

SET-UP INSTRUCTIONS

How can the **DB90-TX** be set
to act as a Streaming Audio Server,
sending audio to **DB90-RX** decoder/s
used as an IP Audio Client



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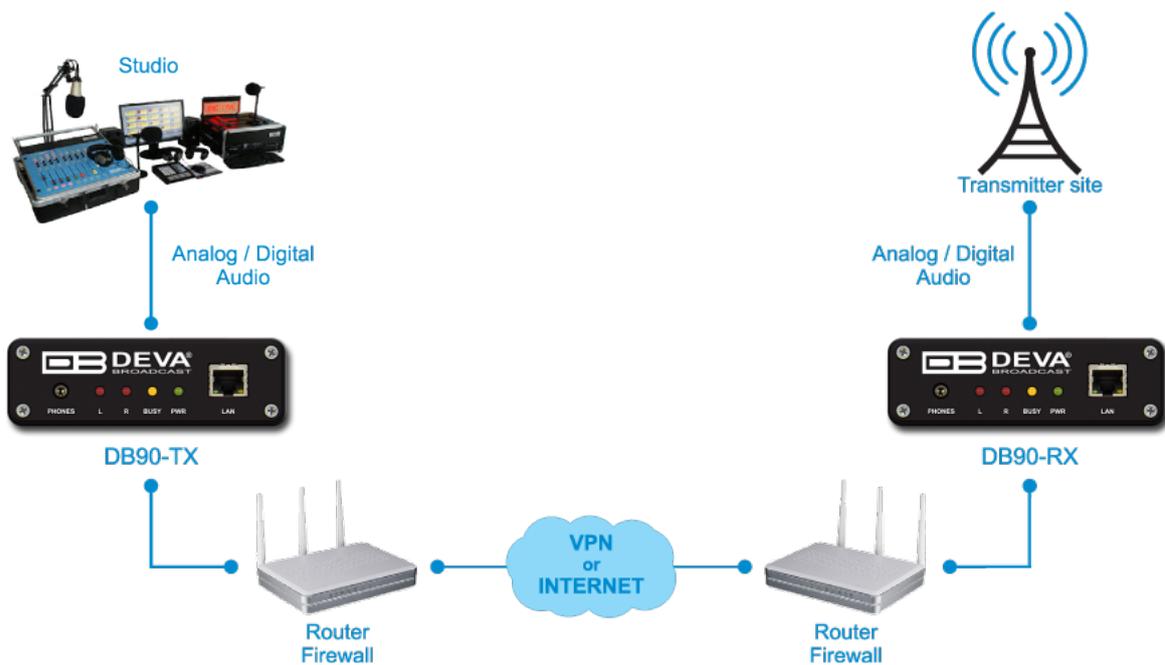
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General information

The IP Audio encoder and decoder are controlled through a built-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 - DB90-TX Quick User Guide” on page 8](#) and [“Appendix B - DB90-RX Quick User Guide” on page 12](#).

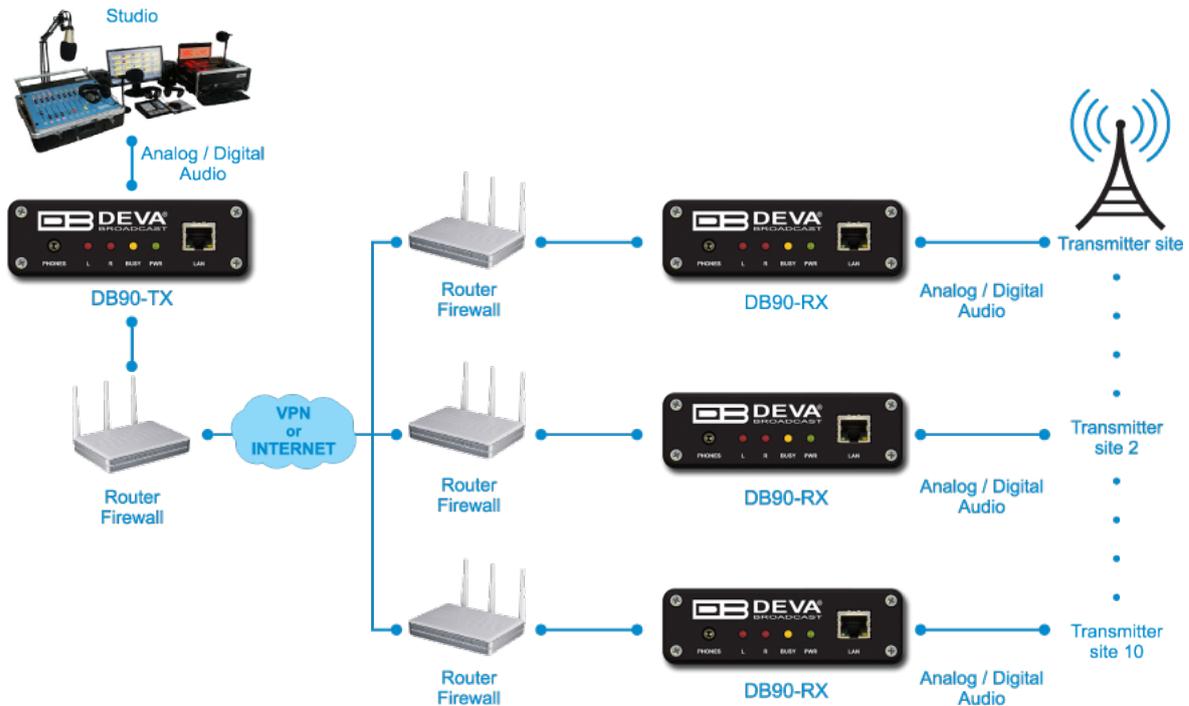
This configuration allows two types of applications:

POINT-TO-POINT AUDIO TRANSMISSION



POINT TO MULTI-POINT AUDIO TRANSMISSION

IMPORTANT NOTE: One DB90-TX can send audio to maximum ten DB90-RXs. However, in order for stable connectivity to be guaranteed, the recommended number of clients is 8.

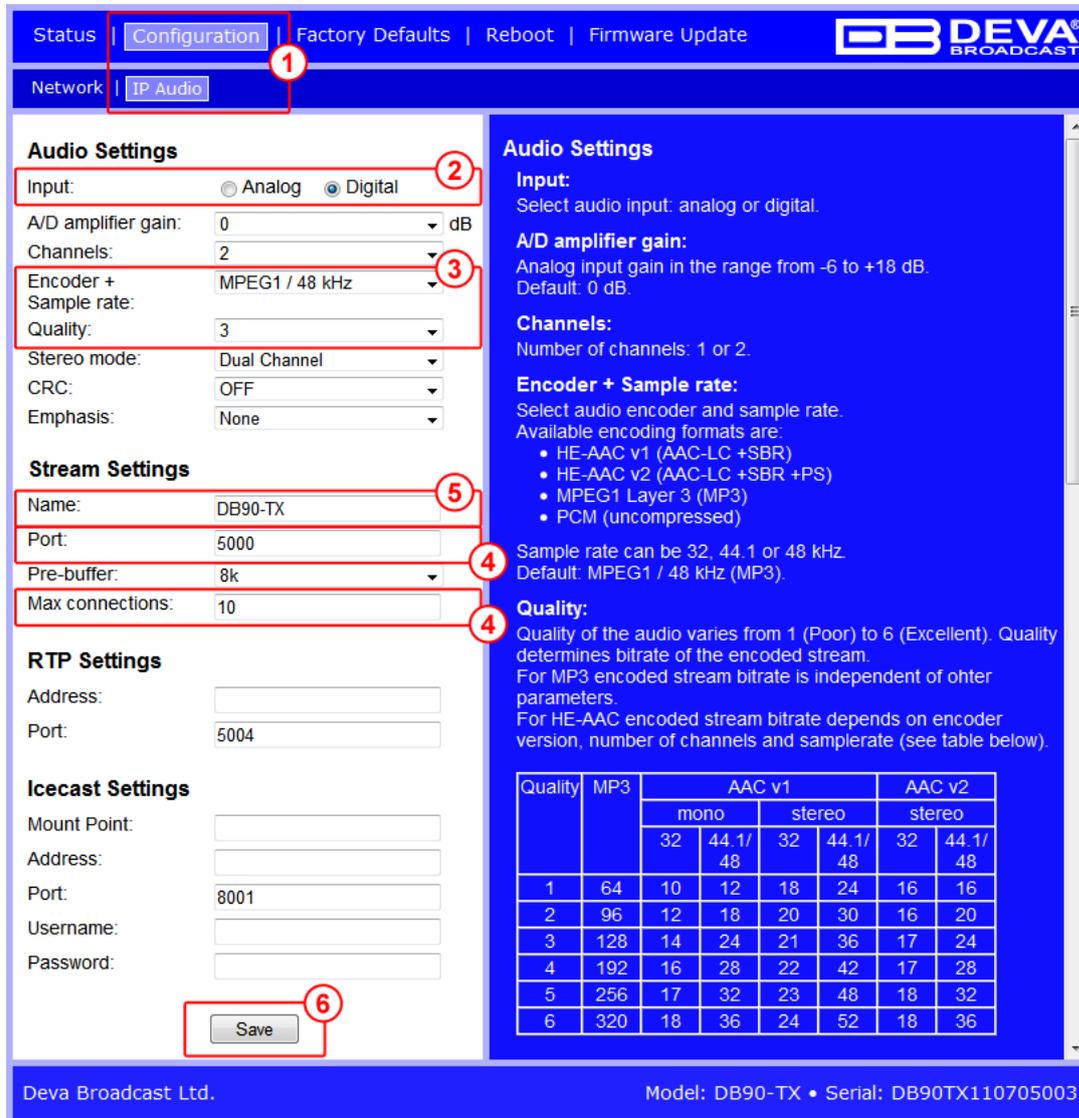


DB90-TX AND DB90-RX SET-UP

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

- DB90-TX must have a static IP address;
- If the device is placed behind a router, you will have to make sure that the Stream Server Port is properly NAT forwarded;
- DB90-RX may have a dynamic IP address;
- DB90-RX should have access to DB90-TX over the network (Internet or LAN).

DB90-TX STREAMING AUDIO SERVER SET-UP



The screenshot shows the web interface for configuring the DB90-TX streaming audio server. The interface is divided into several sections:

- Configuration:** The top navigation bar shows 'Configuration' selected, with 'Factory Defaults', 'Reboot', and 'Firmware Update' as options.
- Network:** The 'IP Audio' tab is selected.
- Audio Settings:** This section includes:
 - Input:** Radio buttons for 'Analog' and 'Digital' (selected).
 - A/D amplifier gain:** A dropdown menu set to '0 dB'.
 - Channels:** A dropdown menu set to '2'.
 - Encoder + Sample rate:** A dropdown menu set to 'MPEG1 / 48 kHz'.
 - Quality:** A dropdown menu set to '3'.
 - Stereo mode:** A dropdown menu set to 'Dual Channel'.
 - CRC:** A dropdown menu set to 'OFF'.
 - Emphasis:** A dropdown menu set to 'None'.
- Stream Settings:** This section includes:
 - Name:** A text field containing 'DB90-TX'.
 - Port:** A text field containing '5000'.
 - Pre-buffer:** A dropdown menu set to '8k'.
 - Max connections:** A text field containing '10'.
- RTP Settings:** This section includes:
 - Address:** An empty text field.
 - Port:** A text field containing '5004'.
- Icecast Settings:** This section includes:
 - Mount Point:** An empty text field.
 - Address:** An empty text field.
 - Port:** A text field containing '8001'.
 - Username:** An empty text field.
 - Password:** An empty text field.
- Save:** A button at the bottom of the configuration area.

On the right side of the interface, there is a detailed explanation of the 'Audio Settings' and a table of audio quality settings:

Audio Settings
 Input: Select audio input: analog or digital.
 A/D amplifier gain: Analog input gain in the range from -6 to +18 dB. Default: 0 dB.
 Channels: Number of channels: 1 or 2.
 Encoder + Sample rate: Select audio encoder and sample rate. Available encoding formats are:
 • HE-AAC v1 (AAC-LC +SBR)
 • HE-AAC v2 (AAC-LC +SBR +PS)
 • MPEG1 Layer 3 (MP3)
 • PCM (uncompressed)
 Sample rate can be 32, 44.1 or 48 kHz. Default: MPEG1 / 48 kHz (MP3).
 Quality: Quality of the audio varies from 1 (Poor) to 6 (Excellent). Quality determines bitrate of the encoded stream. For MP3 encoded stream bitrate is independent of other parameters. For HE-AAC encoded stream bitrate depends on encoder version, number of channels and samplerate (see table below).

