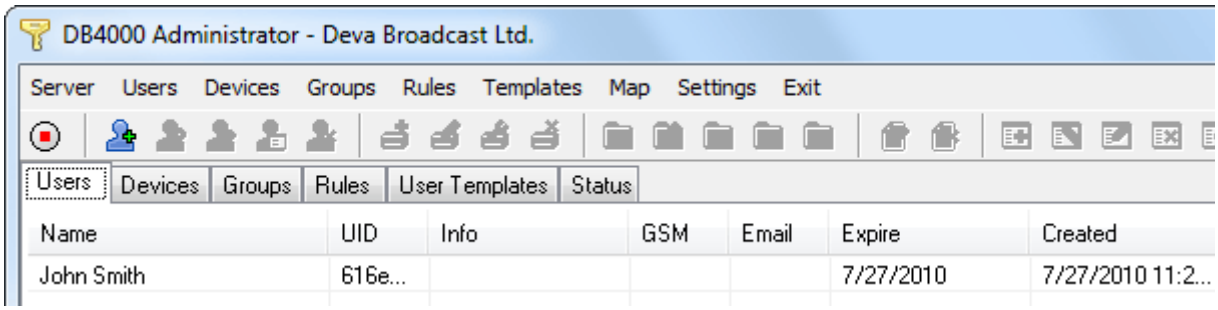
CONNECTING TO THE AUTHENTICATION SERVER

To start running Admin Software it must be connected to the Authentication Server.

To connect to the Authentication Server:
- press (Connect button);
- or select “Connect” from “Server” menu;

USERS

List of all System Users can be seen by selecting “Users” tab:



User’s Identification

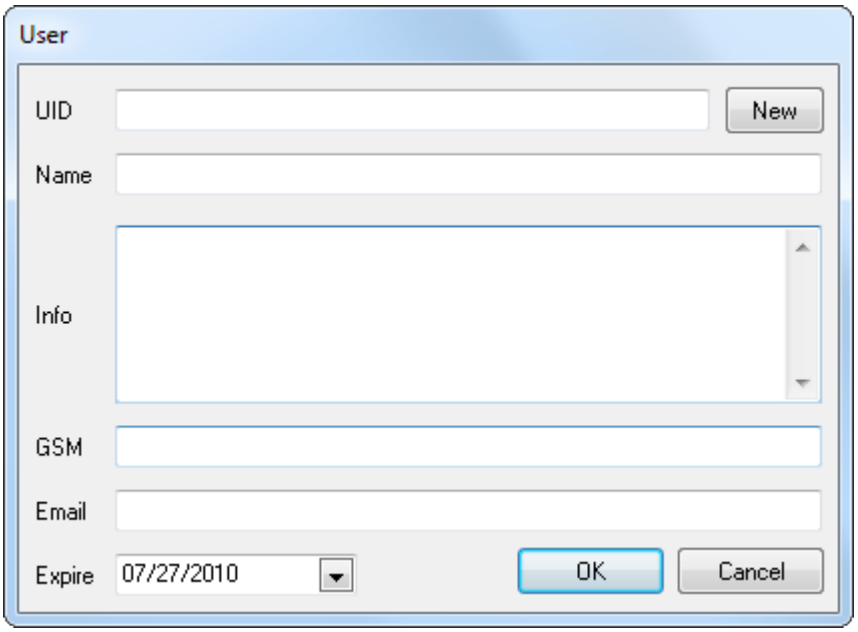
User’s identification in DB4000 Server System is performed by 40 symbols key that is unique for each of the users and NO User can log into the system without such key. This key comes to the users in the form of a hardware dongle containing the key. To have access to the System any of the users must apply the dongle to the PC where the DB4000 Client software is running. Hardware Keys (dongles) are provided to the users upon their registration to the System.

New User without Hardware Key (dongle)

To create a New User without Hardware Key (dongle) open the list of users by selecting "Users" tab and:

- press (New User button);
- or select "New User" from "Users" menu;
- or right click on the list of users and select "New User";

A window as the one shown below will appear:



UID is a mandatory field and it is *User Identification*. Whenever you try to create a new user with hardware dongle key this number comes automatically from the dongle. If a key is not applied to the PC then the software will generate such number by itself. The UID can be replaced by another one, such that is known to the System's Administrator.

Name is a mandatory field and it is the User's Name (-s).

Info is an optional and rather descriptive field where some additional information in concern with the specific User can be placed. For example Company's name, Organization, etc...

GSM is an optional field where User's GSM number can be written down.

NOTE: GSM number is used to address the GSM messages in case the User has an option for SMS alarms reception as per his License Agreement. The User will not receive GSM alarms if this field is blank.

Please note the style: "+" sign, followed by the Country Code and the specific number.

Email is an optional field where User's e-mail address can be written down.

NOTE: Email is used to address the e-mails in case the User has an option for e-mail alarms reception as per his License Agreement. The User will not receive e-mail alarms if this field is blank.

Expire is the date of User's License expiration.

New is a button to generate an UID number in case that you would like to create a new User without using hardware dongle.

New User with Hardware Key (dongle)

To Create a New User with Hardware Key (dongle) first plug-in the dongle into any USB port of the computer where the Admin software is installed. Upon dongle insertion the icon (New User from Hardware Key) will become active. Then open the list of users by selecting "Users" tab and follow the next steps:

- press (New User from Hardware Key button);
- or select "New HKey User" from "Users" menu;

NOTE: The field of User's UID will be pre-filled with his UID number as automatically taken from the Hardware Key (dongle).

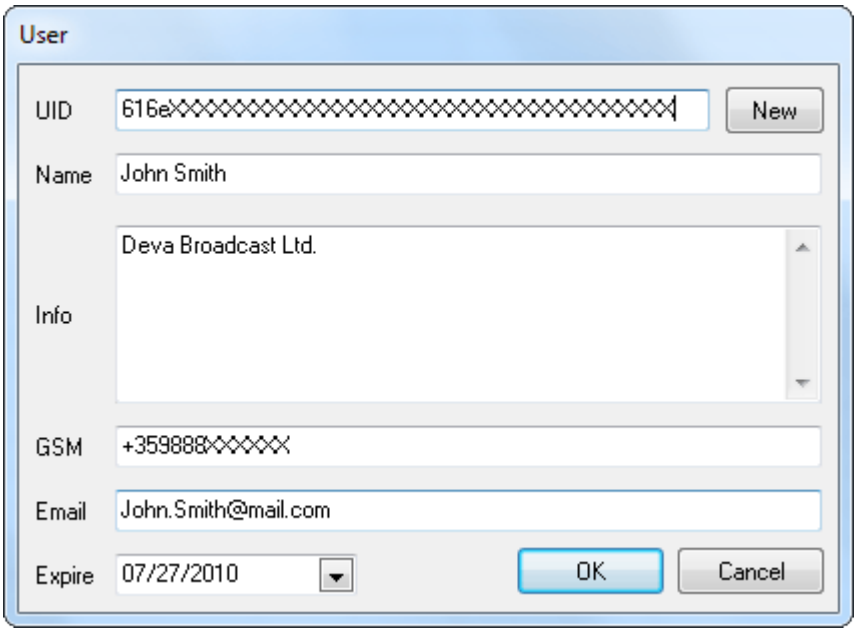
The rest of the process of User's creation is identical to that of creating a new User without Hardware Key (dongle) as described above (see "New User without Hardware Key" on page 19).

Edit Existing Users

To edit an existing User open the list of users by selecting "Users" tab, select the user to be edited and:

- press (Edit User button);
- or select "Edit User" from "Users" menu;
- or right-click on the list of users and select "Edit User";
- or double click on the user to be edited as listed on the list of users;

A new window like the one shown bellow will appear:



All the User's records can be edited from within this window.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Delete User

To delete an existing User open the list of users by selecting “Users” tab, select the user to be deleted and:

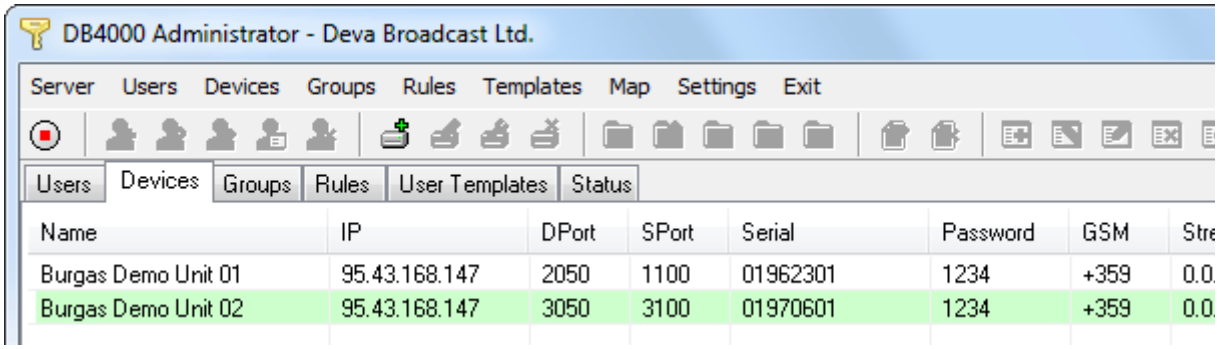
- press  (Delete User Button);
- or select “Delete User” from “Users” menu;
- or right-click on the list of users and select “Delete User”;

NOTE: User’s Rules must be removed prior to deleting a specific User. (see “Rules” on page 38)

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

DEVICES

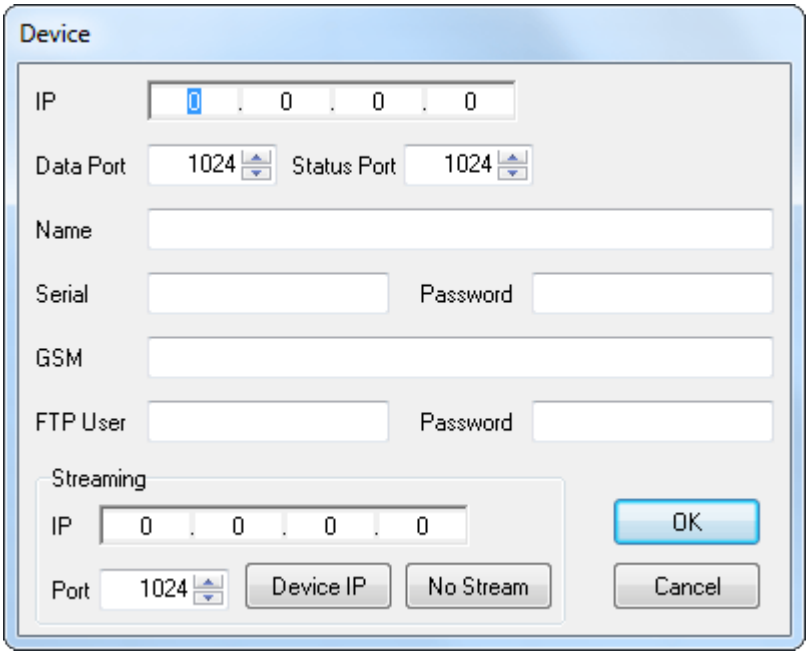
List of all devices registered into the Authentication Server can be seen by selecting “Users” tab as shown below:



New Device

To define a New Device open the list of devices by selecting "Devices" tab and:
- press (New Device button);
- or select "New Device" from "Devices" menu;
- or right-click on the list of devices and select "New Device"

The following window will appear:



IP is the IP address of DB4000 device.
Data Port is the main communication port used by the software to communicate with device.
Status Port is a port used for internal management of the DB4000 device and for status query.
Name is the name of the device and is for descriptive purposes.
Serial is the serial number of DB4000 Device.
Password is to protect from unauthorized access. Password is case sensitive and must be taken from DB4000 device.
GSM is the number of the GSM phone connected to the DB4000 device.
FTP User and **FTP Password** are for FTP access only. They must match FTP values entered into DB4000 device.
Streaming is used if an optional steaming device is connected to DB4000 device, where:

IP is the IP address of the optional streaming device.
Port is the port of the streaming device.
Device IP will copy the IP address from IP enetered above.
No Stream will clear out the IP address.

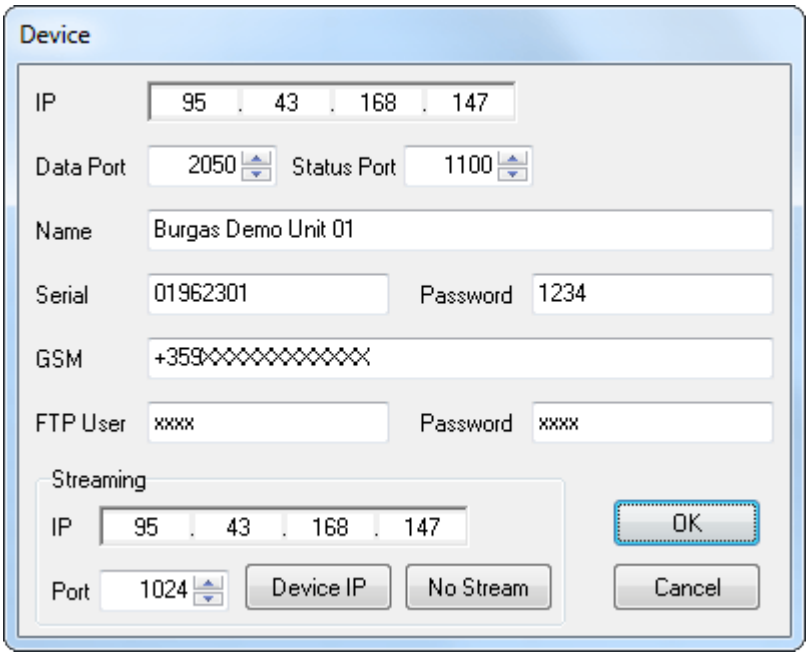
65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Edit Device

To edit any DB4000 device open the list of devices by selecting “Devices” tab, select the device to be edited and:

- press (Edit Device button)
- or select “Edit Device” from “Devices” menu;
- or right-click the device to be edited on the list of devices and select “Edit Device”;
- or double click the device to be edited as listed on the list of devices;

A new window like the one shown bellow will appear:



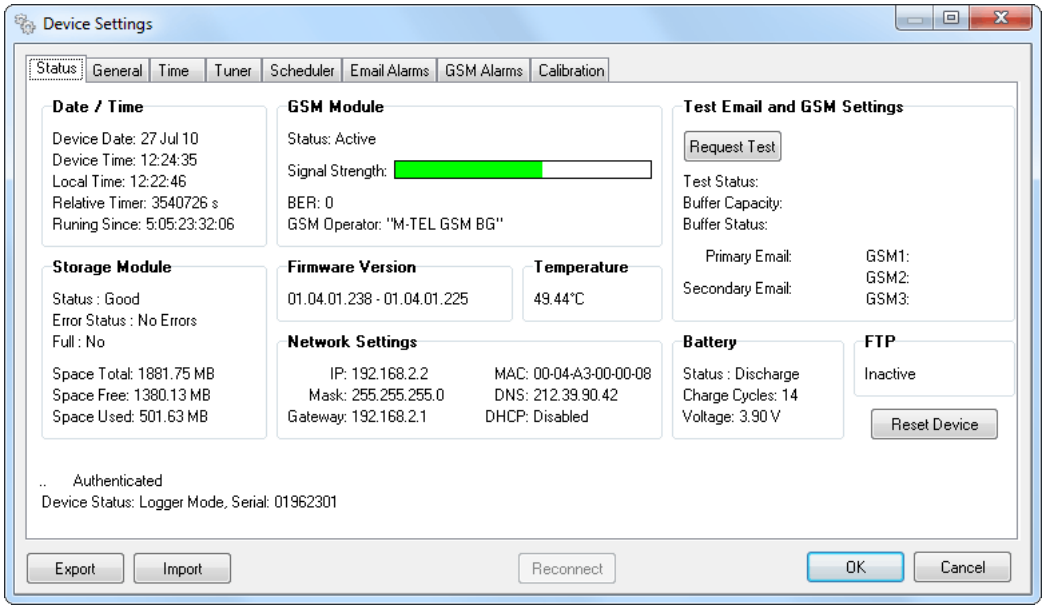
All the records for a specific device can be edited from within this window.

