SET-UP INSTRUCTIONS

How can the **DB9000-TX** be used as an RTP Sender, sending audio to **DB9000-RX** decoder used as an RTP Receiver

DEVA® BROADCAST

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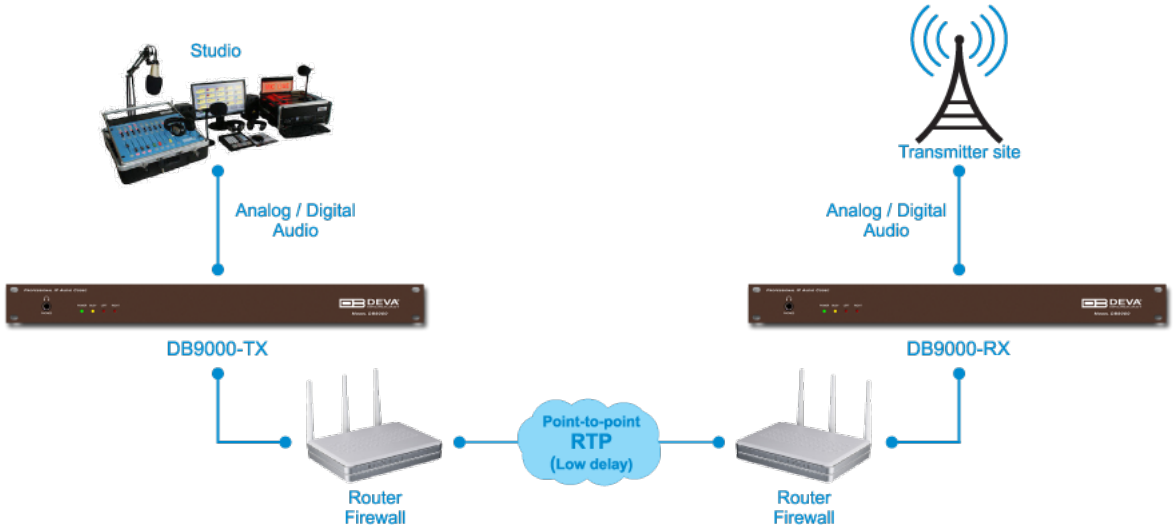
General information

The IP Audio encoder and decoder are controlled trough a build in WEB Server and a standard web browser is used to monitor their status or to make some adjustments. To operate the devices you need to know their IP Address. In case you are not aware of the IP Addresses and how to open the WEB interface, please refer to "Appendix A - DB9000-TX Quick User Guide" on page 7 and "Appendix B - DB9000-RX Quick User Guide" on page 11.

This configuration allows two types of applications:

POINT-TO-POINT LOW DELAY RTP AUDIO TRANSMISSION

This configuration is perfect if your setup requires only point-to-point connection. It has a minimum and almost constant delay value (usually less than a second).



DB9000-TX AND DB9000-RX SET-UP

Prior to implementing the below written adjustments, the following requirements should be fulfilled:

- DB9000-TX should be connected to a Network (Internet or LAN).
- DB9000-TX could be set with dynamic IP.
- DB9000-RX configured as RTP receiver with static IP.
- If the DB9000-RX is placed behind a router, you will have to make sure that the RTP Receiver port is properly NAT forwarded.

