

MAINTENANCE AND OPERATION
INSTRUCTION MANUAL

DB90-RX

IP Audio Decoder



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Introduction

DEVA Broadcast Ltd. is an international communications and high-technology manufacturing organization, its corporate headquarters and facility located in Burgas, Bulgaria. The company serves the broadcast and corporate markets worldwide – from consumers and small businesses to the largest global organizations. It is dedicated to the research, design, development and provision of advanced products, systems and services. DEVA Broadcast launched its own brand back in 1997 and has nowadays evolved to become known as a market leader and internationally reputed manufacturer of user-friendly, cost-effective and innovative broadcast products.

Creativity and innovation are deeply woven into DEVA Broadcast corporate culture. Through successful engineering, marketing and management our team of dedicated professionals creates future-oriented solutions to improve customers' performance. You may rely that all issues communicated to our crew would be addressed accordingly. We pride ourselves on our pre and post-sales support and purchase services, which along with the outstanding quality of our radio gear have won us due respect and the market authority position.

DEVA Broadcast best-of-breed solutions have become the best sellers for our partners. The strategic partnerships which have been formed with industry leaders during all these years that we have been operating on the broadcasting market, have proved us a reliable business partner and a valuable asset, as our dealers worldwide would confirm. In constant pursuit of precision and long-term satisfaction, DEVA Broadcast enhances the reputation of our partners and clients alike. Furthermore, we have already a proven merit as a credible partner provider.

Our portfolio offers complete line of high quality and competitive products for FM and Digital Radio, Radio Networks, Telecommunication Operators and regulation authorities. For almost two decades of intensive software and hardware development, we have achieved a unique price-performance and endurance of our product lines. Our company's multitude of equipment and services is in line with the latest technologies and key trends. The most recognizable characteristics attributed to DEVA Broadcast products are their clear-cut, streamlined design, easiness of use and cost-effectiveness: simplicity of forms but multiplicity of functions.

For us there is no stage when we deem that we have reached the most satisfactory level in our work. Our engineers are in constant pursuit of new ideas and technologies to be captured in DEVA Broadcast solutions. Simultaneously, a strict control is being exercised at each step of any new development. Experience and hard work are our fundament but the continuous improving process is what we never leave aside. DEVA Broadcast participates on a regular basis in all landmark broadcasting events, not only to promote its products, but to exchange valuable know-how and experience. We are also engaged in international large-scale projects involving radio and audio solutions which makes us even more competitive on the global market.

All DEVA Broadcast products are developed and produced in accordance with the latest ISO 9001 quality control standards.

Typographic conventions

The following table describes important conventions used in the manual.

Convention and Style	Description	Examples
Menu > Sub Menu > Menu Command	A menu item(s) and menu command that you need to click in sequence	Click <i>Settings > General</i>
[Button]	Interface Interactive buttons	Press [OK] to save the changes
NOTE	Important notes and recommendations	NOTE: The notification will appear only once
<u>“Reference Name” on Page XXX</u>	References and links	refer to <u>“New Connection”</u> (see <u>“Monitoring” on page 56</u>)
Example	Used when example text is cited	Example for E-mail Notification: Date: 04 Nov 2013, 07:31:11

General Information

Designed for high-quality audio decoding, DB90-RX supports HE-AAC versions 1 and 2, MPEG-1 Layer 3 compressed audio streams and PCM uncompressed audio stream. The powerful DSP processor and either the digital or the analog outputs allow the decoding process to be accomplished in real time.

This high-tech device comes in a small and compact form, providing quick and effortless integrating of the existing audio systems to the Internet. Situated on thousands of locations all over the world, DB90-RX allows management by any kind of web browser from your PC, PDA or any kind of mobile device. That is what makes it the best choice for professional and consumer use.

Along with its main IP audio source DB90-RX comes with backup audio sources for higher stability. If the audio signal of the main source disappear, the device will switch to the first available backup source. While when the main audio signal is recovered, DB90-RX will automatically switch back to it. Depending on your needs, the sequence of the backup audio sources can be easily changed.