Device Remote Settings - Status

To see and/or modify any of the DB4000 device settings open the list of devices by selecting "Devices" tab, select the device and:

- press (Device Remote Settings button);
- or select "Device Settings" from "Devices" menu;
- or right-click on the list of DB4000 devices and select "Device Settings";

A window as the one shown below will come out (with "Status" tab pressed):



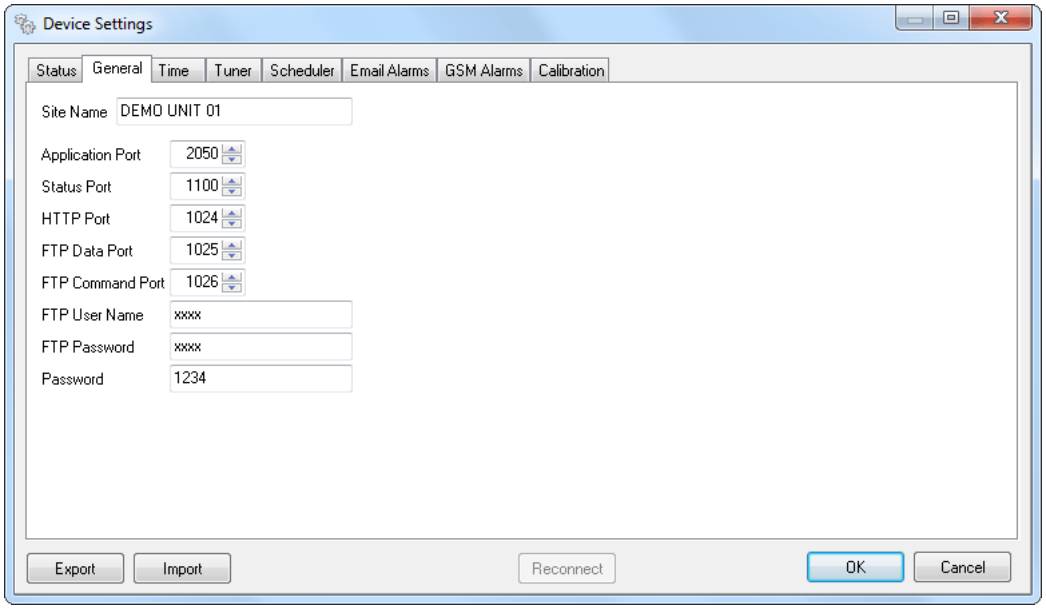
This screen shows status information for a certain device. All the listed information is of help to service personnel and has relation only to device condition.

There are some active buttons:

Export is to export settings of a certain DB4000 device into a proprietary file format with "d4s" extension. It is a handy function used to save and quickly restore the settings of a device if needed.
Import is to import a "d4s" file containing settings of a device previously saved.
Request test will return with the status of E-mail and GSM, Buffer Capacity and Buffer Status.
Reset Device will cause the device to perform a hardware reset.
NOTE: Password and confirmation is required to reset a device.

Device Remote Settings - General

Selecting “General” tab will open the following window:



Site Name is the descriptive name of the site where DB4000 device is located.

Application Port is the port that the DB4000 device uses to send all the data to the software applications.

Status Port is a port used for internal management of DB4000 device.

HTTP Port is Internal WEB server’s port.

FTP Data Port is the DB4000’s FTP client data port for data transfer with the built-in FTP server.

FTP Command Port is the DB4000’s FTP client communication port for sending instructions to the built-in FTP server.

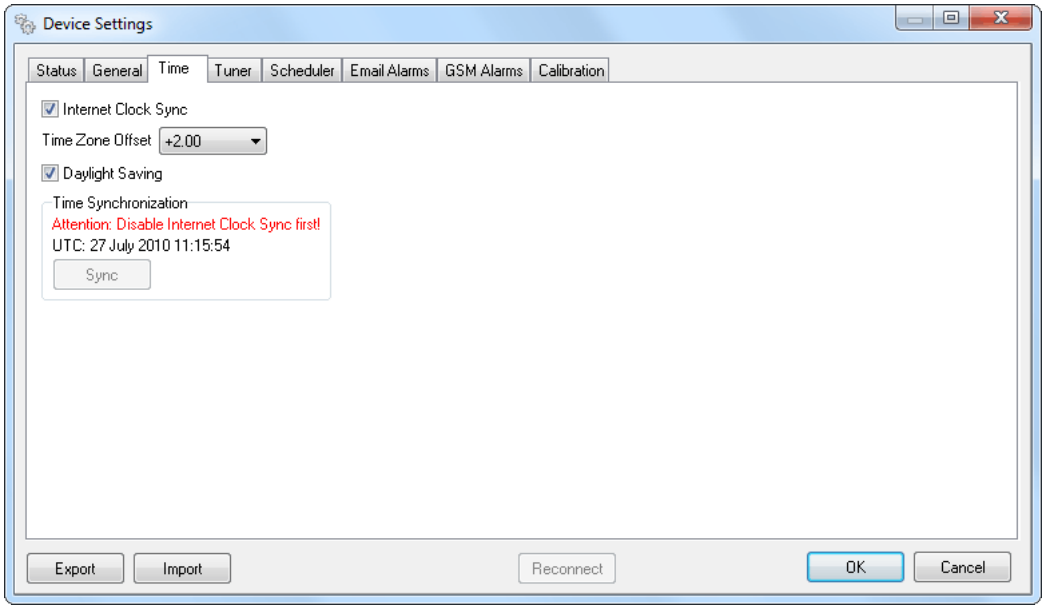
FTP User Name and **FTP Password** are for FTP access only.

Password is to prevent unauthorized access and is case sensitive.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Device Remote Settings – Time

Selecting "Time" tab on Device Settings will bring out the following window:

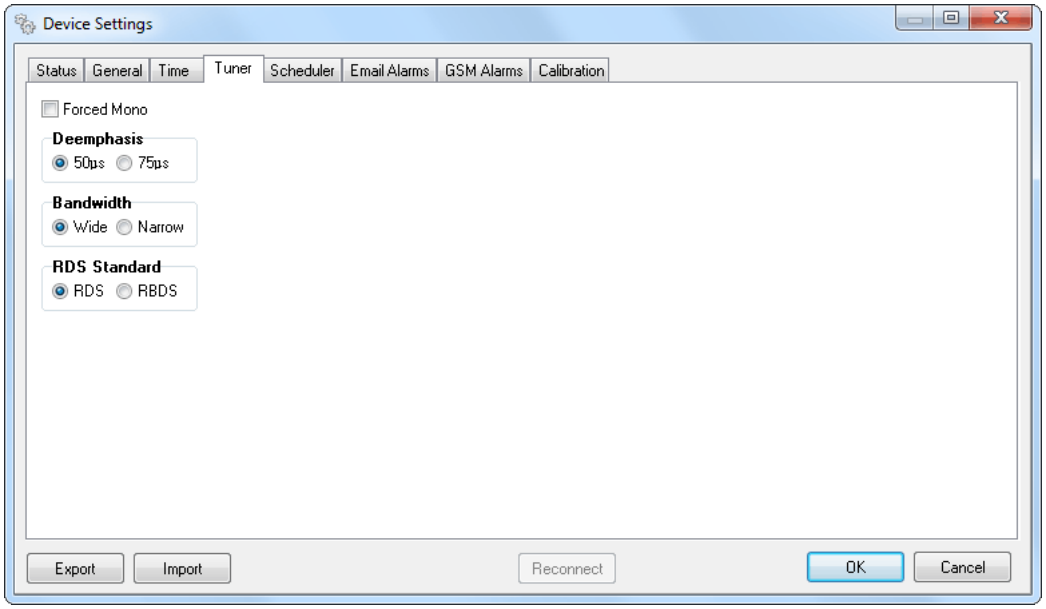


Internet Clock Sync is to enable/disable SNTP time synchronization;
Time Zone Offset is to choose time offset according to your geographic position;
Daylight Saving is to enable/disable DST adjustment;

NOTE: Time Zone and DST have sense for the device location, not for the place where you reside.

Device Settings – Tuner

Pressing “Tuner” tab on Device Settings will bring out the following window:



Forced mono - stereo decoding will be switched off.

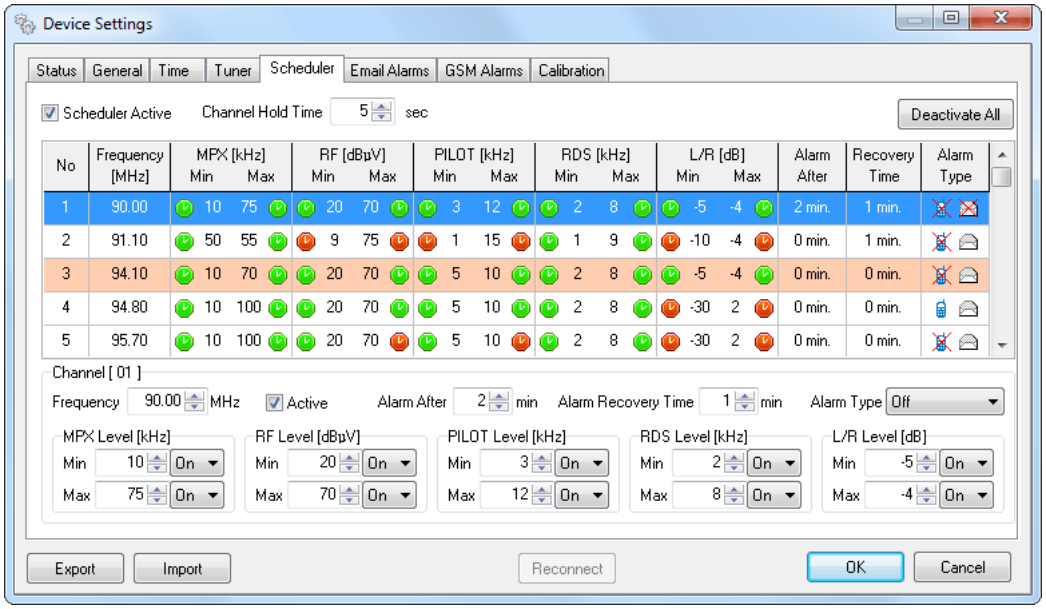
De-emphasis is to select de-emphasis for the Demodulator depending on the area of the World where you use DB4000 device. Usually it is 75µs for North America and 50µs for the other countries.

Bandwidth - there are two IF filters available in the DB4000’s front-end RF stage. When “Wide” is selected the bandwidth is 280 kHz. When “Narrow” is selected the bandwidth is 180 kHz.

RDS Standard is to select between the European RDS Standard and the USA RBDS Standard. Basically both of standards are equal with the exception of some small differences in PTY and PI methods of encoding.

Device Remote Settings - Scheduler

Selecting “Scheduler” tab on Device Settings will bring out the following window:



Here are listed all (50) channels with their individual settings.

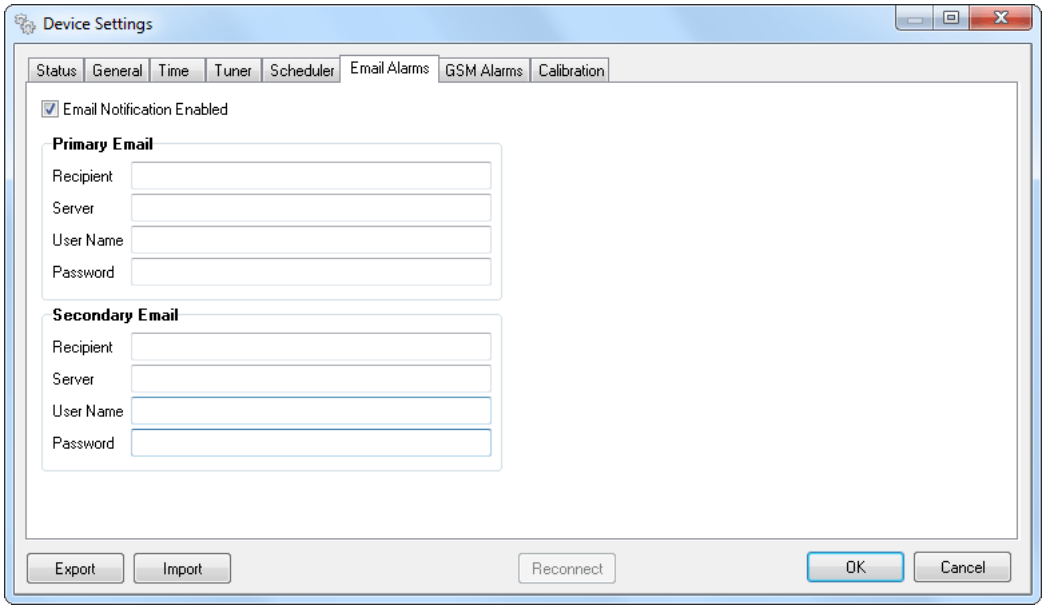
Brief information about parameters of any of the channels is visible in the above table.

Lines colored in red show that corresponding channel is disabled from the Monitoring List. Clocks beside minimum and maximum threshold values represent ON and OFF state of the Threshold Alarm. Icons for the Alarm Type respectively show if GSM and/or E-mail Notifications are enabled/disabled.

Below the channel list is situated editing place for the currently selected channel. Every field is self-explanatory.

Device Remote Settings - Email Alarms

Selecting “Email Alarms” tab on Device Settings will bring out the following window:



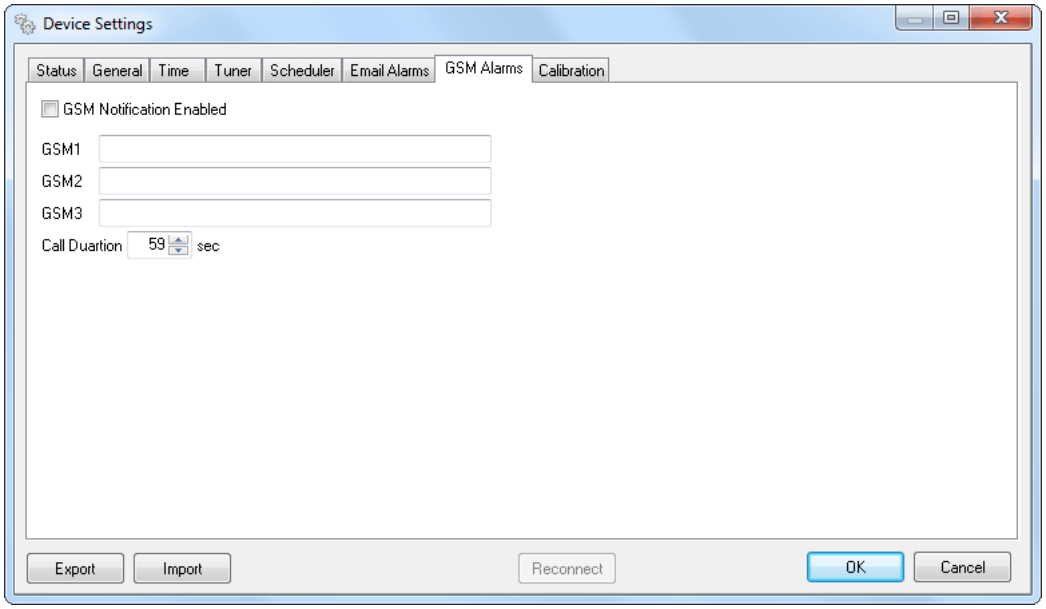
E-mail Notification Enabled - enables/disables e-mail notification in general, regardless of individual channel settings for notification.

NOTE: Up to two e-mail addresses can be specified - primary and secondary one. Both of them are equal in hierarchy but are named so just for customer’s convenience.

Recipient is the e-mail address where alarm messages will be sent;
Server - the e-mail’s server;
User Name for the specific e-mail account;
Password for the specific e-mail account;

Device Settings – GSM Alarms

Selecting "GSM Alarms" tab on Device Settings will bring out the following window:



GSM Notification Enabled - enables/disables SMS notification in general, regardless of the individual channel settings for notification.

NOTE: Up to three GSM numbers can be specified.

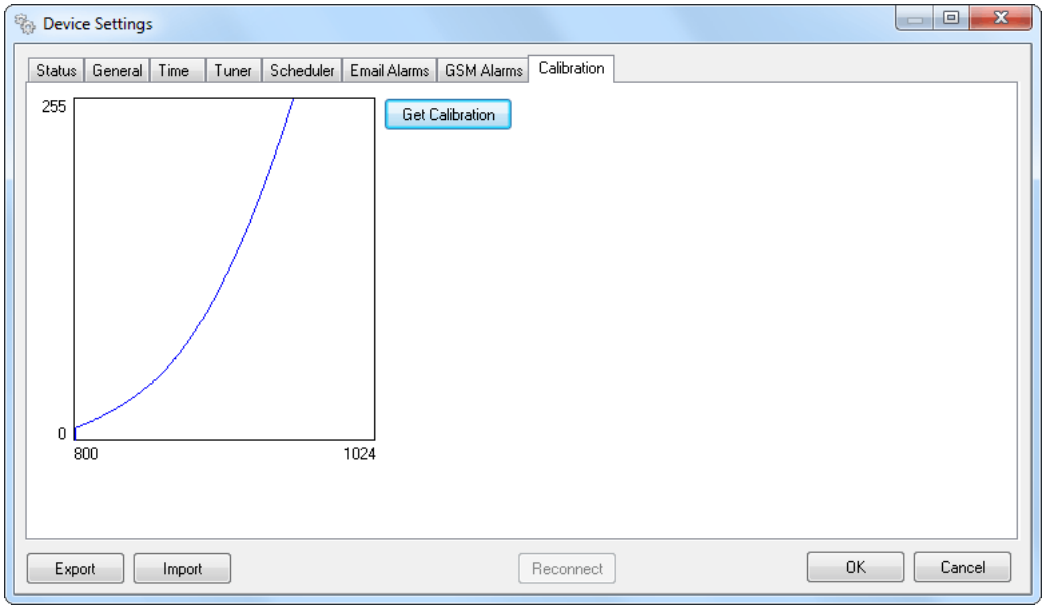
ATTENTION: Please note the style to be used entering the GSM number is "+" sign, followed by the Country Code and specific number.