Quality	MP3	AAC v1		AAC v2			
		mono		stereo			
		32	44.1/48	32	44.1/48	32	44.1/48
1	64	10	12	18	24	16	16
2	96	12	18	20	30	16	20
3	128	14	24	21	36	17	24
4	192	16	28	22	42	17	28
5	256	17	32	23	48	18	32
6	320	18	36	24	52	18	36

At the bottom of the interface, it says 'Deva Broadcast Ltd.' and 'Model: DB90-TX • Serial: DB90TX110705003'.

1. Go to **Configuration > IP Audio**;
2. 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. Then in **Stream Settings** section – specify the **Port** to be used and the **Maximum supported connections**;
5. Preferably change the **Name** of the stream to identify you server easily;
6. Press [Save] to save the applied changes.

For detailed information and instructions on how communication with the DB90-TX can be established, please refer to [“Appendix A - DB90-TX Quick User Guide” on page 8](#).

DB90-RX IP AUDIO CLIENT SET-UP



The screenshot shows the web interface for configuring the DB90-RX. The top navigation bar includes 'Status', 'Configuration' (highlighted with a red box and '1'), 'Factory Defaults', 'Reboot', and 'Firmware Update'. Below this, the 'Network' section is active, with 'IP Audio' highlighted. The main content area is split into two columns. The left column contains configuration fields for 'Source Priority', 'RTP Audio Player', 'Icecast Audio Player', and three 'IP Audio Client' sections. The right column contains descriptive text for 'RTP Audio Player', 'Icecast Audio Player', and 'IP Audio Client'. Red boxes and numbers 1-5 highlight specific configuration points: 1. Configuration menu, 2. URL field for IP Audio Client 1, 3. Decoder and Channels dropdowns for IP Audio Client 1, 4. Gain Adjust slider for IP Audio Client 1, 5. Source Priority dropdowns.

1. Go to **Configuration > IP Audio**;
2. In **IP Audio Client** section – **URL** of the DB90-TX Server should be specified. The URL is a mandatory requisite needed in order for a connection with the server to be established. The URL could be compound of DB90-TX’s IP Address and Server Port, ex. 192.168.120:5000;
3. Choose the preferred **decoder**, **prebuffer** and specify **buffer timeout**. The decoder set in the DB90-RX must match the encoder specified in DB90-TX;
4. If needed, set new **gain adjustment** settings;
5. From the **Source priority** Section set the priority of the IP Audio Client;
6. Press [Save] to save the applied changes;
7. Apply the same settings to all IP Audio clients to be used in the configuration.

For detailed information and instructions on how communication with the DB90-RX can be established, please refer to [“Appendix B - DB90-RX Quick User Guide” on page 12.](#)

Appendix A

Quick User Guide

DB90-TX

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.

This Quick user guide will make the installation of DB90-TX quick and easy. Following these steps, 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**

1. The encoder has to be connected to the local network or Internet by cable with RJ-45 connector;
2. 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 RCA jacks to connect the analog signal source to the analog audio inputs of DB90-TX;
 - For **Digital audio** use a cable that ends with standard RCA jack to connect the S/PDIF signal source to the digital audio input of DB90-TX;
3. Connect the device to the power supply.

STEP 2 **Configuration**

DB90-TX is controlled through a built-in WEB Server and a standard web browser can be used to monitor its status or to make some adjustments.

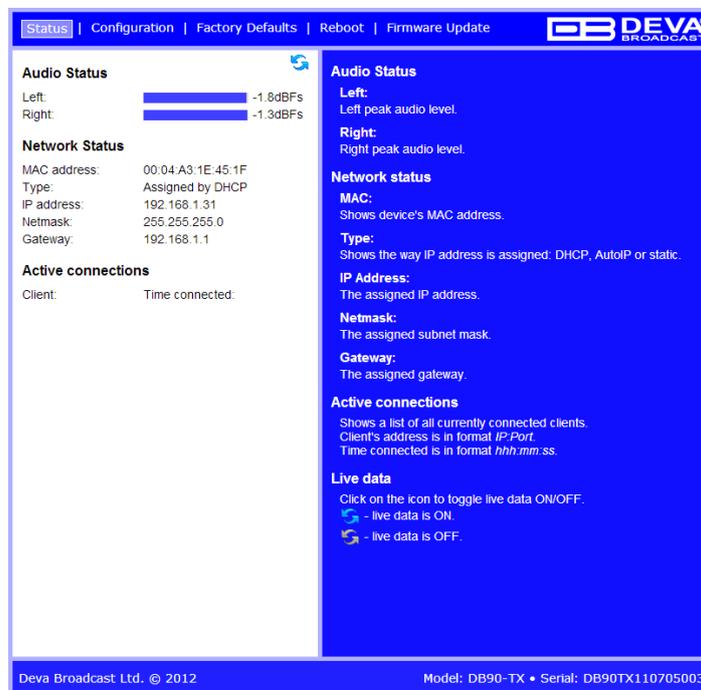
To operate the device you need to know its IP Address. In case you are not aware of it, you can hear it through the headphones when you turn on the device. Alternatively, use the Network discovery feature at Local networks (*for reference see Step 9*).