DB90-RX in combination with the HTML 5 based WEB Interface can be used for Broadcast, Internet Radio, Studio to Transmitter Link as well as VoIP applications. It is compatible with every online radio system, including Icecast and Shoutcast, and also supports low latency Real Time Protocol (RTP) connection.

In line with the latest technology, one or more DB90-RX devices in combination with an encoder, (such as DB90-TX and DB9000-TX, for an instance) is a complete solution for long distance audio-transmission applications.

APPLICATION

- Audio Transmission over IP-based networks.
- Point-to-Point Audio Transfer.
- MultiPoint Audio Transmission over IP-based networks.
- Low delay Real time Audio Transmission.
- Suitable for professional and consumer use.

PRODUCT FEATURES

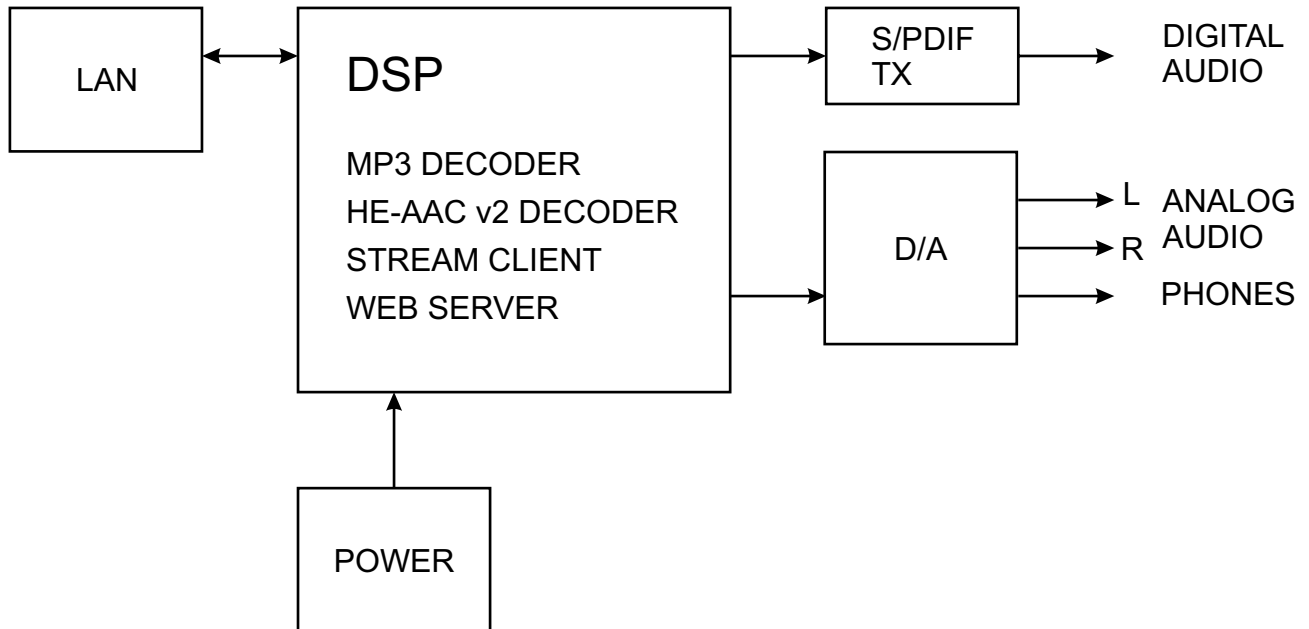
- High Quality HE-AAC (v.1 and v.2), MPEG-1 and MPEG-3 Decoding
- 32 kHz, 44.1 and 48 kHz sample rates support
- Support of all standard bitrates and VBR as well
- 6 LEDs and Phones output for quick diagnostics
- IP address pronunciation at startup (through the headphones)
- DHCP Client automatically assigning Network Settings
- Easy setup via a standard web browser
- UPnP for easy discovery in Local Networks
- Shoutcast / Icecast compatible TCP/IP stream
- Auto switching to another server in the event of a connection loss
- Analog Audio Output (2 x RCA connectors)
- Digital Audio Output (RCA Connector)