Call Duration is to define the maximum duration of the outgoing call. The call will be hanged-up when it reaches the defined value. Call duration can be set from 30 up to 300 seconds.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Device Remote Settings - Calibration

Selecting “Calibration” tab on Device Settings will bring out the following window:



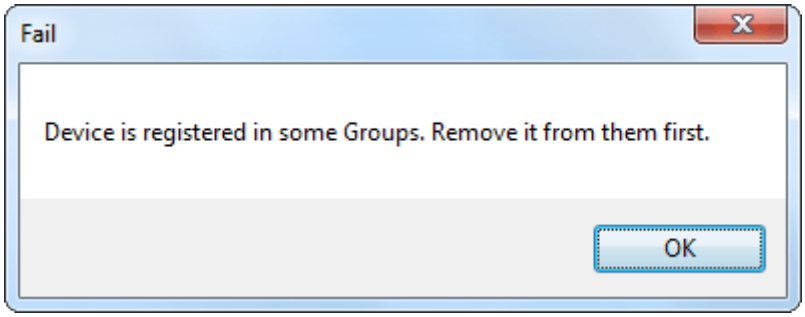
Calibration is intended only to authorized technical staff for device maintenance.
Clicking on the “Get Calibration” button will acquire the calibration curve from the unit.

Remove Device

To remove a device open the list of devices by selecting “Devices” tab, select the device to be removed and:

- press (Delete Device button);
- or select “Delete Device” from “Devices” Menu;
- or right-click on the list of devices and select “Delete Device”;

NOTE: Device to be deleted must be removed from the Groups it is included in prior to its removal. Otherwise deletion will not continue and the following window will come out:

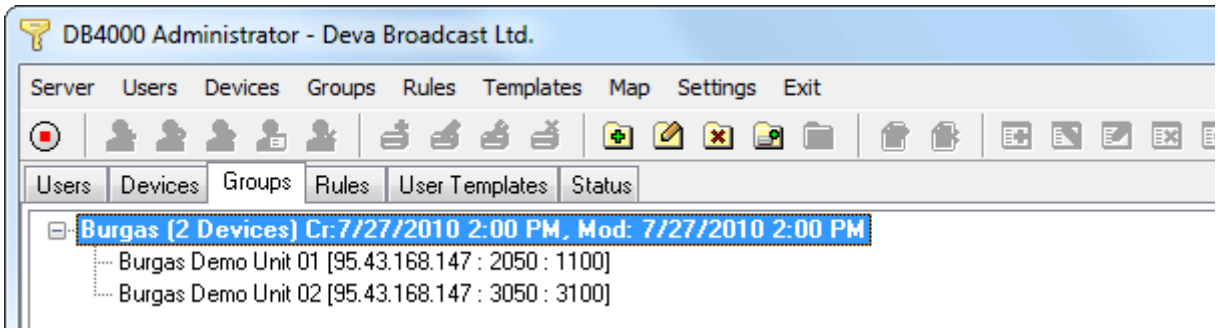


GROUPS

One or several devices installed in same geographical location can be integrated into group. Groups are created for security reasons, making devices invisible to the clients and casual Internet users. It is a kind of precautionary measure making devices not vulnerable to unauthorized access and hackers' attacks. Also Group gives opportunity to change Devices within Group without changing Group itself, thus the user logically will be connected to Group but physically (behind the scenes) to device chosen from server.

The List of Groups can be expanded or collapsed so that the devices contained within a group can be visible or hidden.

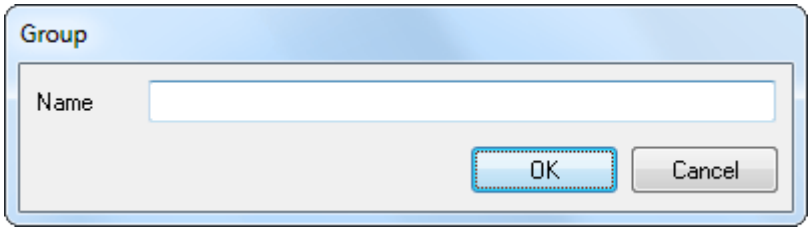
List of all Groups can be seen by selecting "Groups" tab:



Creating New Group

To create a New Group open the list of groups by selecting "Groups" tab and:
- press (New Group button);
- or select "New Group" from "Groups" menu;
- or right-click on the list of groups and select "New Group"

A window as the one shown below will come out:



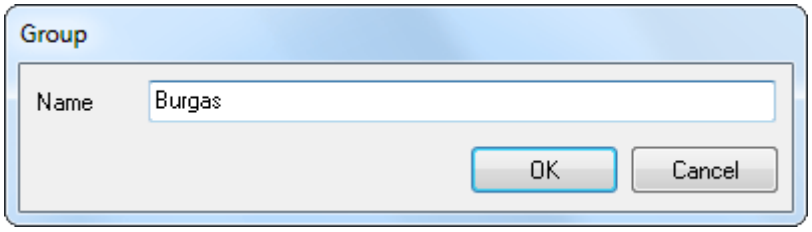
Define a name to the new Group and confirm by "OK" button. The newly created group will appear in the list of groups.

Edit Group

To edit any of the Groups open the list of groups by selecting “Groups” tab, select the Group to be edited and:

- press  (Edit Group button);
- or select “Edit Group” from “Groups” menu
- or right-click on the list of groups and select “Edit Group”

A window as the one shown below will come out:



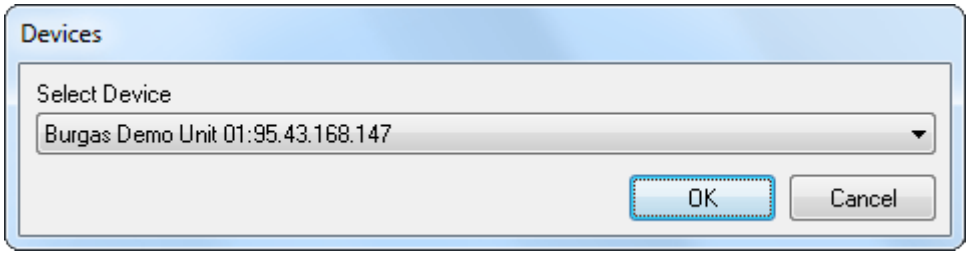
Define a new name to the Group and confirm by “OK” button.

Joining a Device to Group

To join a device to any of the Groups open the list of groups by selecting “Groups” tab. Select the Group where the device will be added following the next steps:

- press  (Add Device to Group button);
- or select “Add Group Device” from “Groups” menu;
- or right-click on the list of groups and select specific Group where new device will be added. Then select “Add Group Device”;

A window as the one shown below will come out:



There is a drop-down menu containing list of all available devices. Simply select the needed device and confirm by “OK” button.

NOTE: Any device can be joined to any of the groups and it is up to the System Administrator to decide which device to which group to belong. Since geographical position is the unifying attribute it is expected that devices from the same geographical area reside within the same group.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Remove Device from a Group

To remove a device from any of the Groups open the list of groups by selecting “Groups” tab. Then select the device that has to be removed and:

- press  (Delete Device from Group button);
- or select “Delete Group Device” from “Groups” menu;
- or right-click on the list of groups and select device to be removed. Then select “Delete Group Device”;

NOTE: After performing any of the above steps selected Device will be removed from Group without further notification. This have no impact on Device itself and it could be reassigned again at any time.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Remove Group

To remove a Group open the list of groups by selecting “Groups” tab, select the group to be removed and:

- press  (Delete Group button);
- or select “Delete Group” from “Groups” Menu;
- or select the Group to be removed on the list of groups, right-click on it and then select “Delete Group”;

NOTE: To remove a group it must be empty i.e. contain NO devices. Please make sure that prior to removal of a certain Group, all devices contained within this Group are excluded.

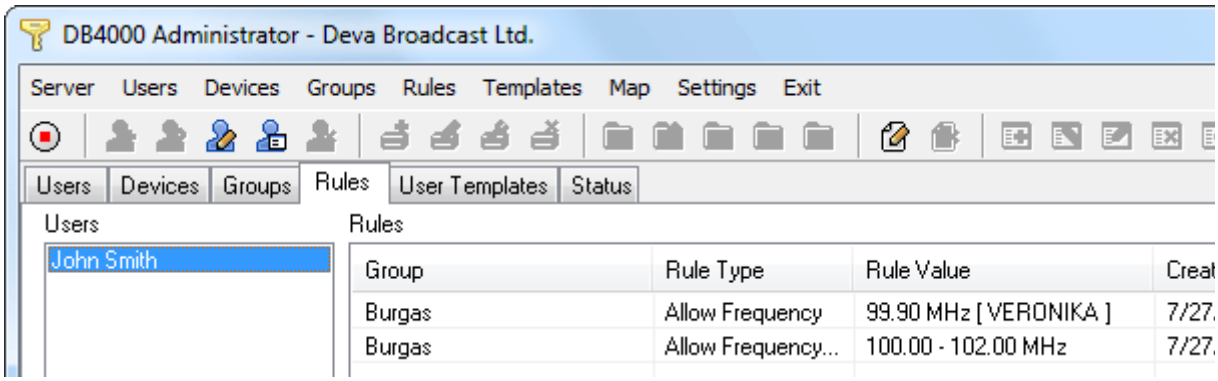
65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

RULES

Rules are attributed to the users in accordance with their License Agreement.

By Rules individual user's rights, privileges and access to the system can be specified, customized and administered.

List of Rules can be seen by selecting "Rules" tab and then the specific User:

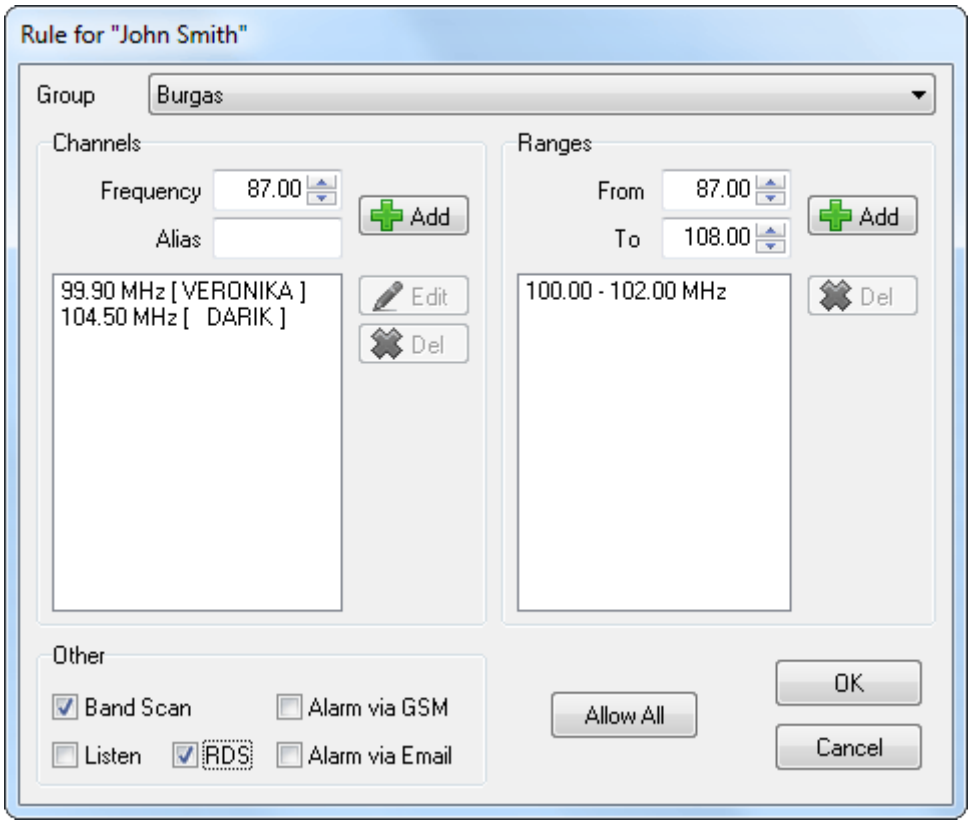


Edit Rules

To edit any of the Rules select "Rules" tab and from the list of Users (on the left side of the window that will open) select the User whose Rules will be edited. Then:

- press (Edit Rules button)
- or select "Edit Rules" from "Rules" menu;
- or right-click on the list of Users and select "Edit Rules";
- or double click on the User's name;

A new window as the one shown bellow will appear:



Group is a drop-down menu that allows selecting a Group for which to define rules.

NOTE: Groups with defined rules within will appear on the Client's software Map as a place that he/she has access and can monitor.

Subfield "Channels":

- **Frequency** is the frequency that will be monitored;
- **Alias** usually is name of the Radio Station to be monitored. Will appear on the Client's software.
- **Add** is a button to add selected frequency to the list of frequencies (with or without Alias);
- **Edit** is a button to edit the parameters of selected frequency;
- **Delete** will remove selected frequency;

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Subfield "Ranges": Additionally to the fixed frequencies (channels) a range of frequencies for continuous tuning and monitoring can be specified according to the requirements and License Agreement of any of the System's Users.

- **From** and **To** is to select a range of frequencies to be monitored.
- **Add** is to add already specified range of frequencies to the List of Ranges.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Delete Rule

To delete a Rule for any of the Users select “Rules” tab and from the list of Users select the User who’s Rules will be deleted. Proceed by selecting the Rule to be deleted. Then:

- press  (Delete Rules button);
- or select “Delete Rule” from “Rules” menu;
- right-click the Rule to be deleted and select “Delete Rule”

NOTE: After performing any of the above steps selected Rule will be deleted without further notification.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Delete All Rules

To delete all Rules for any of the Users select “Rules” tab and from the list of Users (on the left side of the window that will open) select the User who’s Rules will be deleted. Then:

- select “Delete All Rules” from Rules menu;
- or right-click on the list of Users and select “Delete All Rules”;

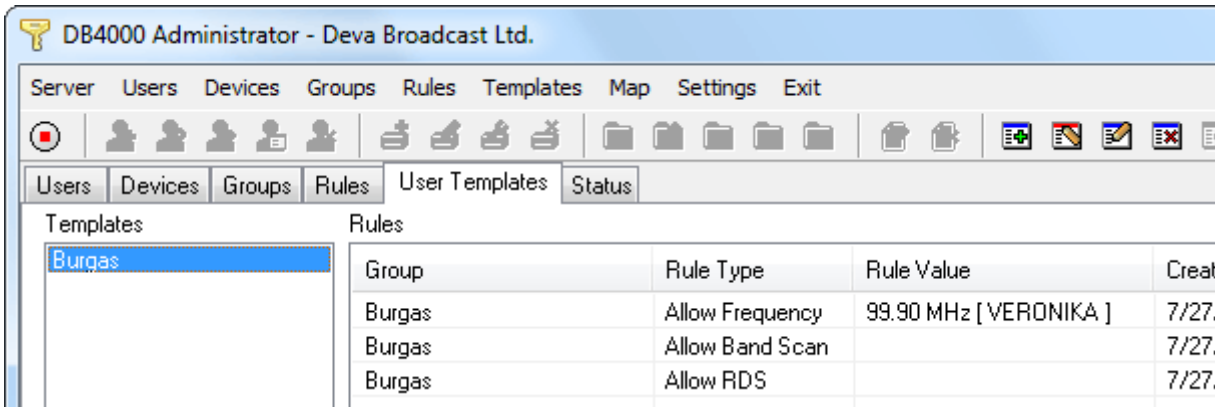
Confirmation dialog will come out. Confirm, refuse deletion or cancel accordingly.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

USER TEMPLATES

Templates are predefined sets of Rules (usually composed having in mind geographical location of DB4000 devices). They are quite helpful when defining Rules for a new User or when Rules are added to existing User.

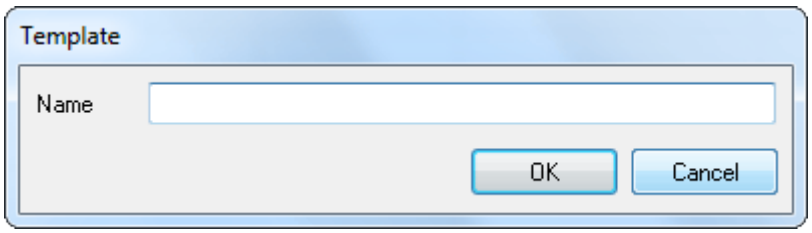
List of available User Templates can be seen by selecting “User Templates” tab:



New Template

To create a New Template select “User Templates” tab and:
- press  (New Template button);
- or select “New Template” from “Templates” menu;
- or right-click on the list of Templates or list of Rules and select “New Template”;

A new window like the one shown bellow will appear:



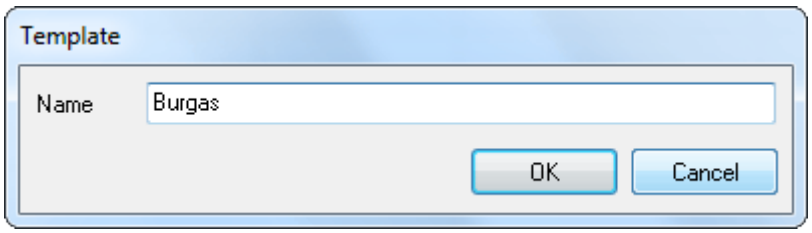
Enter the name of the Template to be created and confirm by “OK” button.

Thus a new template will be created. Please note it will be a blank one, containing no Rules. To attach some Rules to it. (see “Edit Template” on page 46)

Rename Template

To rename a Template select “User Templates” tab, select the template to be renamed and:
- press  (Rename Template button);
- or select “Rename Template” from “Templates” menu;
- or right-click on the list of Templates and select “Rename Template”;

A new window like the one shown bellow will appear:



Enter a new name for the selected Template and confirm by “OK”.