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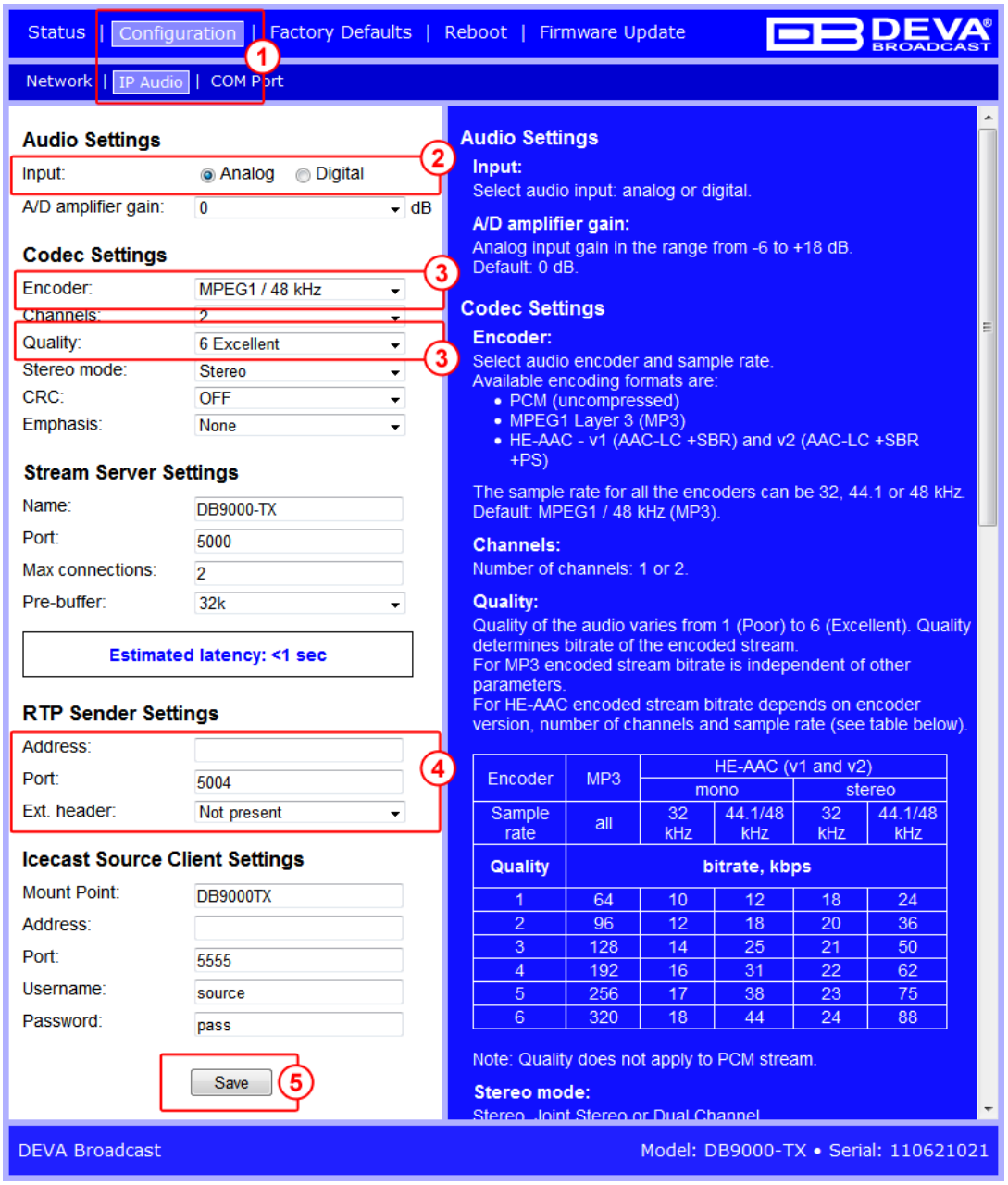
DB9000-TX RTP SENDER SET-UP



1. Go to ***Configuration> IP Audio***;
2. *Audio Settings* section – Choose the preferred audio signal **input**;
3. Assign **Encoder + Sample rate** and the desired **Signal quality**. The combination of these parameters will define the required minimum bandwidth of your network connection;
4. *RTP Settings* section – Specify the URL or IP **Address**, and **Port** of the RTP Receiver to be used.
5. Press [Save] to save the changes.

For detailed information and instructions on how communication with the DB9000-TX can be established, please refer to "Appendix A - DB9000-TX Quick User Guide" on page 7.

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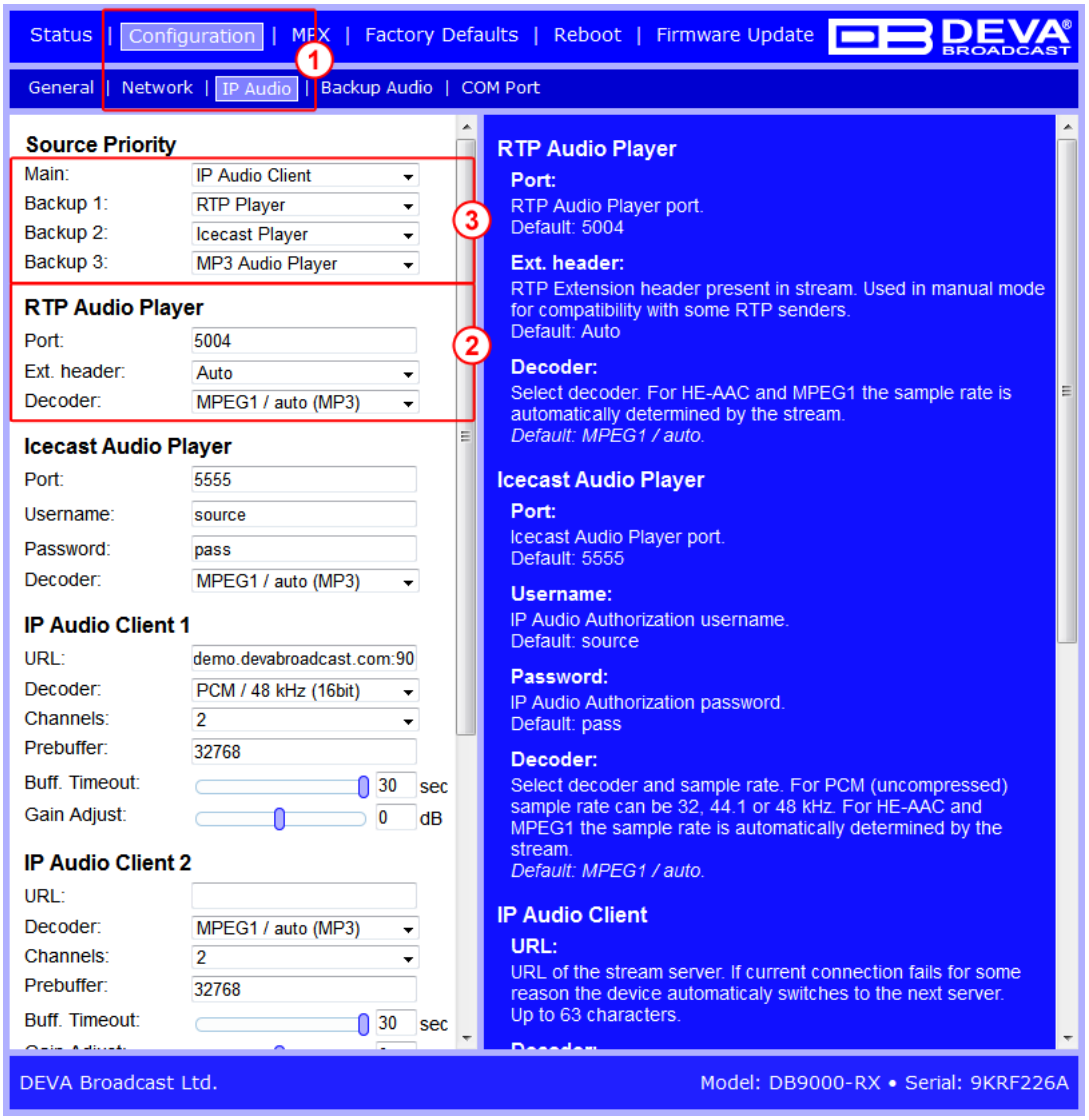
DB9000-RX RTP RECEIVER SET-UP