STEP 3 **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; Factory Defaults; Reboot; Firmware Update.

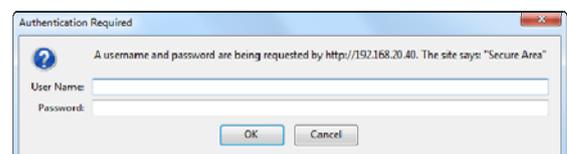
Current status information will be displayed comprising: Audio Status; Network Status; Active connections Status.

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



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

Click on the Configuration button. Dialog box similar to the following will appear. Fill in the username and password requested, default values being: username: *user* and password: *pass*.



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 DB90-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 DB90-TX 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.

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



The screenshot shows the 'Configuration' tab with 'IP Audio' selected. Under 'General', DHCP is 'Enabled', and IP Address, Netmask, and Gateway are all '0.0.0.0'. Under 'WEB server', Port is '1024', Username and Password fields are empty. Under 'SNMP', 'SNMP MIB File' has a 'Download' button, 'Agent' is 'Disabled', 'Agent Port' is '161', 'Manager Port' is '162', 'Agent ID' is '0', 'Community' is 'DEVA90', and 'Manager IP' is '0.0.0.0'. A 'Save' button is at the bottom.

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 DB90-TX. Later on it will be used as a title name on all WEB pages. Customizing the name will make the device more recognizable.

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

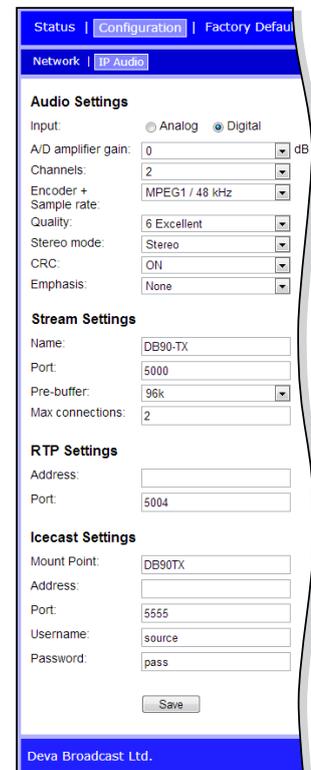
The RTP Settings require Decoders' Server Address and Port to be entered.

Icecast Audio Player

If DB90-TX is used as an Icecast Source Mount point, Encoder 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.



The screenshot shows the 'IP Audio' configuration page. Under 'Audio Settings', 'Input' is 'Digital', 'A/D amplifier gain' is '0 dB', 'Channels' is '2', 'Encoder + Sample rate' is 'MPEG1 / 48 kHz', 'Quality' is '6 Excellent', 'Stereo mode' is 'Stereo', 'CRC' is 'ON', and 'Emphasis' is 'None'. Under 'Stream Settings', 'Name' is 'DB90-TX', 'Port' is '5000', 'Pre-buffer' is '96k', and 'Max connections' is '2'. Under 'RTP Settings', 'Address' and 'Port' (5004) are shown. Under 'Icecast Settings', 'Mount Point' is 'DB90TX', 'Address', 'Port' (5555), 'Username' (source), and 'Password' (pass) are shown. A 'Save' button is at the bottom.

STEP 6

Factory Defaults, Reboot, Firmware Update

The Factory Defaults page



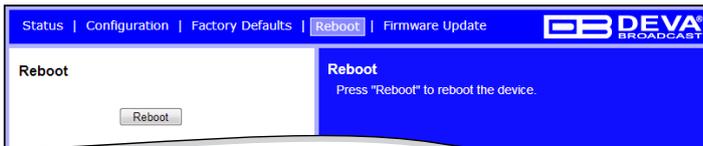
To restore DB90-TX to its Factory Defaults you should first press the Restore button. A new window will appear: confirm that you want to restore factory defaults and wait for the process to complete. All settings will be restored to their factory defaults except for

Network and WEB server Settings which remain unchanged. On completion of the process the settings should have the proper default values.