Edit Template

To edit a Template select “User Templates” tab, select the template to be edited and:
- press  (Edit Template Rules button);
- or select “Edit Template” from “Templates” menu;
- or right-click on the list of Templates and select “Edit Template”;

Now it is a matter of Rules Editing which is explained in details in “Edit Rules” on page 39.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Delete Template Rule

To delete a Template Rule select “User Templates” tab and the Template whose rule to be deleted. Then select the Rule to be deleted and:

- press  (Delete Template Rule button);
- or select “Delete Template Rule” from “Templates” menu;
- right-click on the list of Templates or list of Rules and select “Delete Template Rule”;

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Delete All Template Rules

To delete a Template select “User Templates” tab and then the Template with Rules to be deleted. Next:

- select “Delete All Template Rules” from Templates menu
- or right-click on the Template on the list of templates and select “Delete All Template Rules”;

Confirmation dialog will appear. If confirmed by “Yes” button deletion will be carried out without further notifications.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Delete Template

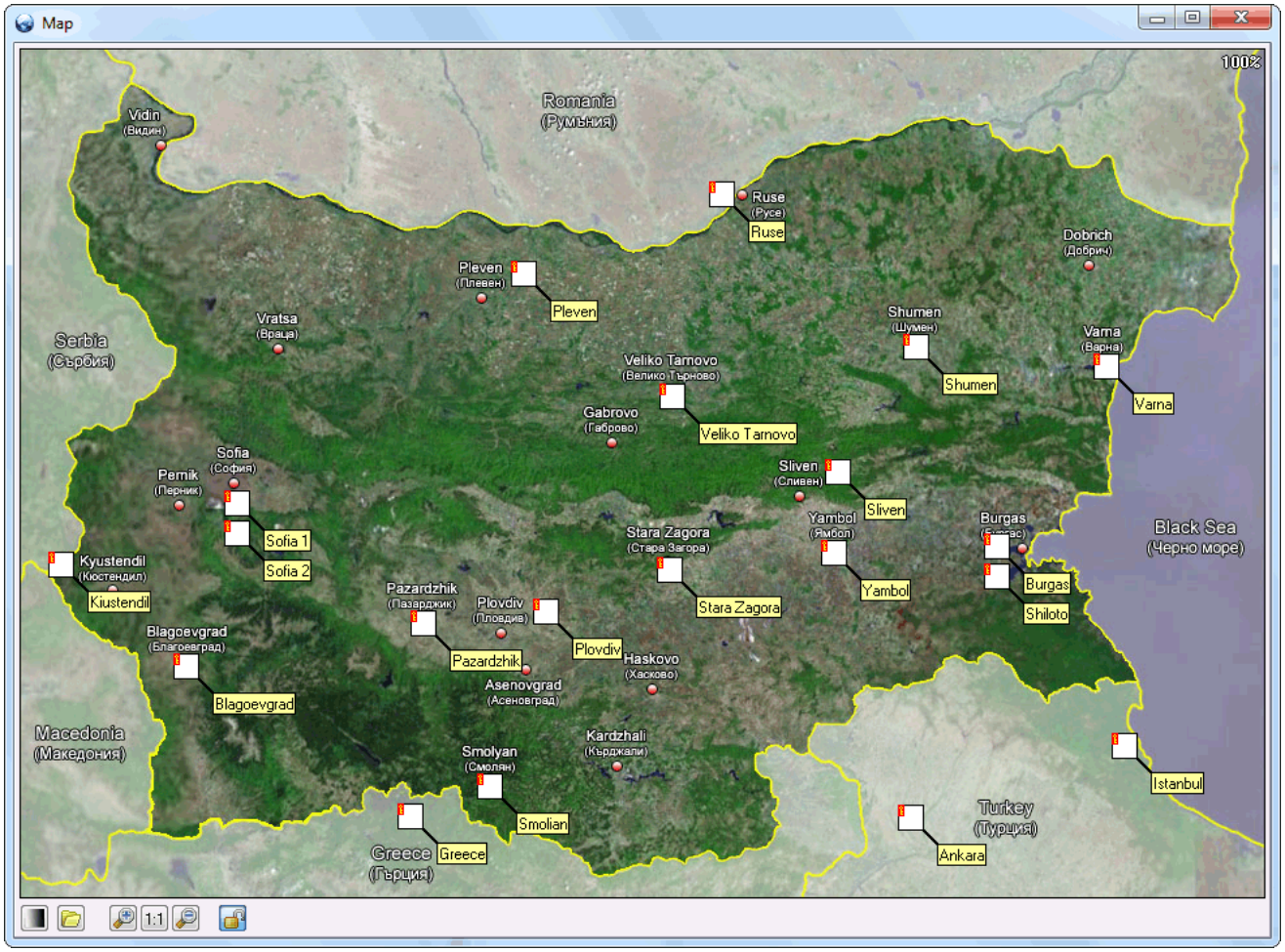
To delete a Template select “User Templates” tab, select the Template to be deleted and:
- press  (Delete Template button);
- or select “Delete Template” from “Templates” menu;
- or right-click on the Template to be deleted and select “Delete Template”;

NOTE: To delete a Template it must contain NO rules. Please make sure that prior to deletion of a Template, all Rules contained within this Template are removed.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

MAP

Map is an additional tool for fast evaluation of site conditions by visually representing each site as situated on User Defined Picture (Map).



65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

View Map

To view a Map:
- press (View Map button);
- or select “View Map” from Map menu;

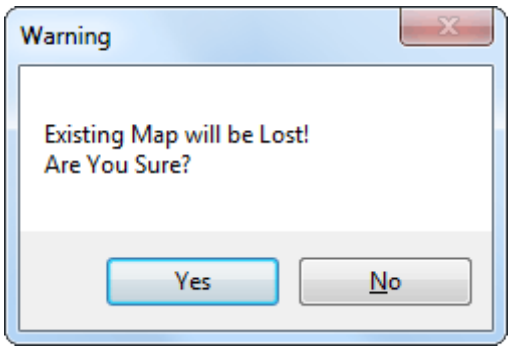
Hovering mouse over any of the sites with DB4000 devices will pop-up a simplified balloon:

From this balloon Name, IP address and Serial number of the devices located at corresponding site could be read. Site position can be locked or unlocked from the balloons as well.

New Map

To load a new Map:
- press (New Map button);
- or select “New Map” from “Map” menu;

A warning window like the one shown below will appear:



If confirmed and continued File Open Dialog will appear, prompting for map picture that can be either JPEG (.jpg, .jpeg) or Bitmap (.bmp).

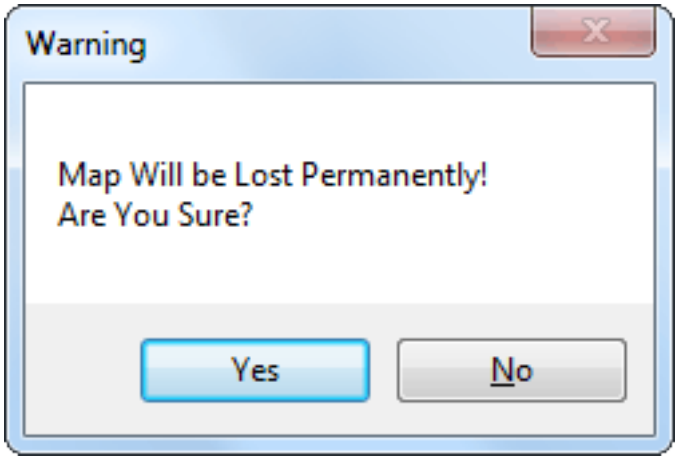
WARNING: While loading new maps do not use extremely big pictures as this may lead to low performance and undesired effects.

NOTE: Devices will keep their positions from the previous Map, thus manual rearrangement is required.

Clear Map

To clear the existing Map:
- press (Clear Map button);
- or select “Clear Map” from “Map” menu;

A warning window like the one shown below will appear:



Confirmation will delete the existing Map. Now a new Map can be loaded as described in “New Map” on page 52.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

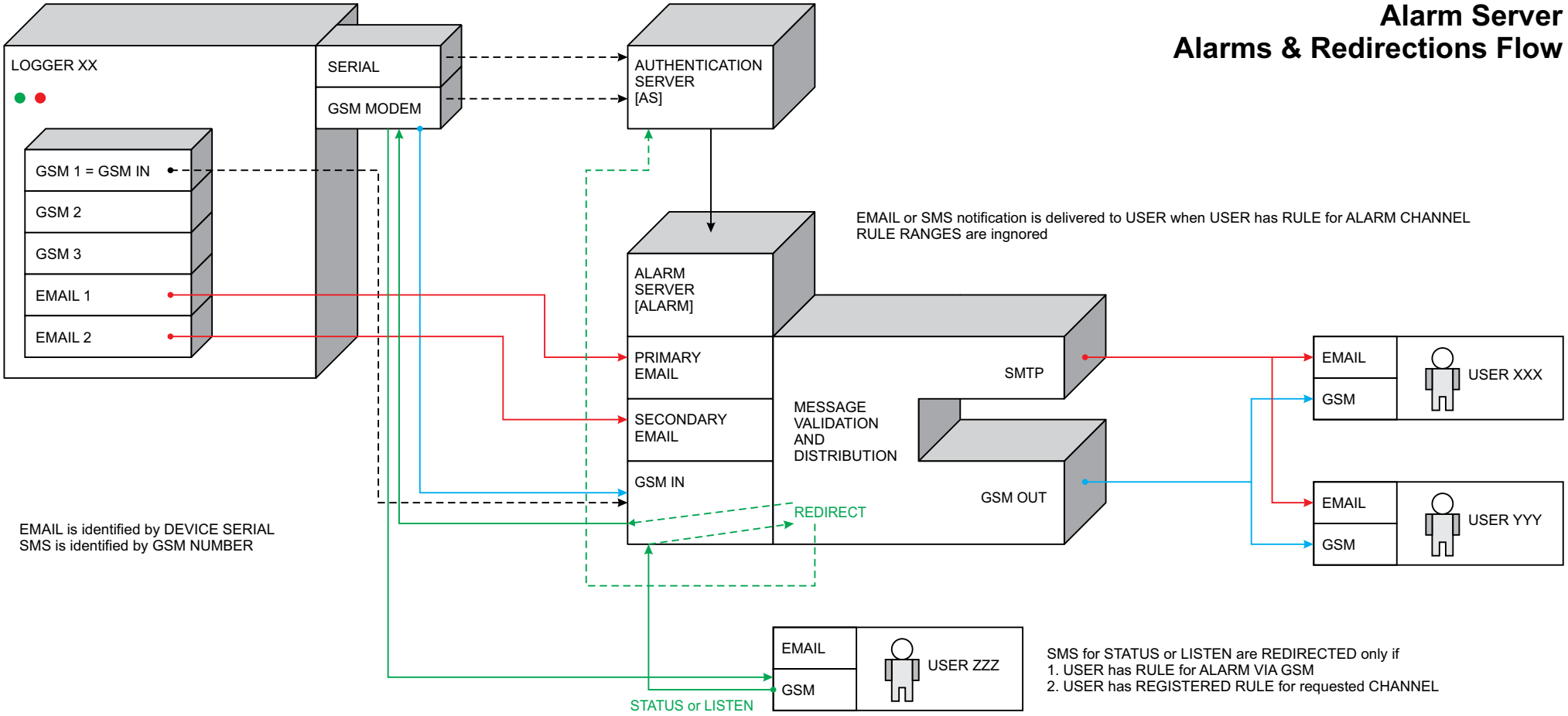
DB4000 Alarm Server

DB4000 Alarm Server is a module of DB4000 Server System for receiving, processing and timely dispatching of available alarms generated by DB4000 Devices. Its connection and correlation to the other DB4000 Server System modules can be traced on the Block Diagram of DB4000 Server System. (see “Block Diagram” on page 8)

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

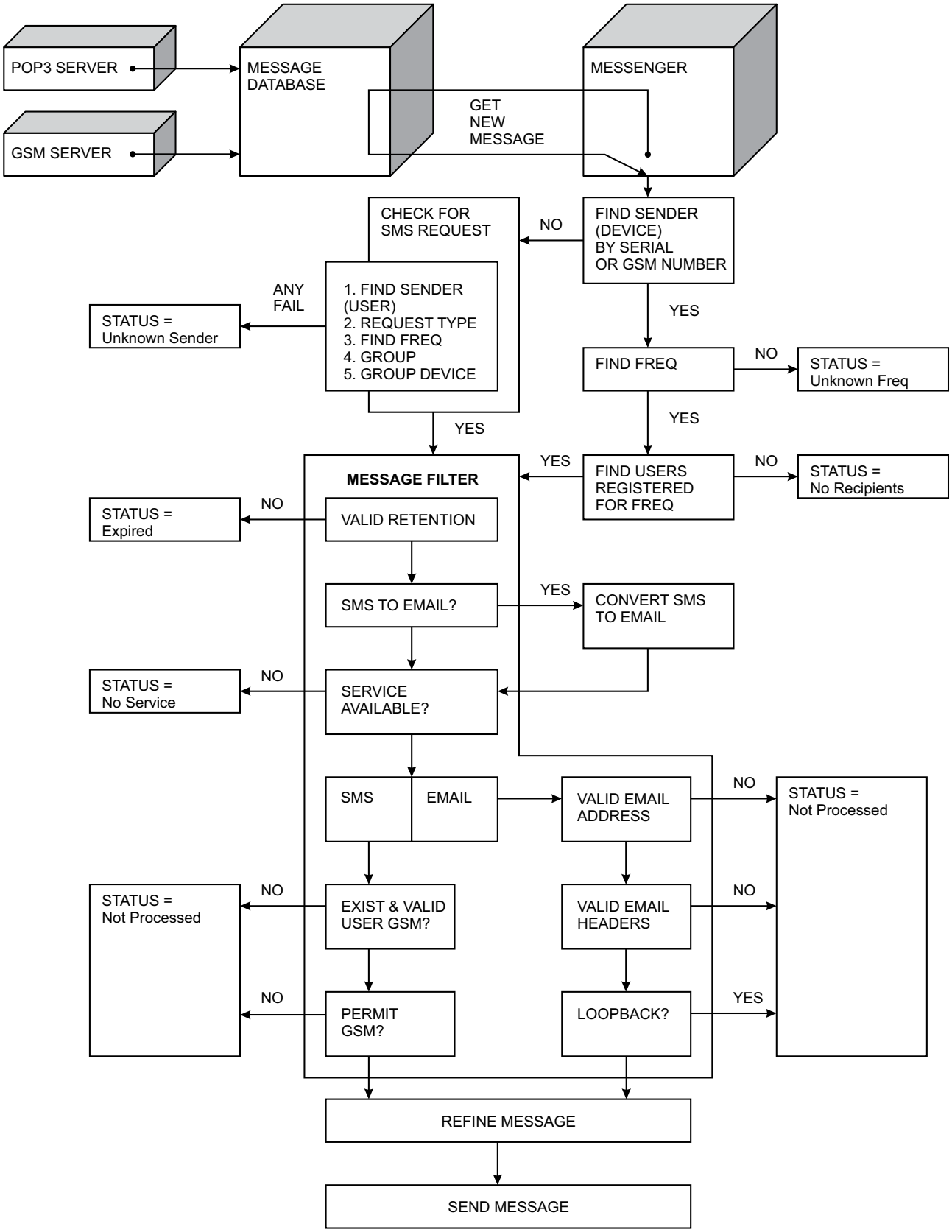
BLOCK DIAGRAMS

Alarm Server
Alarms & Redirections Flow



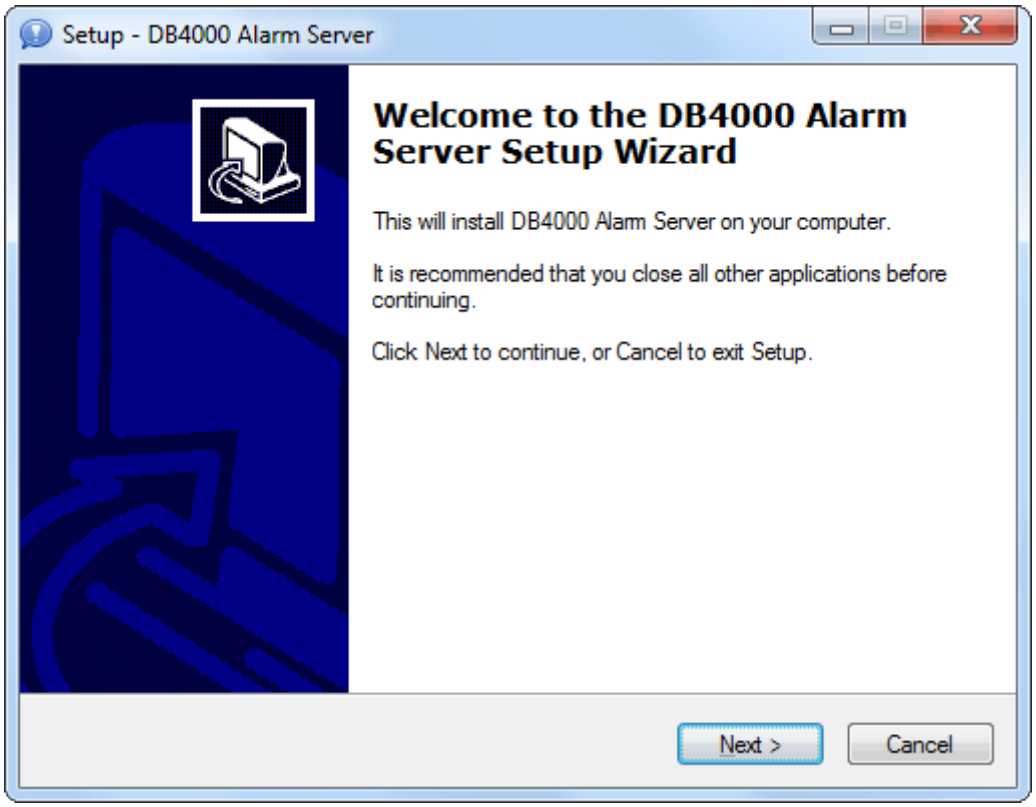
65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Alarm Server Messages Path



INSTALLATION

Insert the supplied CD. The software has an 'autorun' utility to automatically begin the installation routine. However, in the event that the Setup Wizard does not automatically start, click Start, then My Computer, and then double-click the CD Drive (D:). Within folder "Software" double click the file: "DB4000 Alarm Server.exe" to launch the Wizard (shown below) that will guide you through the several installation steps.