1. Go to ***Configuration> IP Audio***;
2. *RTP Audio Player* section – Specify the audio player **Port** and **Decoder** to be used;
3. From the *Source Priority* section set the priority of the RTP Audio Player.
4. Press [Save] to save the changes.

For detailed information and instructions on how communication with the DB9000-RX can be established, please refer to "Appendix B - DB9000-RX Quick User Guide" on page 11.

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Appendix A

Quick User Guide

DB9000-TX

Professional IP Audio Encoder

→ BEFORE YOU USE THIS PRODUCT ←

In order to be able to enjoy all the benefits of owning your new DEVA product, please verify first that the latest software and firmware release were installed.

Visit **www.devabroadcast.com/downloads** for the most recent software and firmware downloads, prior the installation.

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This Quick user guide will make the installation of DB9000-TX quick and easy. Applying these principles, you can simplify the process and save yourself extra time and effort. **For more information about the Safety precautions and the Operating environment recommendations please refer to the User Manual.**

STEP 1 — Connection

The encoder has to be connected to the local network or Internet by cable with RJ-45 connector.

As only one input at a time can be managed by the encoder, please select the preferred signal source input - either analog or digital one:

- For **Analog audio** use a cable that ends with two standard XLR jacks to connect the analog signal source to the analog audio inputs of DB9000-TX.
- For **Digital audio** use a cable that ends with standard XLR jacks to connect the AES/EBU signal source to the digital audio input of DB9000-TX.
- Connect the device to the AC power.

NOTE: For the RS-232 COM PORT use a standard DB-9 cable to connect DB9000-TX to any RS-232 compatible equipment.

STEP 2 — Configuration

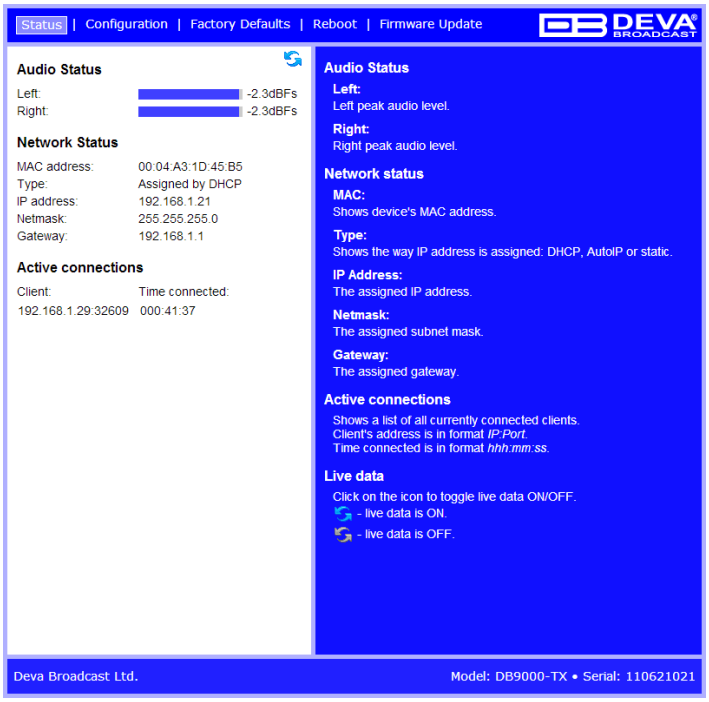
DB9000-TX is controlled trough a build in WEB Server and a standard web browser can be used to monitor its status or to make some adjustments.

To operate the device you need to know its IP Address. In case you are not aware of it, you can hear it through the headphones when you turn on the the device. Alternatively, use the Network discovery feature at Local networks (*for reference see Step 8*).