TECHNICAL SPECIFICATIONS

Audio decoder	
Decoder	HE-AAC (v.1 and v.2), MPEG-1 Layer 3 or raw PCM
Sample rates	32, 44.1 and 48 kHz
Bit Rates	All standard bitrates, including VBR
Analog audio output	
Connector	2 x RCA, stereo
Type	Unbalanced
Level	+9dBu @ 0dBFs
Sample rate	Same as the source stream
Dynamic range	101 dB
Digital audio output	
Connector	RCA
Type	S/PDIF (IEC 60958)
Sample rate	48 kHz
Resampling	Thru build-in sample rate converter
Stream client	
Type	Shoutcast/Icecast compatible TCP/IP client
Codec Support	AAC, MP3, PCM
Servers	Up to 3 with auto-switch on failure
RTP Receiver	
Type	Unicast RTP/UDP compatible receiver
Codec	AAC, MP3
Count	1
Phones audio output	
Connector	1/8" (3.5mm) jack, stereo
Type	Headphones
User interface	
Indicators	6 LEDs on front panel
Web interface	Full control and status information
Network	
Connector	RJ-45
Type	Ethernet
Device discovery	UPnP support
Operating conditions	
Temperature	10°C - 45°C
Humidity	< 75%, non-condensing
Power requirements	
Connector	Power Jack 1/4" (6,3 mm)
Power supply	12V DC, 1A
Size and weight	
Dimension (W x H x D)	4,17" x 1,3" x 5" (106 x 33 x 128 mm)
Weight	0,44 lbs (0,2 kg)

BLOCK DIAGRAM

A simplified block diagram of DB90-RX IP Audio Decoder is shown below



Because of the all-digital, minimalist-discrete-component nature of device circuitry, we have not provided schematic diagrams of the DB90-RX in this Manual. As they say on the back of TV sets:

**NO USER-SERVICEABLE COMPONENTS INSIDE.
REFER ALL SERVICING TO
QUALIFIED TECHNICAL PERSONNEL.**

Safety Warning

ALWAYS OBSERVE THE SAFETY PRECAUTIONS.

Careful observance of the safety precautions will help prevent physical injury, damage of the equipment, and extend the equipment life.

- The servicing of electronic equipment should be performed only by qualified personnel;
- Before removing the covers the unit must be switched off and the mains cable unplugged;
- When the equipment is open, the power supply capacitors should be discharged using a suitable resistor;
- Never touch the wires or the electrical circuits;
- Use insulated tools only;
- Never touch the metal semiconductor. They might carry high voltages;
- For removing and installing electronic components, follow the recommendations for handling MOS components.
- Do not remove the factory sticker from the equipment. It contains information as regards the name, serial number and MAC address of the device.
- To join the equipment to the mains supply, use the power cord purchased with the equipment.

Unpacking and inspection

Upon receipt, the equipment should be inspected for possible shipping damages. If such are found or suspected, notify the carrier at once and contact DEVA Broadcast Ltd. The original shipping carton box and packing materials should be kept for possible reuse, in case of return for Warranty repair, for example. Shipping damages as a result of improper packing for return may invalidate the Warranty!

The packing material (plastic bags, polystyrene, nails, etc.) must never be left within reach of children, as these items are potential sources of danger.

IT IS VERY IMPORTANT that the [“Product Registration Card”](#) included in the Manual be completed accurately and returned. This will assure coverage of the terms of the Warranty and it will provide a means of trace in case of lost or stolen equipment. In addition, the user will automatically receive SERVICE OR MODIFICATION INSTRUCTIONS from DEVA Broadcast Ltd.

Mounting

RACK REQUIREMENTS 1U

The unit mounts in a standard 19-inch equipment rack and requires only 1¾ inches (1U) of vertical rack space. In order the painted finish around the mounting holes to be protected, the use of plastic washers is recommended.