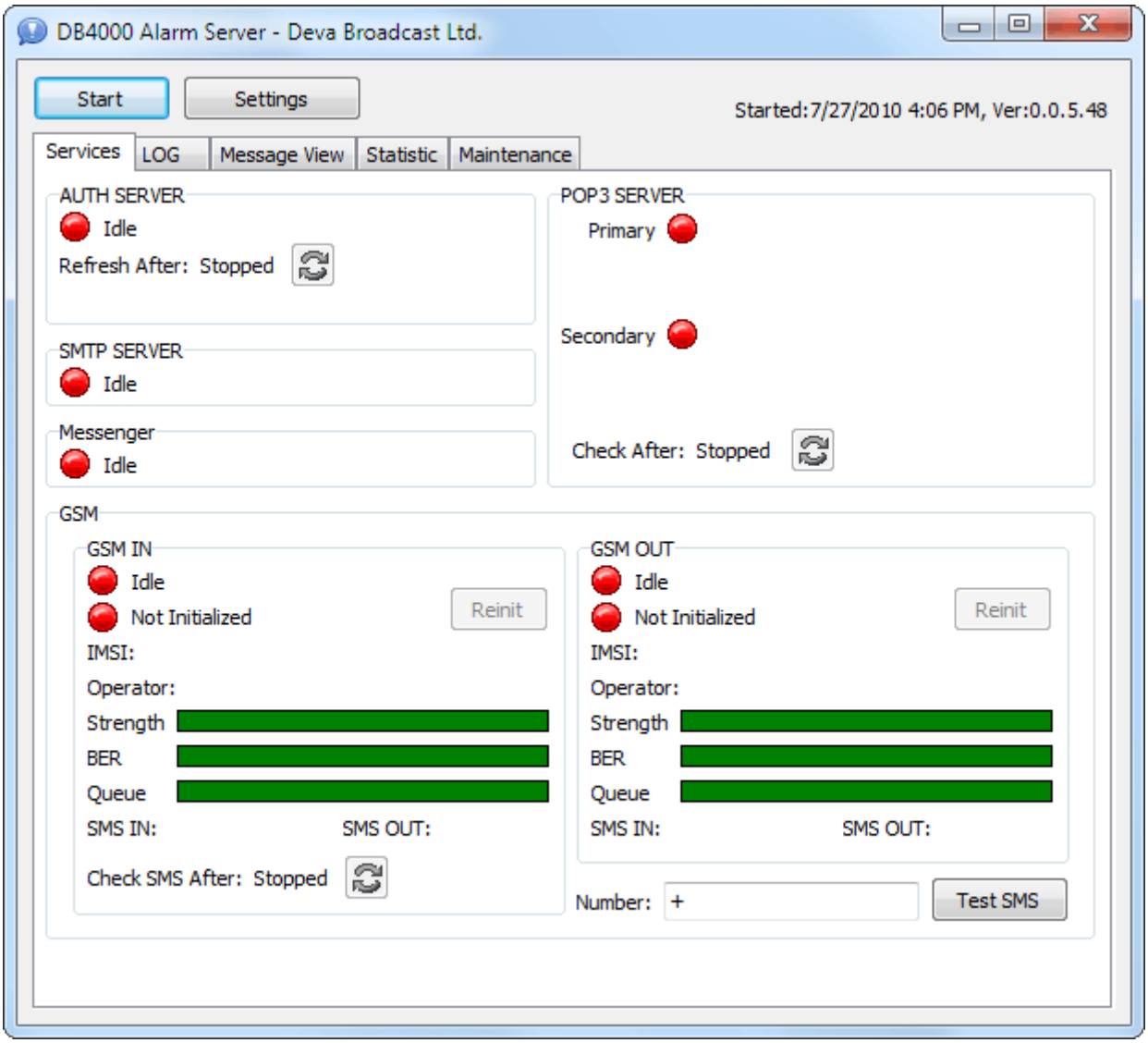


Unless you have a specific reason to make changes simply accept the default recommendations and click Next> at each step.

STARTING

DB4000 Alarm Server can be launched either by using Start\Programs\DB4000 Alarm Server\ DB4000 Alarm Server or by any of the shortcuts on the Desktop or Quick Launch Area (depending on the settings used at the time of installation).

A window as the one shown below will appear upon Alarm Server's launching:

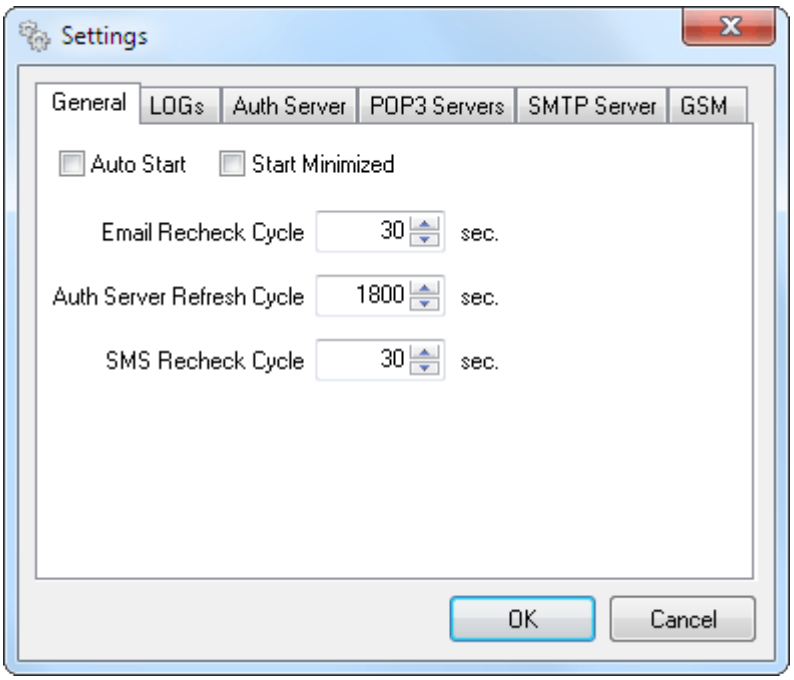


CONFIGURATION

Configuration of DB4000 Alarm Server is a process of general and individual setting of each of the functions of the Alarm Server. Launch the Alarm Server module and click "Settings" button.

NOTE: To activate the "Settings" button first stop DB4000 Alarm Server by clicking "Stop" button. This is a toggle button with two states – "Start" and "Stop".

General



Auto Start - if checked the Alarm Server will start running automatically on its launching. If this box is not checked the user has to run the Alarm Server manually by clicking on "Start" button located on the main window.

Start Minimized - if checked the Alarm Server will start minimized in the System Tray.

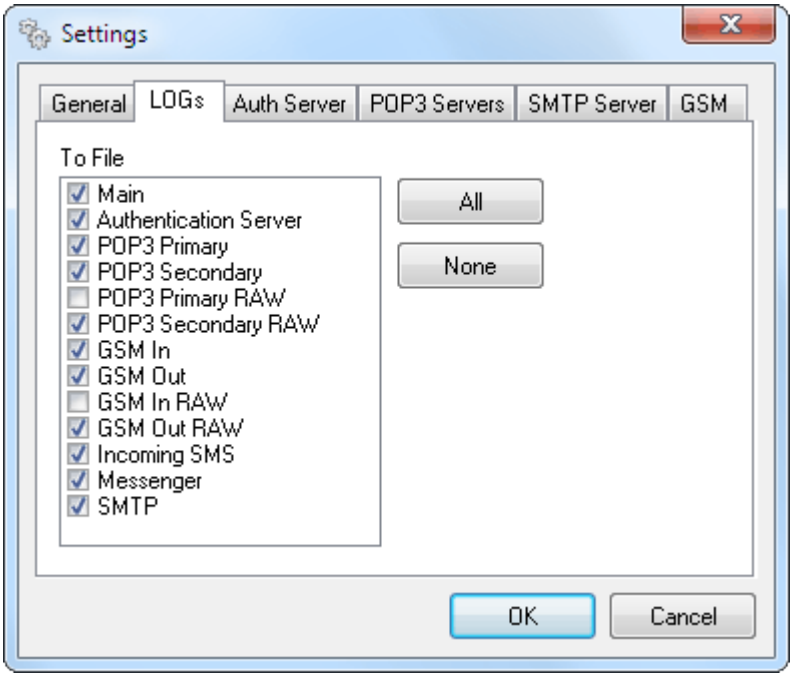
E-mail Recheck Cycle - used to specify the time (in seconds) between two consecutive checks primary and/or secondary e-mails for available alarms.

Auth Server Refresh Cycle is used to specify the time (in seconds) for refreshment of the information received from Authentication Server. Minimum time is 1800 seconds (30 minutes) and the maximum one is 3600 seconds (60 minutes).

SMS Recheck Cycle is used to specify the time (in seconds) between two consecutive checks of available GSM alarms.

Logs

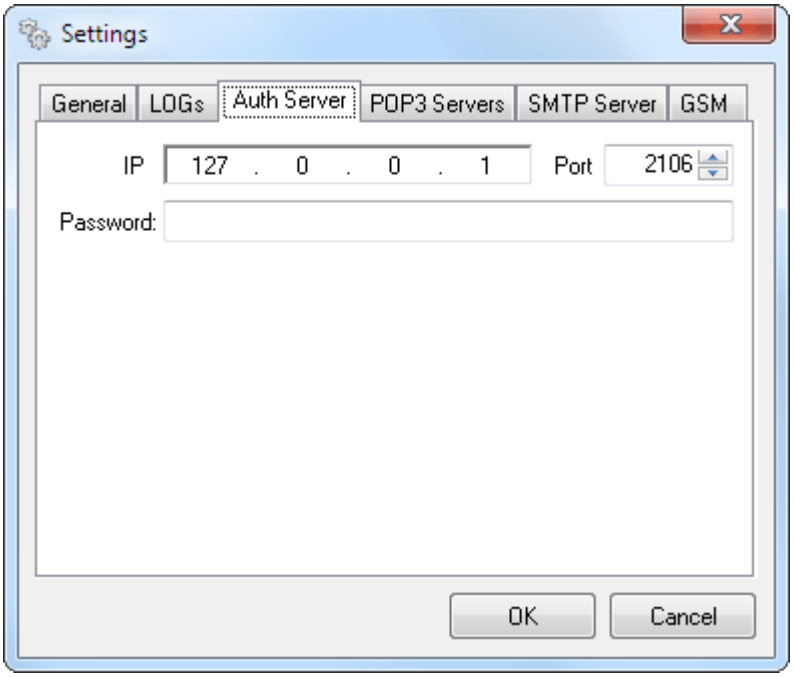
Upon clicking on “Logs” tab of “Settings” a window as the one shown below will come out:



This is the window where can be specified which log (-s) to be saved into a file. The user can select “All”, “None” or any of the logs individually. Logs are intended only to authorized technical staff for System maintenance.

Auth Server

Upon clicking on “Auth Server” tab of “Settings” a window as the one shown below will come out:

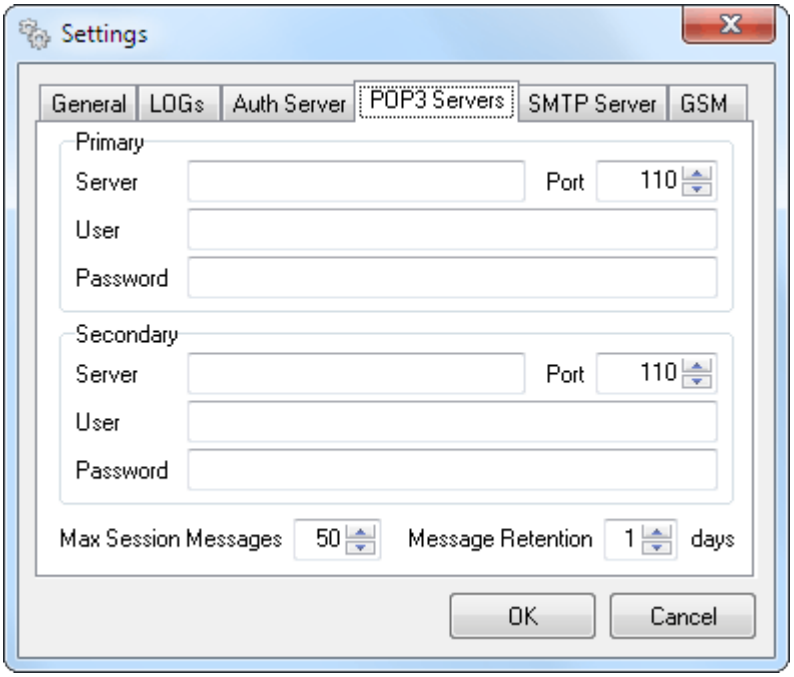


This is the window where IP address, Port and Password of the Authentication Server must be entered.

NOTE: If Authentication Server and Alarm Server resides onto same machine it is possible to use local communication by specifying localhost IP - 127.0.0.1.

POP3 Servers

Upon clicking on “POP3 Servers” tab of “Settings” a window as the one shown below will come out:



As e-mail alarms can be dispatched to two different e-mail addresses, there are two fields for the two POP3 Servers accordingly. Enter into each of the subfields the relevant data.

Server is the POP3 server for the incoming mail.

Port is the port of POP3 servers (Default for POP3 - 110).

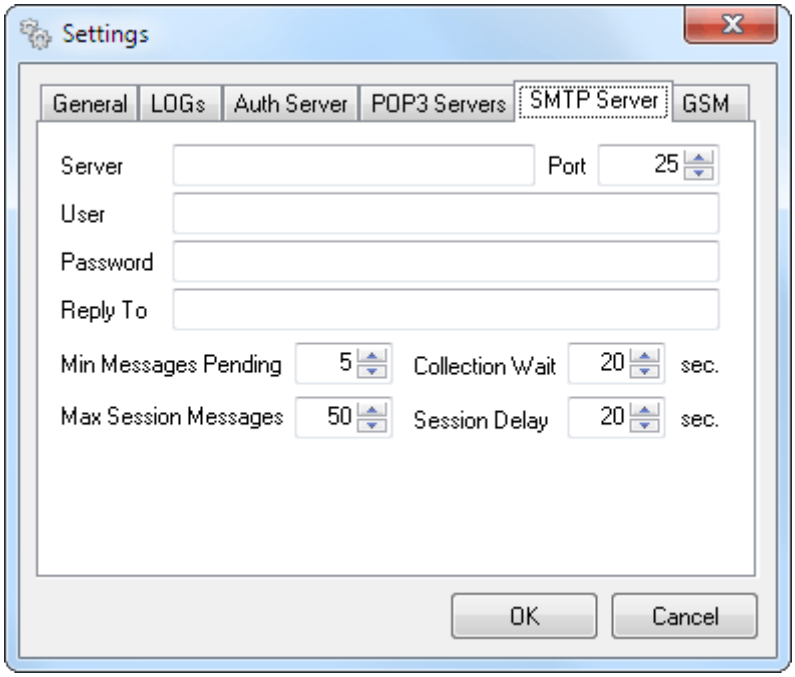
User and **Password** – as set individually for each e-mail account.

Max Session Messages is to select maximum number of messages to be carried by one receiveing session. Minimum is 20 and maximum is 255.

Message Retention defines after how many days messages become obsolete.