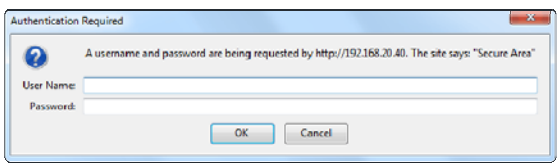
STEP 3 — WEB Interface

Open a WEB Browser and enter the device IP Address in the browser's address field, them press Enter. The web interface will be displayed Current status information will be displayed comprising: Audio Status; Network Status; Active connections Status.

For further reference see the detailed explanation on the right part of the screen.



A username and password may be requested if the Access Control is turned on and a page other than STATUS is selected. Default values are *user* and *pass*.



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STEP 4 Network Configuration

General Network Settings

If you plan to use static settings please disable the DHCP and fill in the information requested - IP Address, Netmask, Gateway, Primary and Secondary DNS. Otherwise, enable the DHCP.

Web Server Settings

In order to enhance the security of DB9000-TX you can set new Username and Password. In case a dialog box appear, fill in the NEW username and password requested.

NOTE: If username and password fields are left blank, **NO** security is used.

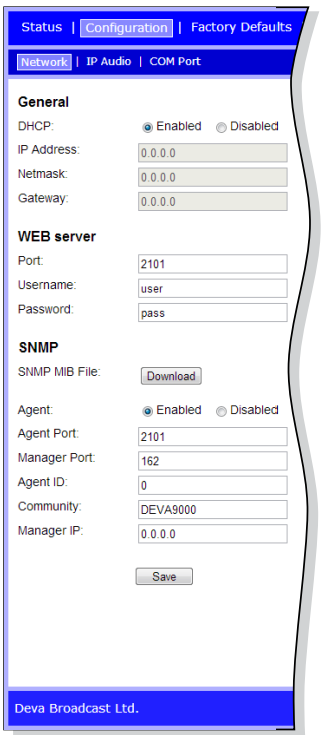
SNMP Settings

Press the **Download button** to download the latest available DB9000-TX SNMP MIB file. Then **specify** Agent ID, Agent Port, Red/Write Communities, Manager IP and Manager Port.

Agent ID is used to identify the device among others when a SNMP notification is send. Agent - enables/disables SNMP Agent.

NOTE: The MIB file may vary from one firmware revision to another. Downloading this file from the device guarantees that you have the latest MIB file.

Step 4. Network Configuration



STEP 5 IP Audio Configuration

Audio Settings

Choose the preferred audio signal source. Assign Encoder +Sample rate and the desired signal quality. The combination of these parameters will define the required bandwidth of your Internet connection.

NOTE: PCM will improve the quality, but higher Network bandwidth will be required consequently.

Stream Settings

Preferably change the name of the device. Later on it will be used as a title name on all WEB pages. Customizing the name will make DB9000-TX more recognizable. Insert the TCP port in the Port field AFTERWARDS.

If you decide to use the Stream Server you should make adjustments to the Port and the maximum connections which will be supported.

NOTE: For more information refer to the help section on the right part of the screen, containing brief information about each of the fields. For field description display, point the mouse cursor on the fields on the right.

RTP Audio Player

The RTP Settings require Decoders' Server Address and Port to be entered.

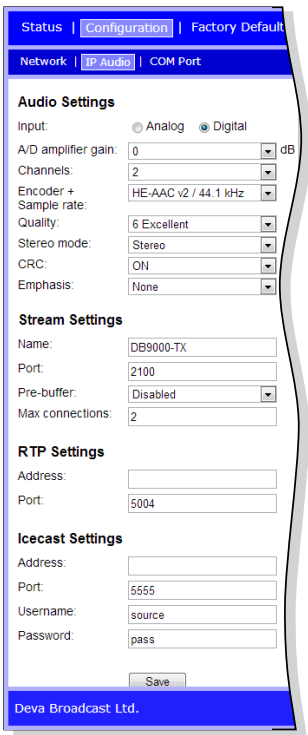
Icecast Receiver

Decoder IP Address and Port should be filled in.

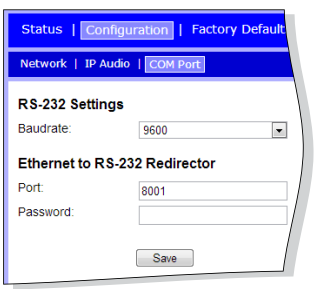
The username and password are used to secure the connection. Make sure to enter the same information on both sides of the connection.

NOTE: The selected encoder must match the settings of the decoders on the other side of the connection.

Step 5. IP Audio Configuration



Step 6. COM Port Configuration



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STEP 6 — COM Port Configuration

DB9000-TX acts as Ethernet to an RS-232 redirector. You can connect any RS-232 compatible equipment to DB9000-TX and to communicate with it over the Internet. A special software (Virtual COM Port to Ethernet Tool) need to be installed on your PC in order for the COM Port configuration to take place. Enter a Baudrate and configure the external equipment to the same baud rate, specify Port and Password next.

The password is the first symbols your software must send to authenticate itself to the Redirector. If left blank, NO security is used. Default value is pass.

STEP 7 — Factory Defaults, Reboot, Firmware update

The Factory Defaults page

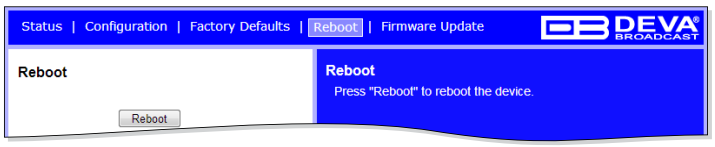
To restore DB9000-TX to its Factory Defaults you should first press the Restore button. A new window will appear: confirm that you want to restore factory defaults and wait for the process to complete.