RACK REQUIREMENTS COMPACT UNITS

Our customized 1U 19-inch rack accessory provides a professional mounting option for up to three compact size DEVA units. It is made of milled aluminum and finished in black powder coat. Two extra blanking panels and set of mounting screws are provided with each rack bracket kit.

STAND-ALONE DEVICES

DEVA's stand-alone units (Radio Explorer series, BandScanner series, DVB Explorer) do not require additional tools or installation brackets.

Getting Started

In order for the normal operation of the DB90-RX to be guaranteed, you will need fulfill the following conditions:

1. Standard Ethernet 10/100M connection;
2. Correctly assigned Network configuration and device settings.

To make sure that all the conditions are fulfilled please, follow the instructions below.

CONNECTION

1. Install the unit on its operation place;
2. Using the provided power cable, connect the unit to the power supply network;
3. Connect the antenna cable to the RF antenna input connector located on the rear panel of the device;
4. Connect the DB90-RX to the TCP/IP network using direct network cable;
5. **IF GSM OPTION IS SUPPORTED** - Using the connection cable provided, connect the optional GSM modem. In order for better GSM network coverage to be achieved, please select proper place for the GSM antenna.

NOTE: The GSM antenna must be installed far enough from the monitoring devices. The GSM modem radiates RF signal that may cause spurious emissions that will may interfere with the accuracy of the measurements.

NETWORK SETTINGS

After connecting the network cable the Led 'LAN' located on the rear panel must be ON or flashing. The next and most important step for configuration is the adjustment procedure of the Network Communication. The settings shown below are Default Network Settings:

DHCP	Enabled
IP	Assigned by DHCP
Mask	Assigned by DHCP
Gateway	Assigned by DHCP
DNS	Assigned by DHCP
HTTP Port	80

NETWORK DISCOVERY

This is a network setting that defines whether your computer can see (find) other computers and devices on the network and whether other computers on the network can see your computer. By default, Windows Firewall blocks network discovery but you can enable it.

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 pane click "Change advanced sharing settings";
2. Select your current network profile;
3. Click "Turn on network discovery", and then click save changes.

NOTE: If you're prompted for an administrator password or confirmation, type the password, provide confirmation or contact your system administrator.

If you have already enabled this function on your computer DB90-RX will be automatically added to the Device list section. The device will be ready for usage and no additional adjustments will be required except user name and password.

NOTE: If the port is different than the default one (80), it is necessary to specify it, for example:
`http://192.168.1.2:9000`

ATTENTION: Depending on Internet Protocol Settings, the assigned IP address may not be visible outside your local network, thus the device may be accessed only within that network. Consult with your network administrator for the appropriate IP settings.

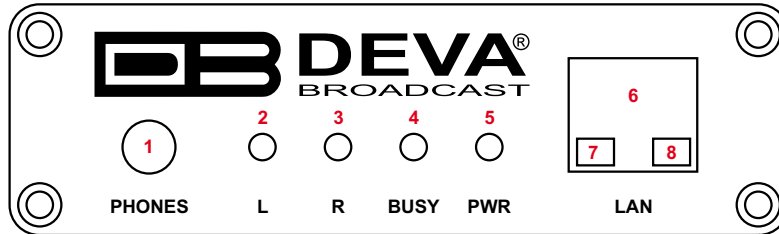
NETWORK SECURITY RECOMMENDATIONS

1. It is not recommended the DB90-RX to be directly connected to the Internet. This may lead to unregulated access and/or problematic operation of the device. To ensure secure connection, we recommend the device to be installed behind a router with an active firewall.
2. If remote access to the device is needed, we recommend using VPN to the router or the port of the relevant service (WEB, SNMP, Application, etc.) to be properly NAT forwarded.
3. If NAT forward is used, it is highly recommended random ports of your choice to be used. Not the standard ones (80 for WEB, 161 for SNMP, etc.).
4. Using DMZ connection is not recommended.
5. Make sure to change the standard access credentials (usernames and passwords, SNMP communities).

For detailed information as regards the recommendations listed above or need of further instructions, please contact your network administrator.