SMTP Server

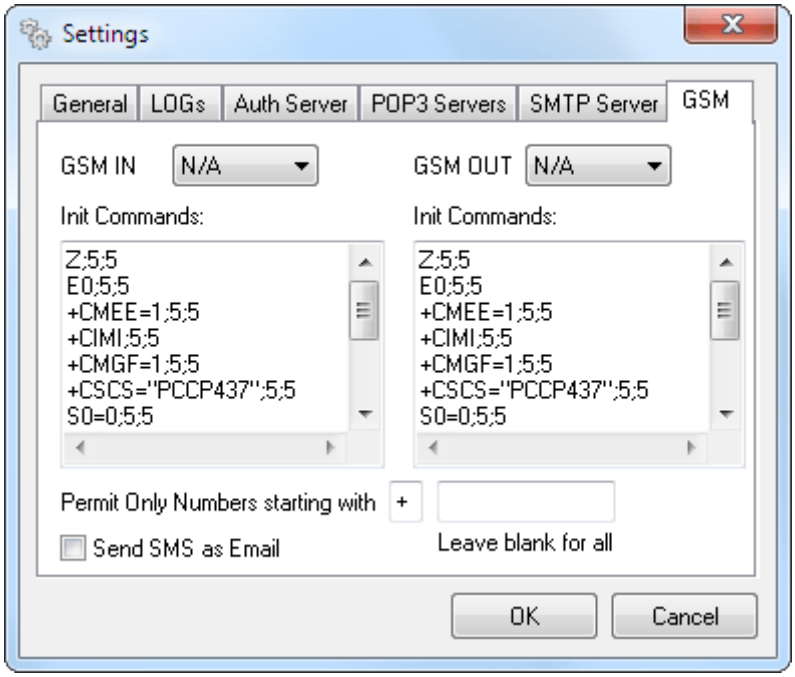
Upon clicking on "SMTP Servers" tab of "Settings" a window as the one shown below will come out:



Server is the SMTP server for outgoing e-mails.
Port is the port for the SMTP server (Default for SMTP 25)
User and **Password** as set by the e-mail account
Reply to (optional) is the return address as specified by the user.
Min Messages Pending is to select minimum number of messages to be collected before sending procedure is activated. Minimum number is 5 and maximum 255.
Collection Wait is time (in seconds) to wait before sending procedure is activated. Minimum is 20 and maximum 1200 seconds (20 minutes).
Max Session Messages is to select maximum number of messages to be carried by one sending session. Minimum is 20 and maximum is 255.
Session Delay is the time (in seconds) between two consecutive sending sessions. Minimum is 20 and maximum 1200 seconds (20 minutes).

GSM

Upon clicking on “GSM” tab of “Settings” a window as the one shown below will come out:



There are two drop-down menus:
GSM IN is to select the connection COM port. This is the GSM for the incoming messages.
GSM OUT is to select the connection COM port. This is the GSM for outgoing messages.

Init Commands is to be filled with initialisation sequencies, which are specific for every GSM Modem Model.

Permit Only Numbers starting with - this field acts as a kind of filter whereby only GSM numbers beginning with specific figures can be served. It is ineffective if left blank.

Send SMS as E-mail - if selected every valid incoming SMS (alarm message) will be converted to e-mail and sent accordingly through SMTP Server.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

MAINTENANCE

Once started the DB4000 Alarm Server do not require any further immediate attention.

It is a good practice to maintain periodically checks, because some indirect factors are taking place e.g. GSM or E-mail acount expiry, Power shutdown, internet connection loss etc.

Alarm Server will give timely report for every running action, which may be traced under the “LOG” tab.

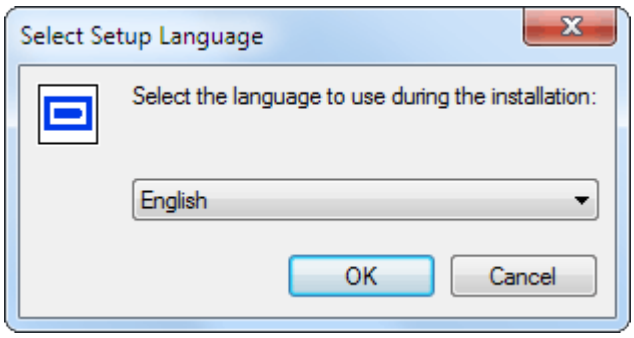
DB4000 Client

DB4000 Client is software used by DB4000 System Users to connect to remote DB4000 sites. In this way they can interact with DB4000 devices, listen and receive alarms in accordance with their License Agreement.

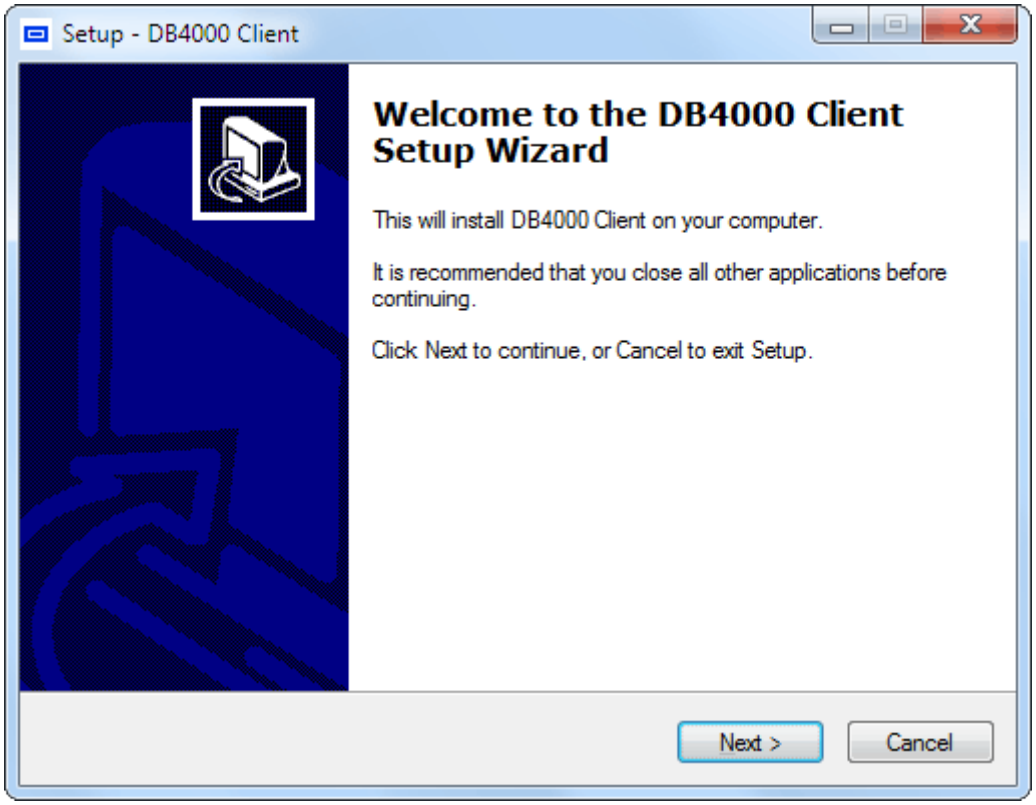
INSTALLATION

Insert the supplied CD. The software has an 'autorun' utility to automatically begin the installation routine. However, in the event that the Setup Wizard does not automatically start, click Start, then My Computer, and then double-click the CD Drive (D:). Within folder "Software" double click the file: "DB4000 Client.exe" to launch the Wizard (shown below) that will guide you through the several installation steps.

NOTE: The first screen to appear will be the one asking for installation language. Default selection will be as set by computer's Regional Settings. Select it according to your preferences:



Then comes the Wizard itself:



Unless you have a specific reason to make changes simply accept the default recommendations and click Next> at each step.

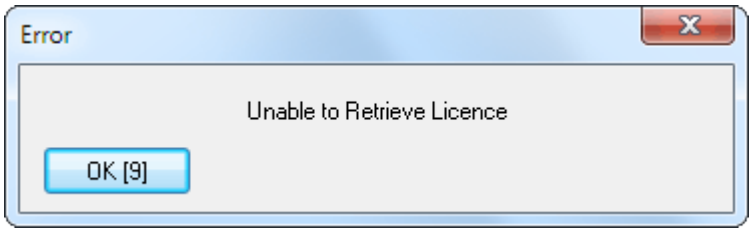
STARTING

WARNING: Please make sure that prior to launching the program your Hardware Key is plugged into one of the computer's USB ports where the software is installed!

You can launch the program by going to Start\Programs\DB4000 Client\DB4000 Client or by any of the shortcuts on the Desktop or Quick Launch area (if such shortcuts were created at the time of installation).

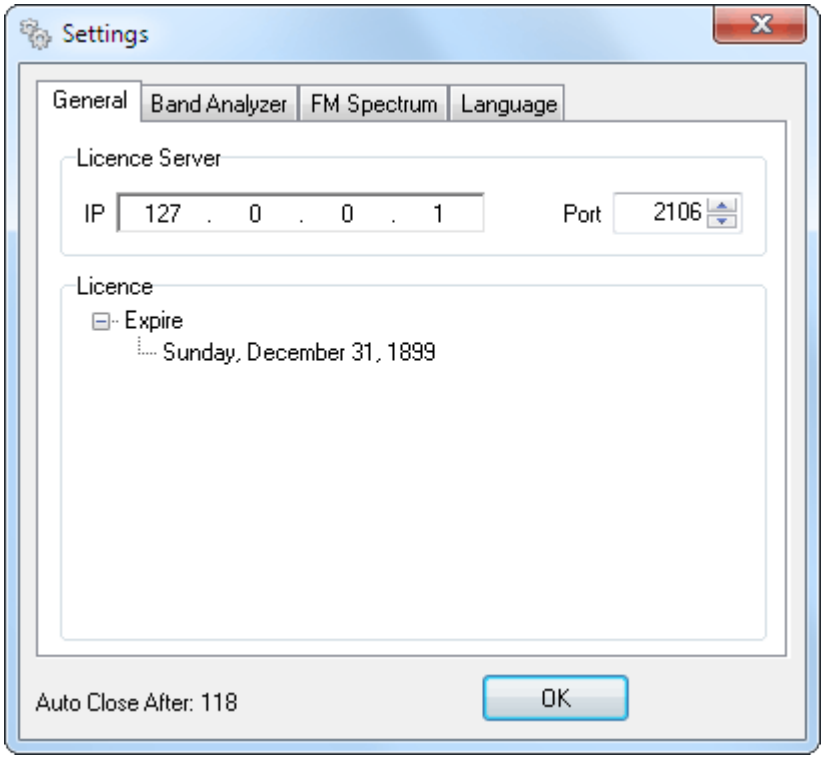
INITIAL CONFIGURATION

As you will note a window as the one shown below will appear immediately after DB4000 Client first start. So the very first task is configuring the software's connectivity by specifying the IP address and Server's Port.



To carry out configuration:
- either press (Settings button)
- or select "Settings" from "Settings" menu

A window as the one shown below will appear:



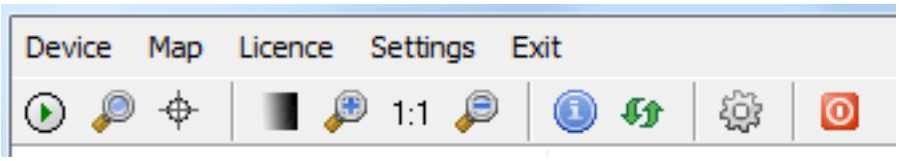
On the above window select "General", enter the Server's IP address and Port and confirm by "OK" button.

To apply the new values:
- press (Refresh button);
- or select "Refresh" from "License" menu;
- or restart the software;

MENU AND TOOLBAR

"DB4000 Client" utilizes a standard menu bar that can be used to select any of the desired options and settings.

All the menus available in software's menu toolbar are accessible by the corresponding quick buttons located on the Main Toolbar. They look like below:



65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

DEVICE

Connect / Disconnect

To Connect or Disconnect select the site and:
- press  (Connect button);
- or select “Connect” from “Device” menu;

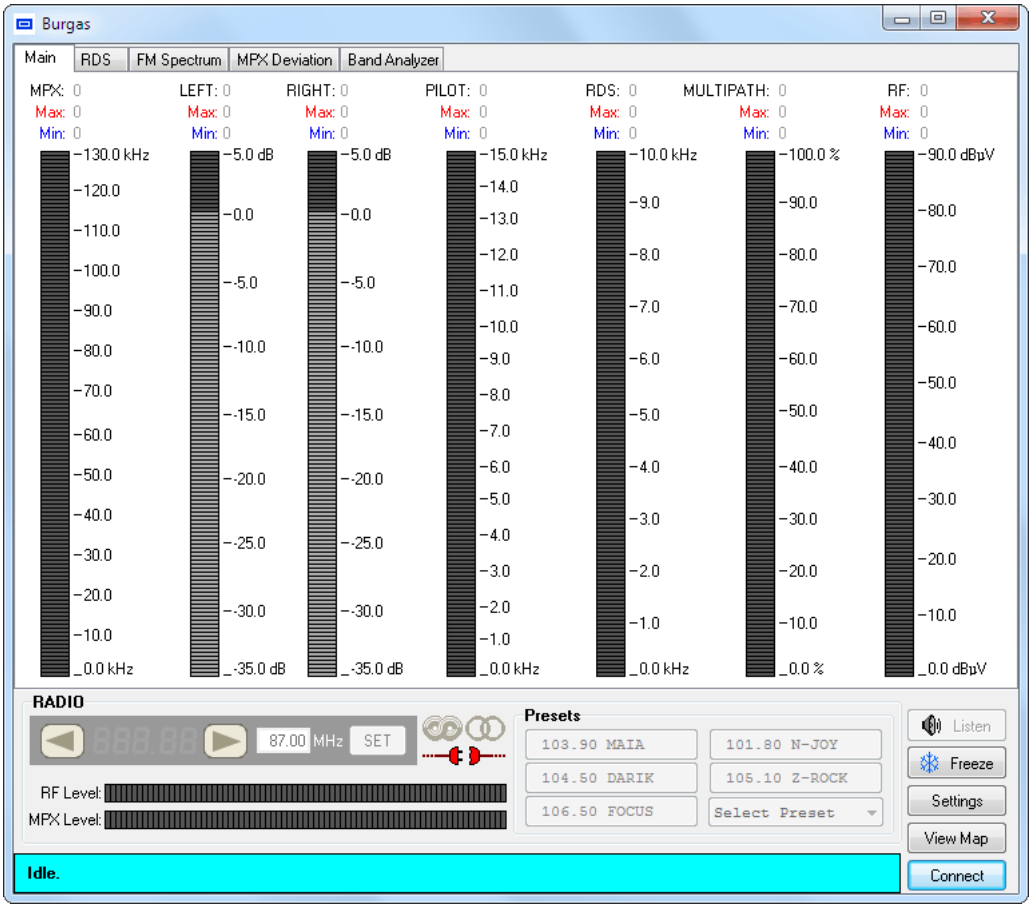
NOTE: “Connect” is a toggle button with two states – “Connect” and “Disconnect”. Upon connecting it will turn itself into  “Disconnect”. The same applies to menu “Connect” and both of them can be used to connect or disconnect accordingly.

Any licensed User can connect to more than one site simultaneously if permitted by his License Agreement.

There is a connection time-out (inactivity) of 5 minutes and the User will be automatically disconnected from the System upon reaching this limit.

View

By selecting “View” from “Device” menu the Device Control Screen will appear. All controls and functions on this screen will be active provided when connected to any of the sites.



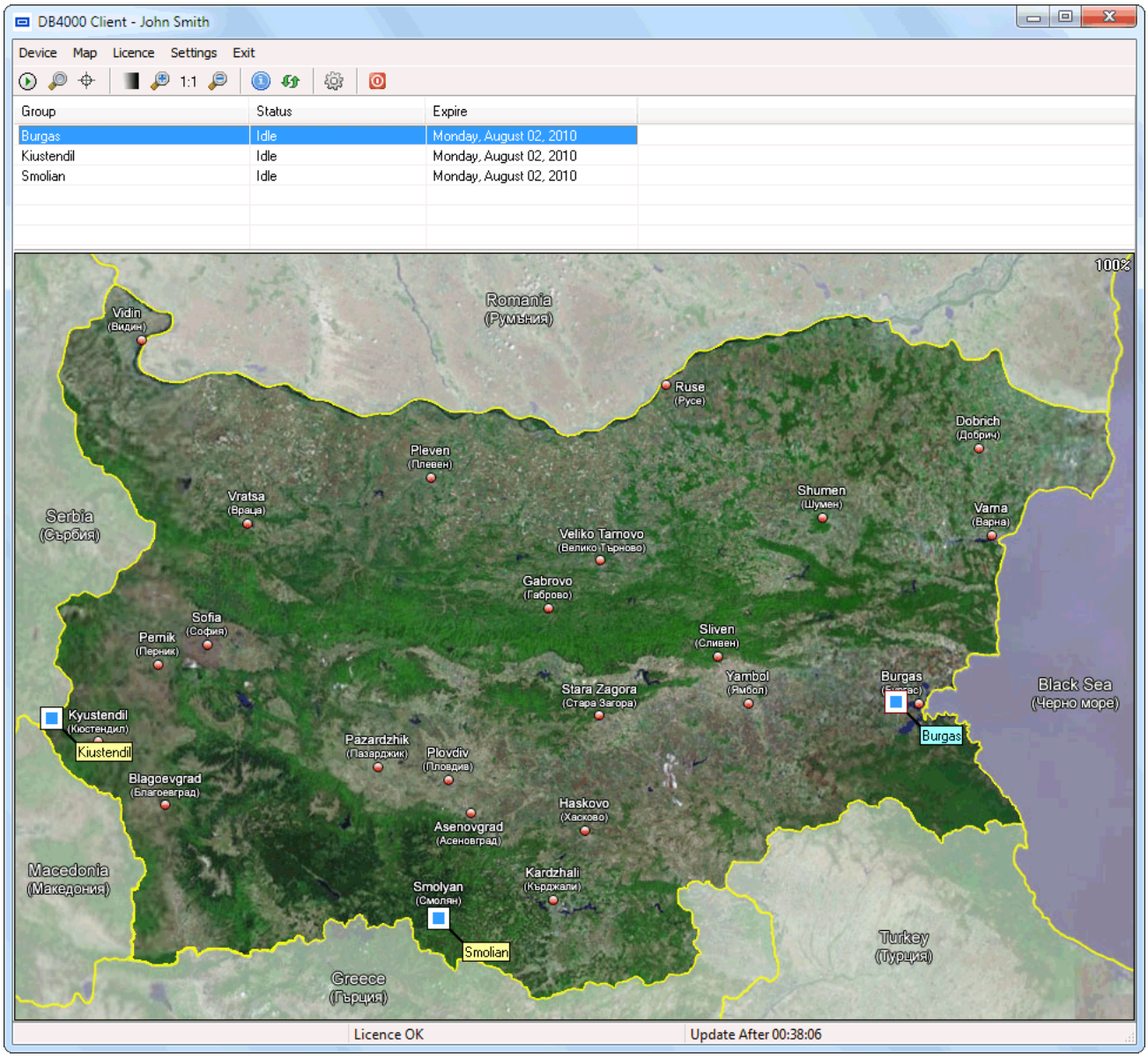
Detailed explanation of Control Screen components is provided in “Device Control Screen” on page 82.