All settings will be restored to their factory defaults except for Network and WEB server Settings which remain unchanged. On completion of the process the settings should have the proper default values.

Hardware Reset

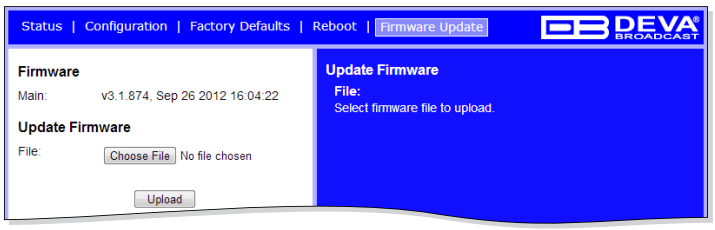
This process will fully restore DB9000-TX to its Factory Defaults, including the Network settings. To start a Hardware Reset, disconnect the power supply cable from the unit. Then locate the RESET button on Rear panel, press and hold it. Afterwards, connect the power supply cable to the unit and keep the RESET button held until the PWR led starts blinking. Release the RESET button and wait for DB9000-TX to reboot with the factory default settings.

Rebooting



To start Rebooting of DB9000-TX press the Reboot button. A dialog warning window will appear. Confirm that you want to reboot the device and wait for the process to complete.

Firmware Update



To update the device firmware, please select the new firmware file. Press the Upload button. A dialog window will appear. Confirm firmware update and wait for the process to complete.

STEP 8 — Network discovery for Windows 7

1. Open Advanced sharing settings by clicking the **Start button**, and then on **"Control Panel"**. In the search box, type **"network"**, click **"Network and Sharing Center"**, and then, in the left panel click **"Change advanced sharing settings"**.
2. Select your current network profile.
3. Click **Turn on network discovery**, and then click Save changes. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.
4. To access the device open a new Explorer bar and click on **Network** . If you have successfully enabled the network discovery option, the device will be displayed. A double click on **DB9000-TX** will open a new WEB browser window.

NOTE: If you have already enabled this function on your computer just open a new Explorer bar and click on **Network**. The device must be displayed. If not, follow the instructions from Step 8.

Enjoy the work with DB9000-TX - a product of superb quality and functionality.
For detailed explanations concerning the device refer to its complete manual.

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Appendix B

Quick User Guide

DB9000-RX

Professional IP Audio Decoder

→ BEFORE YOU USE THIS PRODUCT ←

In order to be able to enjoy all the benefits of owning your new DEVA product, please verify first that the latest software and firmware release were installed.

Visit **www.devabroadcast.com/downloads** for the most recent software and firmware downloads, prior the installation.

This Quick user guide will make the installation of DB9000-RX quick and easy. Applying these principles, you can simplify the process and save yourself extra time and effort. **For more information about the Safety precautions and the Operating environment recommendations please refer to the User Manual.**

STEP 1 Connection

Connect the device to a local network or to the Internet by a cable with an RJ-45 connector.

To operate the device you need to know its IP Address. In case you are not aware of it, you can hear it through the headphones when you turn on the the device. Alternatively, use the Network discovery feature at Local networks (*for reference see Step 13*).

STEP 2 WEB Interface

Open a WEB Browser and enter the device IP address in the browser's address field, then press Enter.

The web interface will be displayed to you with the respective main pages: Status; Configuration; MPX; Factory Defaults; Reboot; Firmware Update.

STEP 3 Status Section

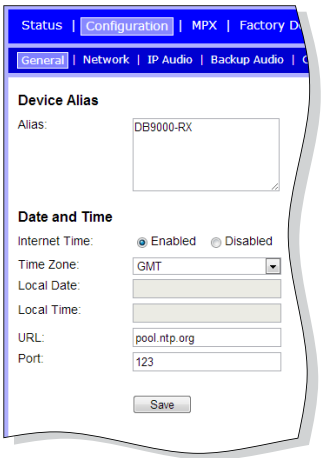
Current status information will be displayed comprising Audio Status; Network Status; Connection Status.

For further reference see the detailed explanation on the right part of the screen.

NOTE: Clicking on the *LIVE DATA* icon will toggle live data *ON* and *OFF*

STEP 4 General Settings

Click on the Configuration button. A dialog will appear. Fill in the username and password requested, default values being: user and pass.



Device Alias

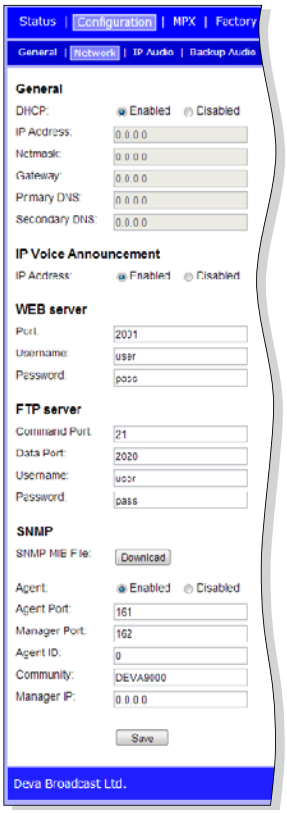
By choice, you can change the name of the device. Later on it will be used as a title name on all WEB pages. Customizing the name will make the device more recognizable.