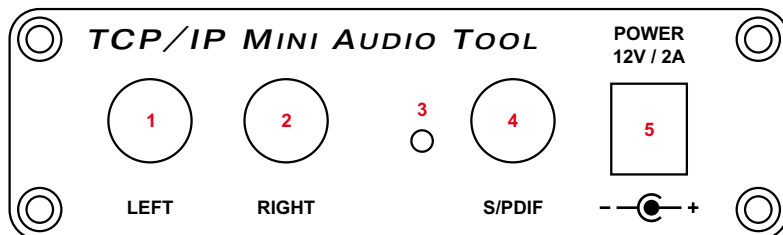
Panel Indicators and Appointments

FRONT VIEW



- 1 - Phones Output. The following audio signals are reproduced through the headphones:
Voice Announcement of DB90-RX IP Audio Decoder IP address upon startup;
Audio signal identical to that of the outputs audio;
- 2 - Left Channel Level LED Indicator. This LED can be in one of the following states:
Off - the channel level is within norms;
Blinking – indication of low signal level;
Constantly lit – indication of high signal level;
- 3 - Right Channel Level LED Indicator. This LED can in one of the following states:
Off - the channel level is within norms;
Blinking – indication of low signal level;
Constantly lit – indication of high signal level;
- 4 - Status LED Indicator. Blinking frequency of this LED is indication of DB90-RX state:
Fast blinking – in process of connection;
Approximately once per second – data buffering;
Approximately once per 2 seconds – DB90-RX is connected and operating normally;
- 5 - Power LED Indicator.
- 6 - LAN Port / Internet Input – standard RJ-45 port;
- 7 - Network Activity LED Indicator (RJ-45 built-in);
- 8 - Network Availability LED indicator (RJ-45 built-in);

REAR VIEW



- 1 - Left Line Analog Output – standard RCA female jack;
- 2 - Right Line Analog Output – standard RCA female jack;
- 3 - Factory Defaults Reset button;
- 4 - S/PDIF Output – standard RCA female jack;
- 5 - Power Supply (12V, 1A);

Connecting of DB90-RX

ANALOG AUDIO OUTPUTS

Using a cable ending with two standard RCA jacks connect DB90-RX analog signal outputs to the analog audio inputs of your equipment.

DIGITAL AUDIO OUTPUT

Using a cable ending with a standard RCA jacks connect DB90-RX S/PDIF output to the digital audio input of your equipment.

LAN PORT

To ensure normal operation of the DB90-RX, its is necessary the device to it is necessary the device to be connected to a local network or Internet by cable with RJ-45 connector.

Operation

DB90-RX is controlled through the built-in web server and a standard web browser can be used to monitor its status or make some adjustments. To connect to the device you need to know its IP address and follow the next steps:

- Open a WEB Browser.
- Enter the device IP address in the browser's address field.
- Press <ENTER>.