View Map

Using “View Map“ function, the selected Group will be highlighted on the map. In case that this group is not visible on the Map (depending on the zoom and map position) the software will automatically reposition the Map to place the active group on the Map’s center.

MAP

Map is additional tool to visually represent each Site location on User Defined Picture (Map).



Moving the Map

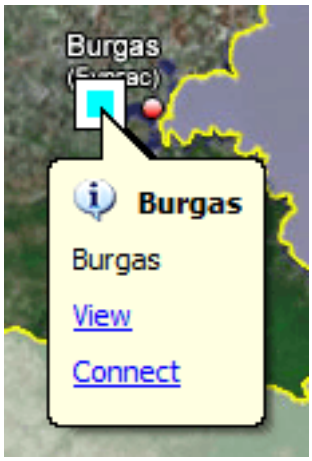
Map could be moved (repositioned) simply by holding mouse button over it (no device under the mouse) and moving into desired direction.

Site Coloring

Currently Selected Site - Site Rectangle is bordered in red. Device Alias is typed on light blue background;
Idle Status - Site Rectangle filling is light blue;
Connected Status - Site Rectangle filling is green;
Disconnected Status - Site Rectangle filling is red;

Site Balloons

Hovering mouse over any Site will pop-up simplified balloon:



Any Site that the User can access (as per License Agreement) can be Connected/Disconnected and Viewed from the balloon that will appear when the mouse is hovered over it.

Grayscale Map

To switch between Color and Grayscale Mode:
- press (Grayscale button) or (Color button);
- or select “Color Map/Grayscale Map” from “Map” menu;

Zoom In

To Zoom In the Map:
- press  (Zoom In button);
- or select “Zoom In” from “Map” menu;

100 %

To bring the Map back to its original size:
- press 1:1 (100 % button);
- or select “100 %” from “Map” menu;

Zoom Out

To Zoom Out the Map:
- press  (Zoom Out button);
- or select “Zoom Out” from “Map” menu;

LICENSE

Refresh

Using this option the User can manually acquire his actual License data file. This file is automatically updated every hour by Client Software.

To Refresh the User's License:
- press  (Refresh button);
- or select "Refresh" from "Licence" menu;

Info

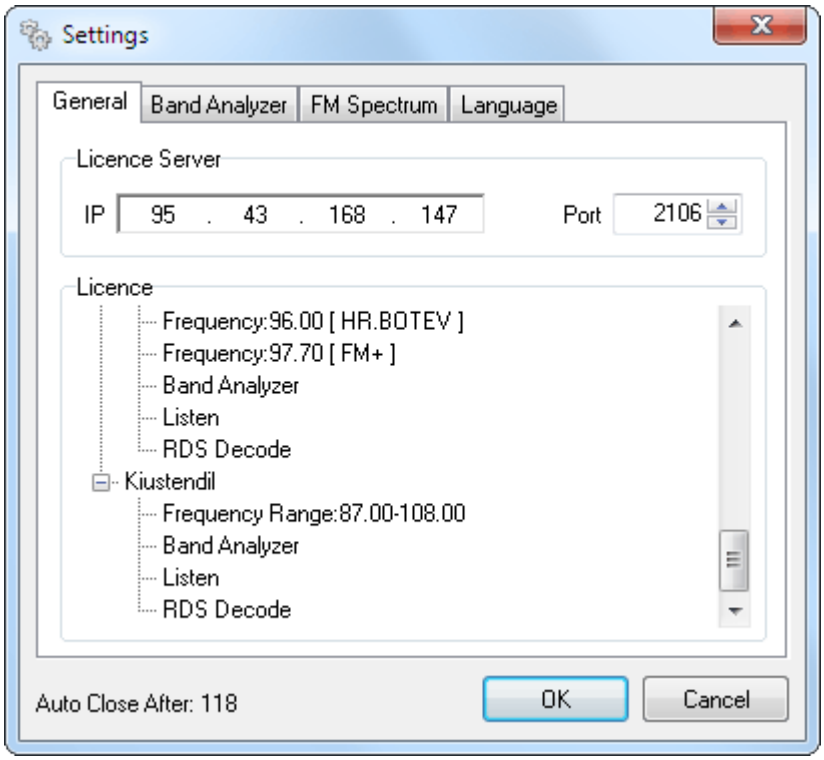
This menu represents information regarding License Expiration, Sites, frequencies and stations aliases as defined by user's License Agreement, Software Version and Server.

To see the information described above:
- press  (Info button);
- or select "Info" from "Licence" menu;

SETTINGS

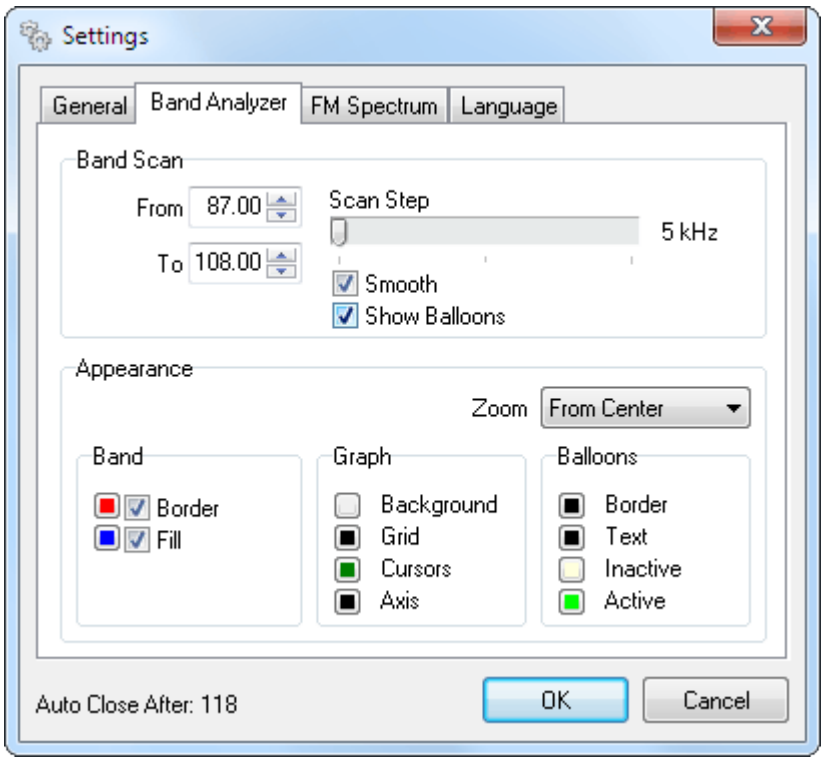
This is the Menu used to configure DB4000 Client software.
NOTE: This window will be auto closed in 120 seconds after its opening.

General



This is the window where IP address and port of the Authentication (Licence) Server must be entered (see “Initial Configuration” on page 69).
“Licence” subfield is rather descriptive and contains information about User’s Licence.

Band Analyzer



Subfield “Band Scan”:

From - Starting Frequency

To - Ending Frequency

Scan Step - Frequency stepping (resolution) through defined scanning range. Selected step defines the scan speed vs. scan details. 5, 10 and 15 KHz steps are available.

Smooth is to switch between “smooth” and “rough” spectrum.

Show Balloons is to enable or disable Balloons appearing above frequency peaks.

Subfield “Appearance”:

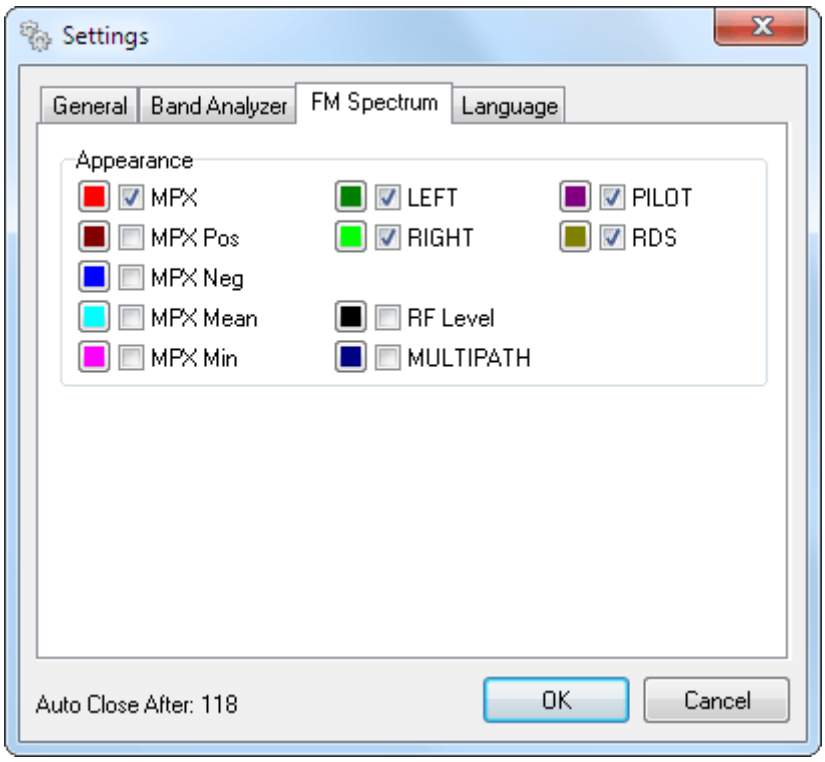
Zoom defines Band Zooming Behavior:

- From Center - Visible area is expanded/shrunk starting from Band Center;
- From Marker - Visible area is expanded/shrunk starting from Marker position;

Band, Graph, Balloons - color customization

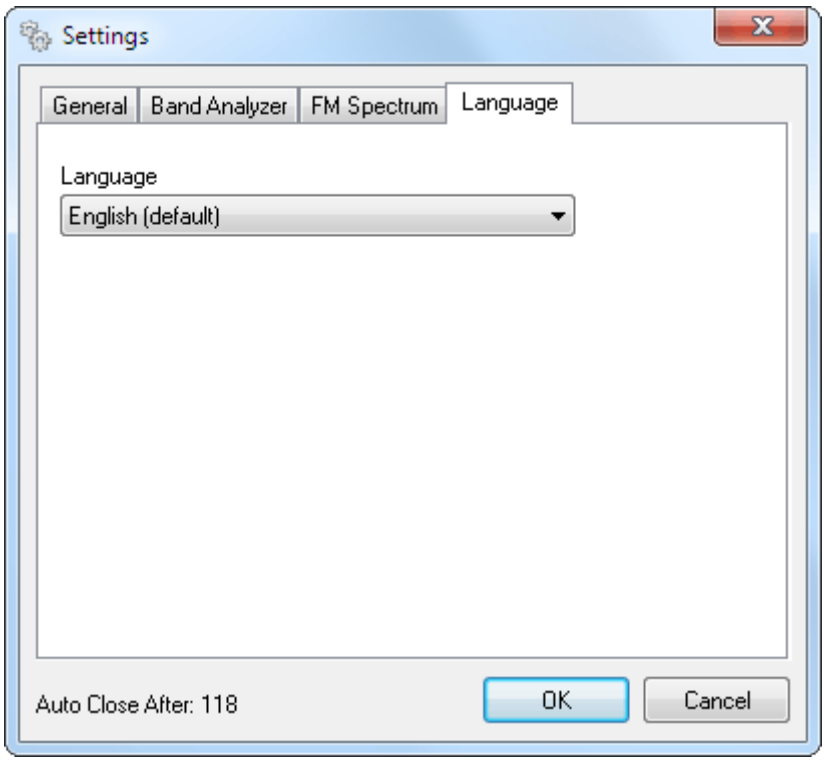
NOTE: Band parameters can be visible or hidden by clicking on corresponding check-box.

FM Spectrum



Color customization of every FM Spectrum parameter could be done here. Any of the parameters can be visible or hidden by clicking on corresponding check-box.

Language

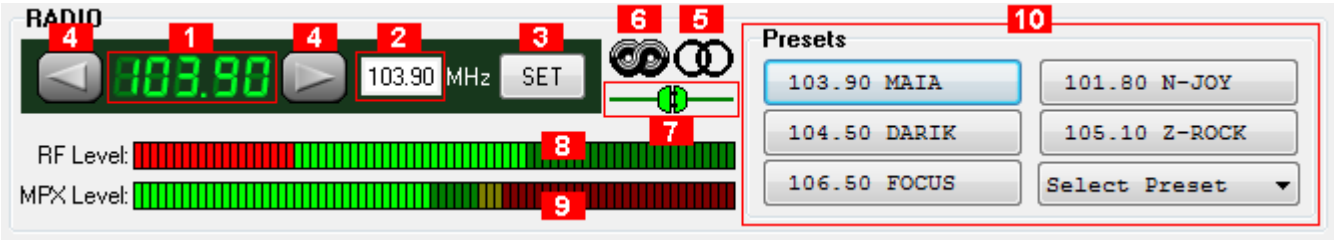


The above window represents language selection option.
NOTE: New language will take effect when program is restarted.

DEVICE CONTROL SCREEN

Radio section and Side Buttons are common for all the windows that can be opened within Control Screen: Main, RDS, FM Spectrum, MPX Deviation and Band Analyzer.

Radio Section



1. Frequency Indicator – Shows the working frequency of the Remote Device;
2. Working Frequency Entering Cell;
3. This button will set the Remote Device to the frequency defined in Cell 2;
4. UP and DOWN buttons for adjusting the Remote Device frequency;
5. Stereo Signal presence indicator;
6. RDS Signal presence indicator;
7. Connection Indicator;
8. RF Level Indicator;
9. MPX Indicator;
10. Presets - buttons with Frequencies and Radio Station aliases as defined by the System Administrator in accordance with User License Agreement. Unlimited number of preset frequencies can be used for faster tuning to a desired station; First five Frequencies will appear on the presets button together with their aliases. If the presets assigned are more than 6, the last button will become drop-down and all other presets will be available from the list.

Side Buttons

- opens associated media player and connects to the remote DB4000 Streamer (in case that DB4000 Device is supplied with the external MP3 streamer and subject to your license);

- freezes data visualization (a toggle button with two states - “Freeze” and “Unfreeze”);

NOTE: Freezing does not stop data flow, just holds the visualization.