Hardware Reset

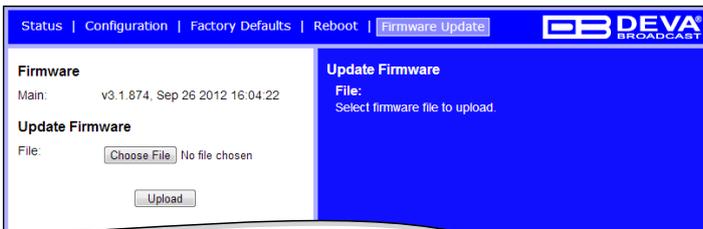
This process will fully restore DB90-TX to its Factory Defaults, including the Network settings. To start a Hardware Reset, disconnect the power supply cable from the unit. Then locate the RESET button on Rear panel, press and hold it. Afterwards, connect the power supply cable to the unit and keep the RESET button held until the PWR led starts blinking. Release the RESET button and wait for DB90-TX to reboot with the factory default settings.

Rebooting



To start Rebooting of DB90-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.

NOTE: The latest Firmware file can be downloaded from www.devabroadcast.com

STEP 7

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 **DB90-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 7.

**Enjoy the work with DB90TX - a product of superb quality and functionality.
 For detailed explanations concerning the device refer to its complete manual.**

Appendix B

Quick User Guide

DB90-RX

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 DB90-RX quick and easy. Applying these steps, 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.**

NOTE: Preferably, connect the device to a DHCP Server network from which DB90-RX will receive an IP address.

STEP 1 **Connection**

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 9*).

1. Connect the device to a local network or to the Internet by a cable with an RJ-45 connector;
2. Connect the DB90-RX to the power supply.

STEP 2 **WEB Interface**

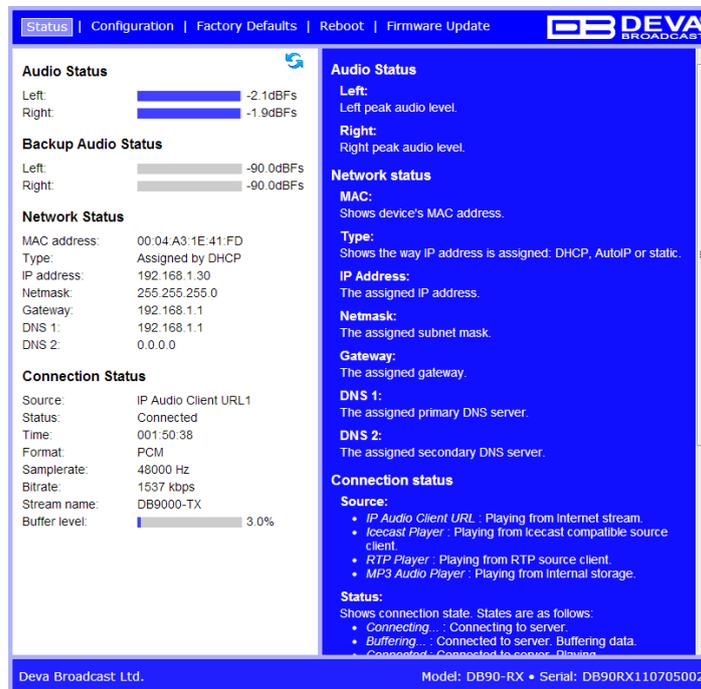
Open a WEB Browser and enter the device IP address in the browser's address field, then press Enter.

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

STEP 3 **Status Section**

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

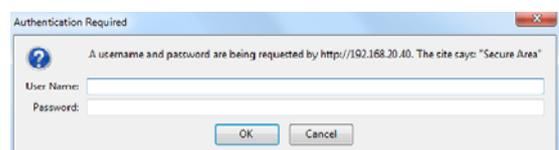
For further reference see the detailed explanation on the right part of the screen.



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

STEP 4 **General Settings**

Click on the Configuration button. Dialog box similar to the following will appear. Fill in the username and password requested, default values being: username: *user* and password: *pass*.



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.

Web Server Settings

In order to enhance the security of DB90-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.