Date and Time

- **Internet Time** – Enable or disable automatic time synchronization from Internet.
- **Time Zone** – Select local time zone of the device.
- **Local Date and Local Time** – Enter the local date and time if the Internet Time is disabled.

NOTE: After selecting new settings, press the SAVE button to put them into effect. Some of the new settings can reset DB9000-RX.

STEP 5 Network Configuration



General Network Settings

If you prefer to use static settings please disable the DHCP and fill in the information requested - IP Address, Netmask, Gateway, Primary and Secondary DNS. Otherwise, enable the DHCP.

IP Voice Announcement

In order to avoid IP voice announcement during broadcasting we recommend you to disable this function.

Web Server Settings

In order to enhance the security of DB9000-RX you can set new username and password. A dialog box requesting your NEW username and password may appear.

NOTE: If username and password fields are left blank, **NO** security is used.

FTP Server Settings

Specify the Command Port of the FTP server. Enter username and password for the FTP server.

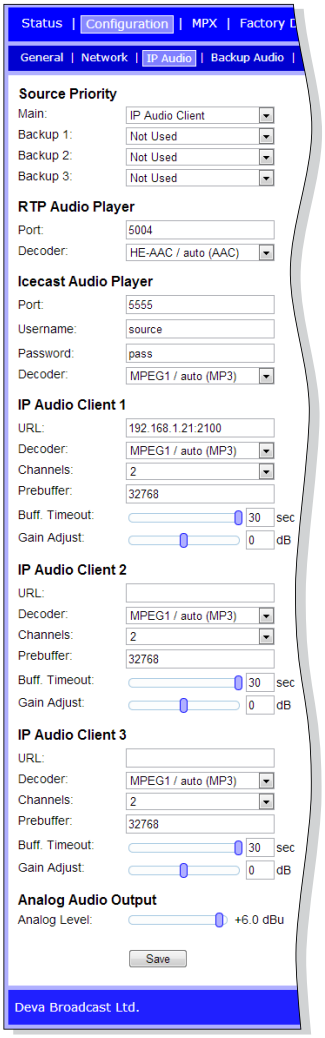
The FTP Server must be in Passive mode-maximum one connection at a time.

SNMP Settings

Press the **Download button** to download the latest available DB9000-RX SNMP MIB file. Then **specify** Agent ID, Agent Port, Community, Manager IP and Manager Port.

Agent ID is used to identify the device among others when a SNMP notification is send. Agent - enables/disables SNMP Agent.

STEP 6 IP Audio Configuration



Source Priority

DB9000-RX has one main and two backup audio sources. If the audio signal of the main source disappear the device will switch to the first available backup source.

When the main audio signal is recovered DB9000-RX will automatically switch back to it. Depending on your needs the priority of the connections should be specified.

RTP Audio Player

Choose a port and decoder.

Icecast Audio Player

Choose a port and decoder. The username and password are used to secure the connection. Make sure to enter the same on both sides.

IP Audio Player

DB9000-RX has one main URL and two alternative Stream Audio Sources URL2, URL3. Switching between streams is immediate on audio loss. When current Stream is URL2 or URL3 and connection to URL1 is restored there will be an instantaneous switch back to URL1.

If the server does NOT use Port 80 you should enter URL and Port of the Encoder. For example 192.165.1.21**:2100**.

NOTE: The selected players' decoders must match the settings of the encoder devices on the other side of the connection.

Analog Audio Output

Adjust the analog output level of the device.

STEP 7 — Backup Audio Configuration

Audio Loss and Audio Recover

Select the appropriate levels of loss and recovery of the audio signal. Do not forget to set the timeout. Set wether the loss of audio should be registered by the one channel only or for both of them.

DB9000-RX has a **built-in backup audio player**. It plays tracks from SD Card storage uploaded over the FTP in case of main audio signal loss.

The **MPS Audio Player** permits you to Select the order in which the tracks are played by the backup player from the possible options.