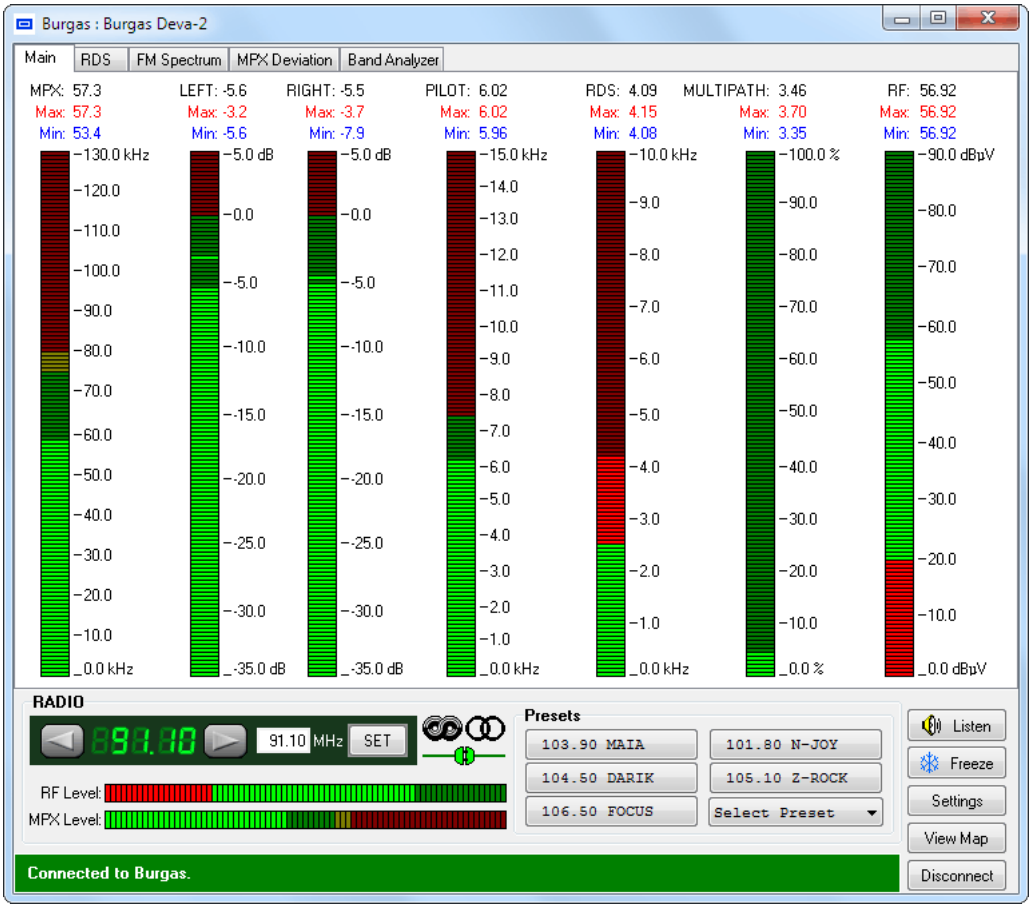
- unfreezes data visualization (a toggle button with two states – “UnFreeze” and “Freeze”);

- brings out Settings window;

- brings out Map Window with Device centered into view;

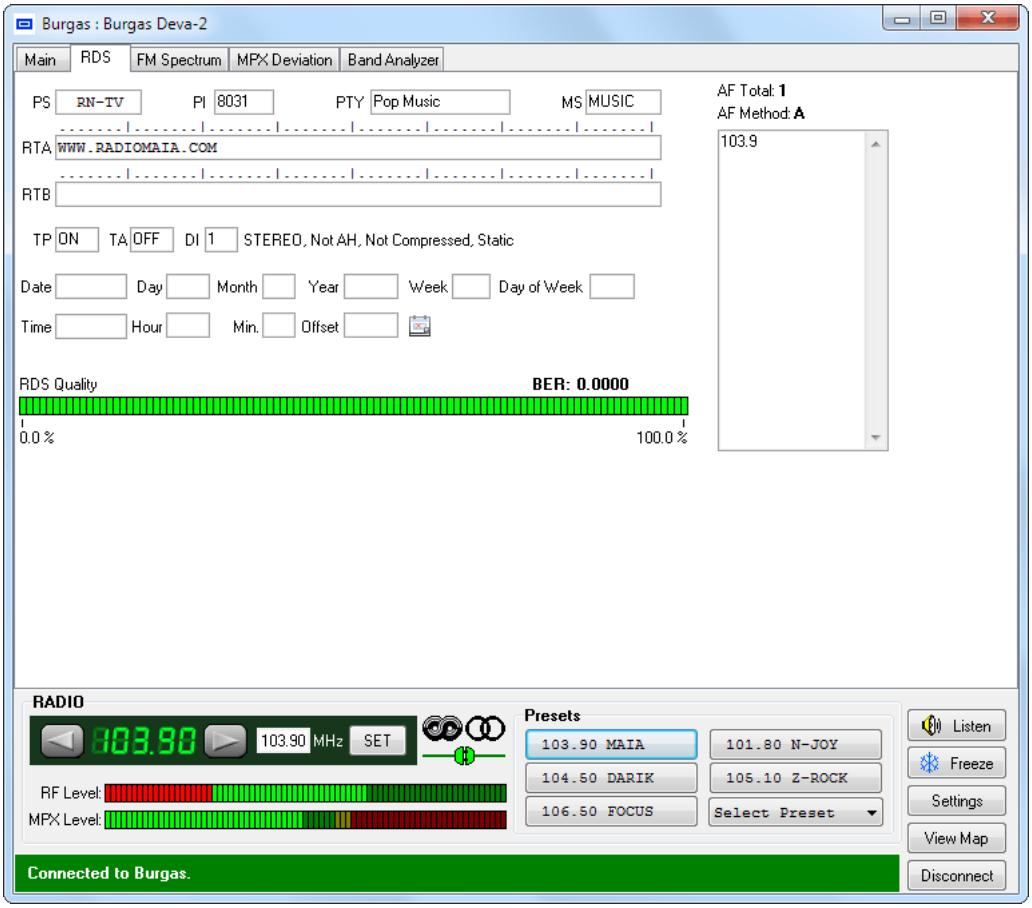
- disconnecting from the System;

Main



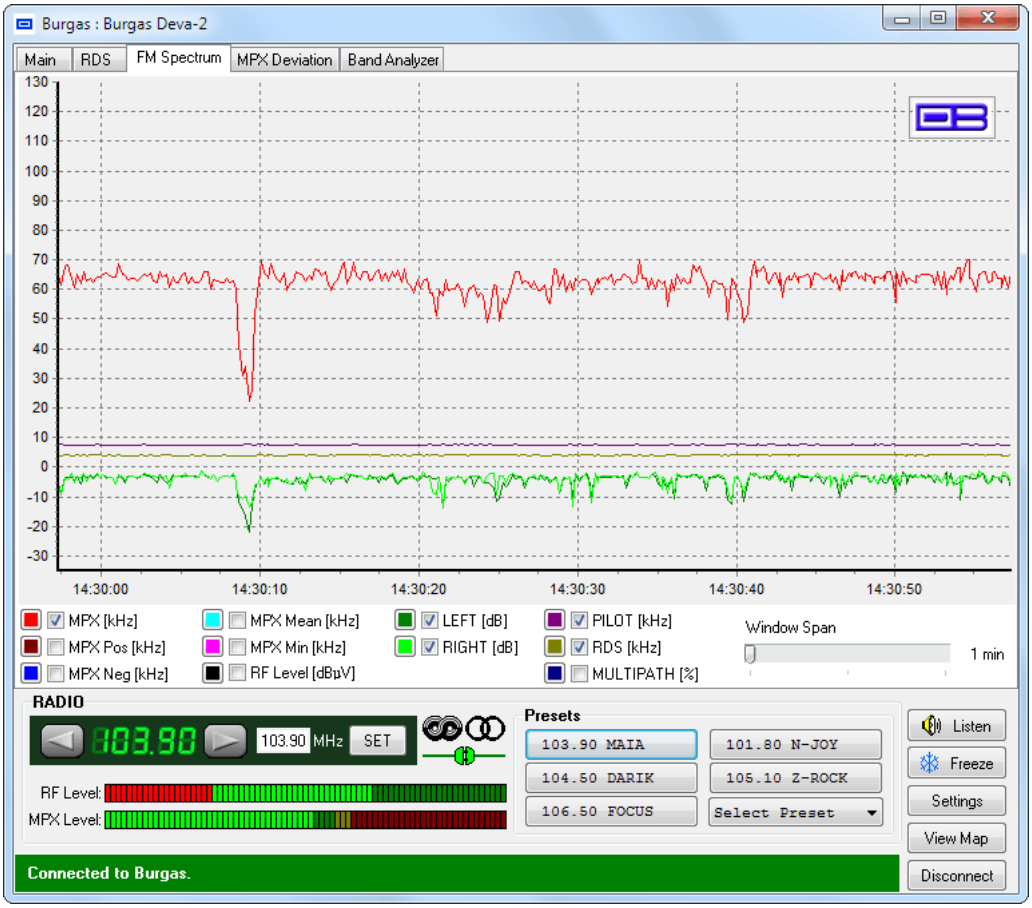
This screen shows all mandatory parameters represented as LED readings. Three values are shown above every LED indicator. First is the currently measured value, followed by its minimum and maximum peak values for the period of the last frequency change.

RDS



This screen represents all mandatory RDS readings if there is RDS signal available for the station tuned in.

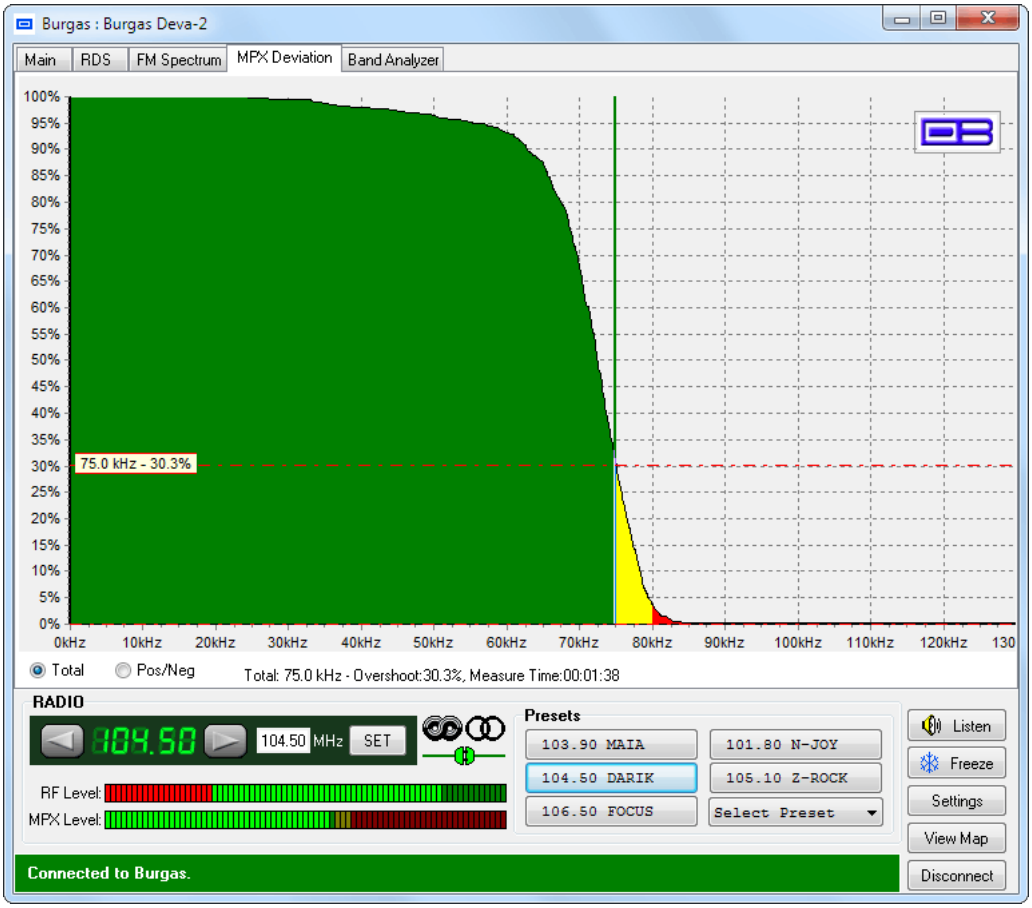
FM Spectrum



This screen represents all mandatory parameters over the selected time slice (Window Span). Every parameter has its own color representation and measurement units, which are visible below the graph. Colors can be changed upon clicking on the square button in front of the parameter's name. Units are tuner-depending i.e. when in RDS mode - MPX, RDS and PILOT reading are in KHz, RBDS mode - %.

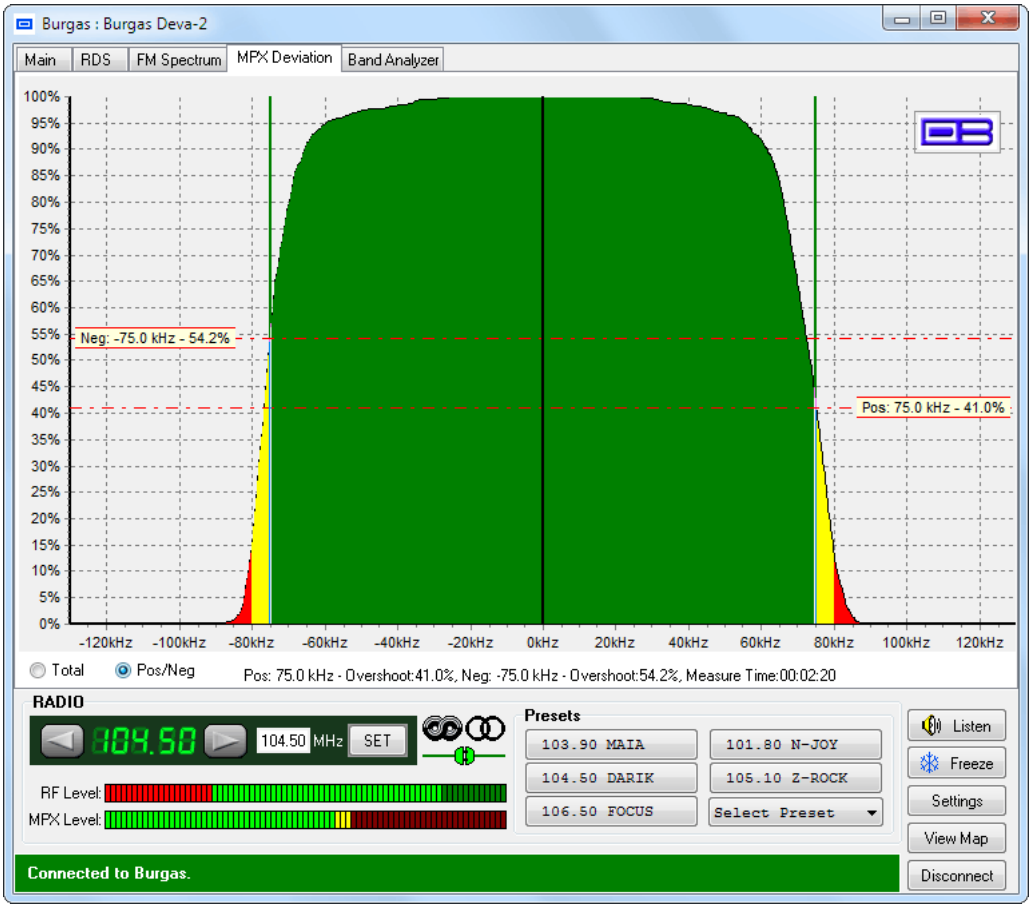
NOTE: Parameters can be visible or hidden by clicking on corresponding check-box.

MPX Deviation



This screen represents Total MPX Deviation overshoot (in percent) over time.

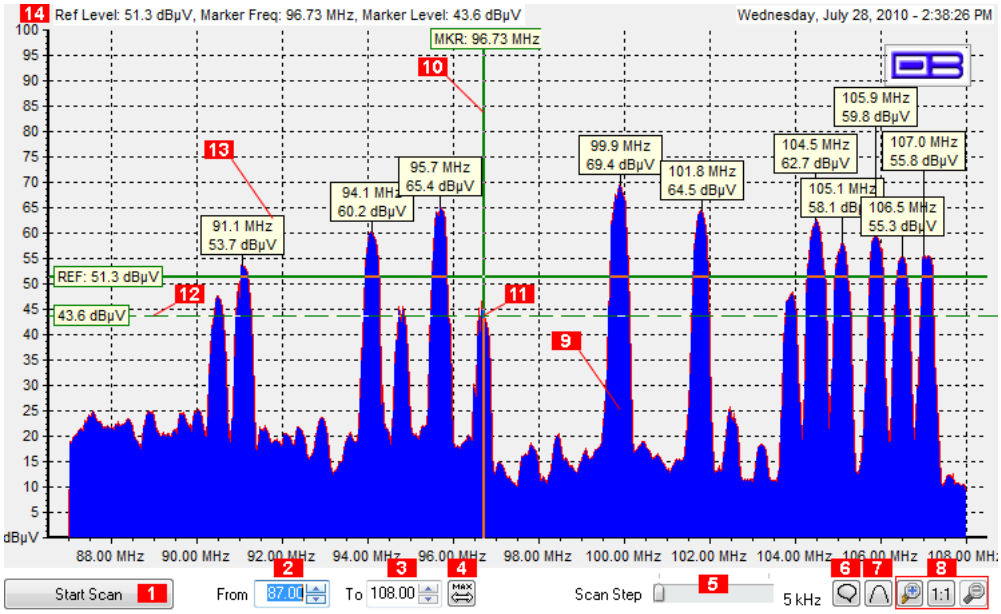
Standard overshoot is measured at 75 KHz and is indicated with the start of the yellow zone. User-defined frequency can be selected by moving vertical marker along the horizontal scale. Overshoot will be indicated at the cross-point with the horizontal dotted line.



This screen represents Positive/Negative MPX Deviation overshoot (in percent) over time.

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Band Analyzer



1. Button to start scanning process.
2. Starting Frequency.
3. Ending Frequency.
4. Buttons to adjust Starting (2) and Ending (3) frequencies to cover entire FM Band (87-108 MHz)
5. Scan Step - frequency stepping (resolution) through scanning range. Selected step defines the scan speed vs. scan details.
6. Button to enable/disable Balloons above peaks.
7. Button for switching between ‘smooth’ and ‘rough’ spectrum.
8. Zoom Control.
9. FM Band Spectrum. The horizontal scale shows the frequencies. The vertical shows their measured levels.
10. Marker - By moving Marker along the Band Spectrum, frequency and corresponding level is displayed into information field (14).
11. Marker Cross-point - displays corresponding level of the Marker.
12. Reference Level Marker.
13. Information Balloon.
14. Information Field:
    - Ref Level – level under the Reference Marker;
    - Marker Freq – frequency under the Marker;
    - Marker Level – corresponding level of the frequency under the Marker;

65 Aleksandar Stamboliyski Str., 8000 Bourgas, Bulgaria
Tel: +359 56/820027, Fax: +359 56/836700
E-mail: office@devabroadcast.com
Web: www.devabroadcast.com

Band Analyze Basics

First step of Analyze Process is defining the “Zone to analyze”. Band Spectrum itself, resulted from Scan Process defines the left and right edges of analyzed area. Selecting the reference level by moving the Reference Marker defines the bottom of the zone, while the top is defined by the maximum measured level.

While adjusting the Reference Marker, all peaks within analyzed zone are calculated automatically and Information Balloon holding peak frequency and RF Level is showed above.

Band Analyzer Supplementals

Information Balloons can be rearranged by moving them vertically up and down by the mouse.

Double clicking close to any of the peaks tunes the Device according to the peak frequency. The corresponding balloon over selected peak is colored as active.