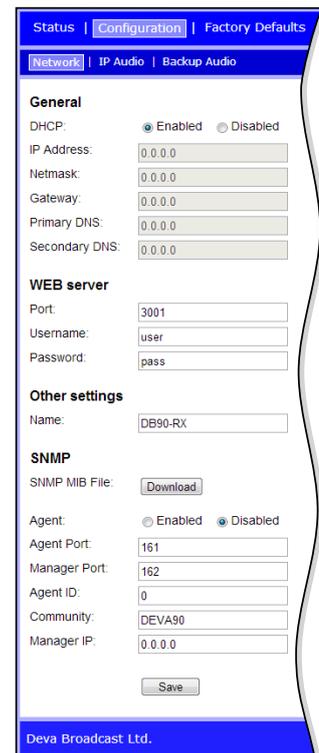
Other Settings

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.

SNMP Settings

Press the **Download button** to download the proper DB90-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

DB90-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 DB90-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

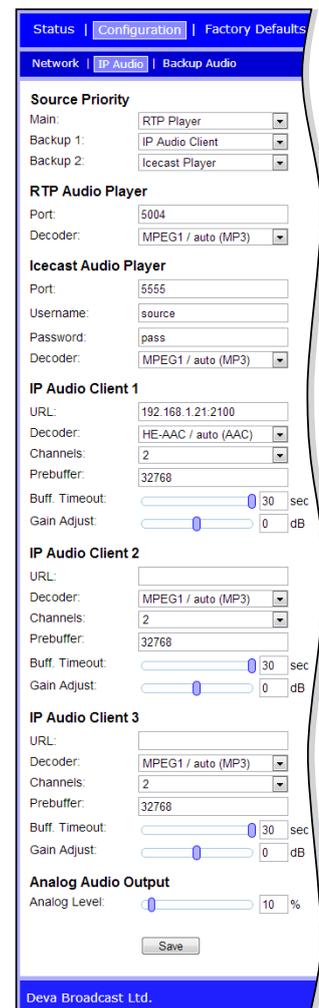
DB90-RX has one main URL and two alternative Stream Audio Sources URL2, URL3. Switching between streams is immediate on audio loss. When current Stream is URL2 or URL3 and connection to URL1 is restored there will be an instantaneous switch back to URL1.

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 whether the loss of audio should be registered by the one channel only or for both of them.

STEP 8

Factory Defaults, Reboot, Firmware Update

The Factory Defaults page



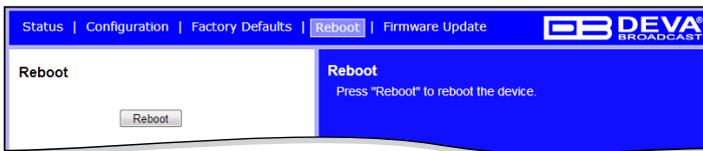
To restore DB90-RX to its Factory Defaults you should first press the Restore button. A new window will appear: confirm that you want to restore factory defaults and wait for the process to complete. All settings will be restored to their factory defaults except for

Network and WEB server Settings which remain unchanged. On completion of the process the settings should have the proper default values.

Hardware Reset

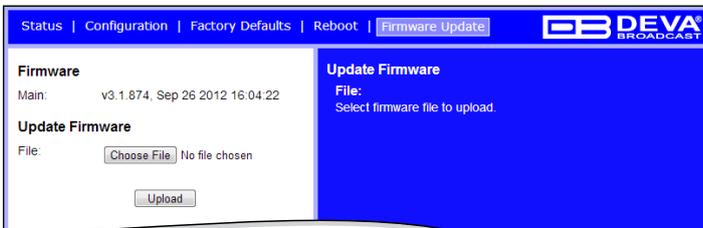
This process will fully restore DB90-RX to its Factory Defaults, including the Network settings. To start a Hardware Reset, disconnect the power supply cable from the unit. Then locate the RESET button on Rear panel, press and hold it. Afterwards, connect the power supply cable to the unit and keep the RESET button hold until the POWER led starts blinking. Release the RESET button and wait for DB90-RX to reboot with the factory default settings.

Rebooting



To start Rebooting of DB90-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.

NOTE: The latest Firmware file can be downloaded from www.devabroadcast.com

STEP 9

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 **DB90-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 9.

**Enjoy the work with DB90RX - a product of superb quality and functionality.
 For detailed explanations concerning the device refer to its complete manual.**