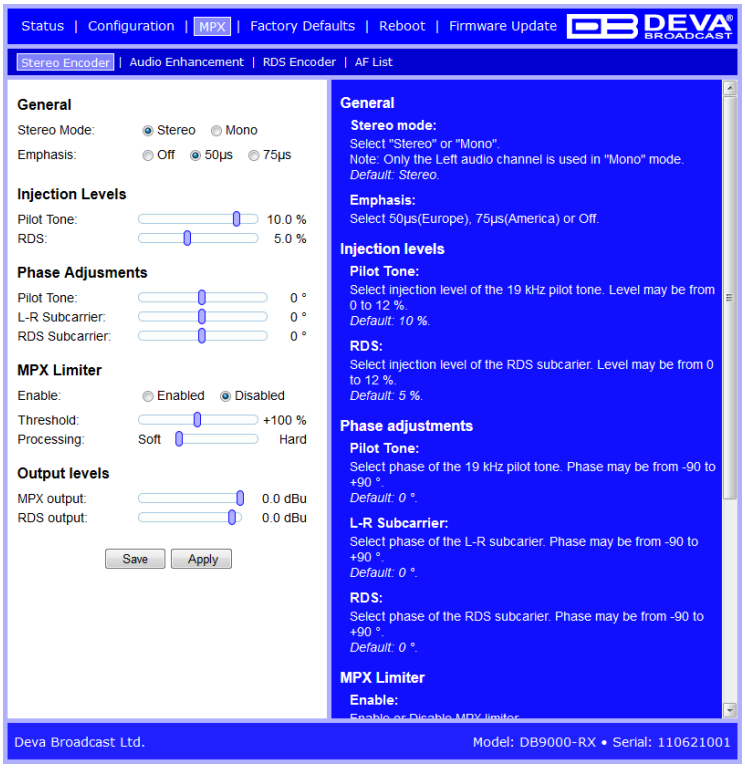
All backup audio files must be located in a single folder named **Audio**. It must be in the root of the **SD Card**. No subfolders are allowed. The playlist file must be named playlist.m3u.

STEP 8 — Stereo Encoder

The Stereo and RDS Encoder Module is an optional board.

- **Stereo Mode** - Select Stereo or Mono Mode for MPX signal.
- **Emphasis** - Select 50µS for Europe or 75µS for USA.
- **Injection Levels** - Select injection level from 0 to 12 % for the 19kHz pilot tone and for the RDS subcarrier.
- **Phase Adjustment** - Select a phase of the Pilot Tone, those of the L-R sub-carrier and RDS sub-carrier are factory adjusted.
- **MPX Limiter** - Enable or Disable the MPX Limiter and set the desired Threshold and Processing.

NOTE: For further reference see the detailed explanation on the right part of the screen.



STEP 9 — Audio Enhancement

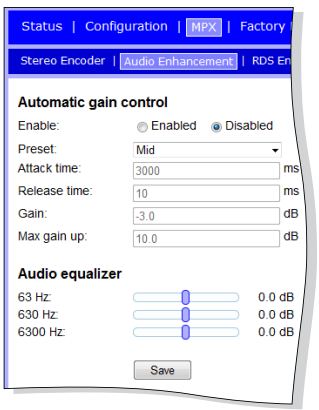
Automatic Gain Control Settings

Enable or Disable the Automatic Gain Control (AGC).

There are factory and user configurable presets available. Set your own AGC presets changing the following parameters: Attack time, Release time, Gain, Max gain up.

Audio Equalizer Settings

Applied equalizer gain has to be set according to the level of specified frequency and overall level of this frequency must not exceed 0dB.



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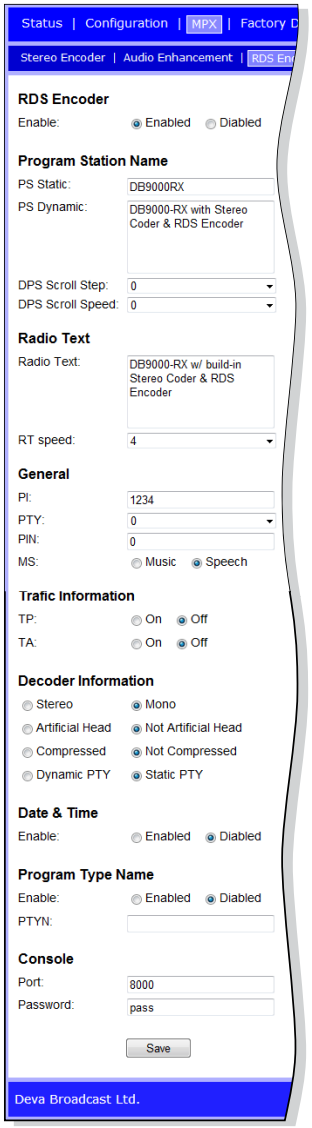
STEP 10 Stereo Encoder



DB9000-RX has a built-in RDS Encoder, it allows you to brand your station.

Program Station (PS) Name Settings

Comprise of PS Static, PS Dynamic, DPS Scroll Step, DPS Scroll Speed.

Radio Text Settings

After pressing the INFO button on the receiver, up to 64-character block for visual display will appear on the faceplate of the radio.

RT Speed –Select RT transmission speed from RT off to Fast.

General Settings

Comprise of PI – Program Identification: “digital signature” of the station, PTY – Program Type, M/S – Music / Speech Switch.

Trafic Information

TP – Traffic Program Identification. Turn TP on or Off.

TA – Traffic Announcement: Turn TA on or Off.

Decoder Information

DI – Decoder Information: This is one of several 'flags' that convey yes/no or other very basic data.

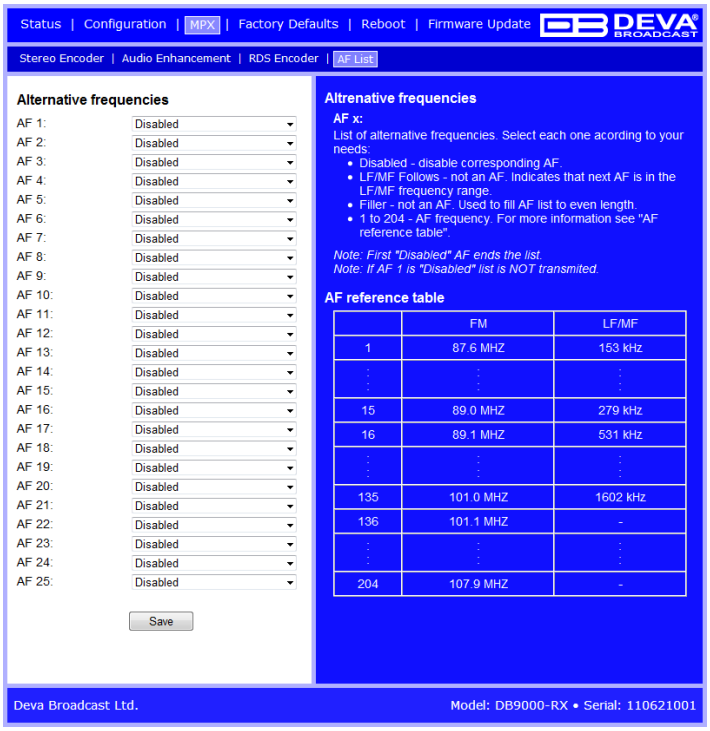
Console Settings

Enter the TCP port of the RDS console used to edit RDS settings in real time. Enter a Password for the RDS console: the first symbols that must be sent to authenticate to the RDS console, otherwise the connection will drop. If left blank, NO security is used.

STEP 11 Alternative Frequencies

DB9000-RX allows you to set your own alternative frequencies.

- **Disabled** - disable corresponding Alternative frequencies;
- **LF/MF Follows** - This tool indicates that next Alternative frequency is in the *Low* or *Medium* frequency range;
- **Filler** is used to fill the *Alternative frequency* list to even length.
- **1 to 204** - Alternative frequency. For more information see "AF reference table" placed on the right part of the WEB Interface.



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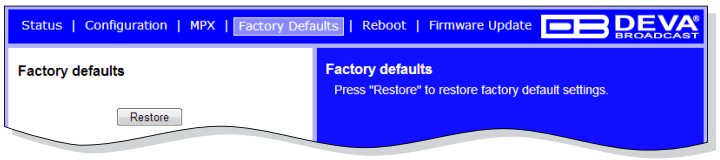
STEP 12 Factory Defaults, Reboot, Firmware update

The Factory Defaults page

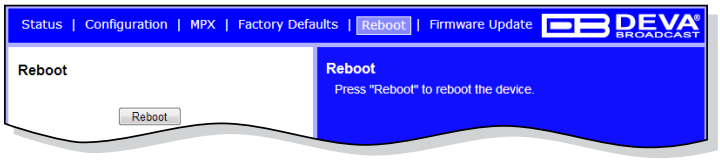


To restore DB9000-RX to its Factory Defaults you should first press the Restore button. A new window will appear: confirm that you want to restore factory defaults and wait for the process to complete. All settings will be restored to their factory defaults except for Network and WEB server Settings which remain unchanged. On completion of the process the settings should have the proper default values.

Hardware Reset

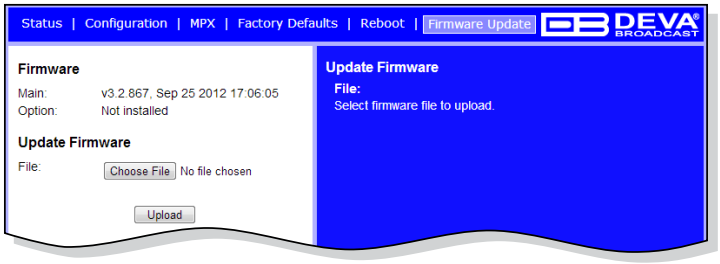
This process will fully restore DB9000-RX to its Factory Defaults, including the Network settings. To start a Hardware Reset, disconnect the power supply cable from the unit. Then locate the RESET button on Rear panel, press and hold it. Afterwards, connect the power supply cable to the unit and keep the RESET button hold until the POWER led starts blinking. Release the RESET button and wait for DB9000-RX to reboot with the factory default settings.

Rebooting



To start Rebooting of DB9000-RX press the Reboot button. A dialog warning window will appear. Confirm that you want to reboot the device and wait for the process to complete.

Firmware Update



To update the device firmware, please select the new firmware file. Press the Upload button. A dialog window will appear. Confirm firmware update and wait for the process to complete.

STEP 13 Network discovery for Windows 7

1. Open Advanced sharing settings by clicking the **Start button**, and then on **"Control Panel"**. In the search box, type **"network"**, click **"Network and Sharing Center"**, and then, in the left panel click **"Change advanced sharing settings"**.
2. Select your current network profile.
3. Click **Turn on network discovery**, and then click Save changes. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.
4. To access the device open a new Explorer bar and click on **Network** . If you have successfully enabled the network discovery option, the device will be displayed. Double click on **DB9000-RX** will open a new WEB browser window.

NOTE: If you have already enabled this function on your computer just open a new Explorer bar and click on **Network**. The device must be displayed. If not follow the instructions from Step 13.

Please refer to the User manual for detailed information on how to configure and explore your device.