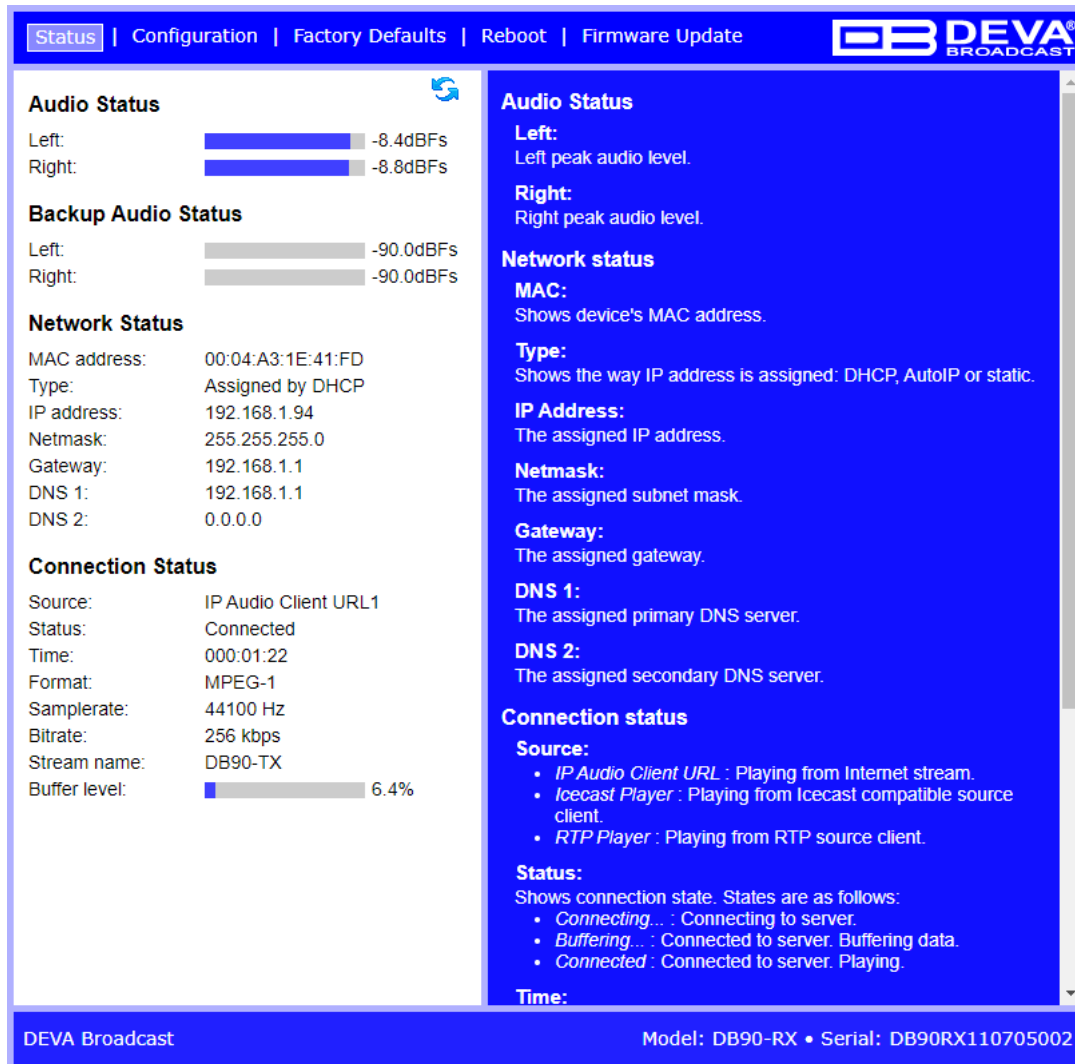
If you do not know the device's IP address, you can hear it through the headphones when you turn on the device. The other option to find out the IP address is using UPnP discovery in local networks ([see "UPnP discovery in Local Networks" on page 33](#)).

The web interface consists of the following pages:

- Status
- Configuration
 - Network
 - IP Audio
 - Backup Audio
- Factory Defaults
- Reboot
- Firmware Update

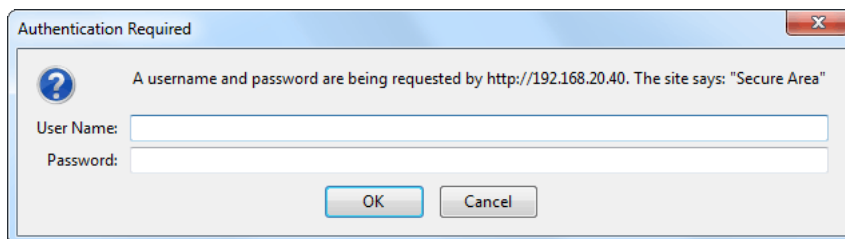
The Navigational menu and its options are available at the top part of the WEB Interface. The settings window below is divided into two sections - settings (on the left) and help section with brief explanation of the settings. Pointing the mouse cursor on any of the fields in the left part of the screen will open a new window with additional and useful information.

Upon entering the WEB Interface, this is how the main page will look like:



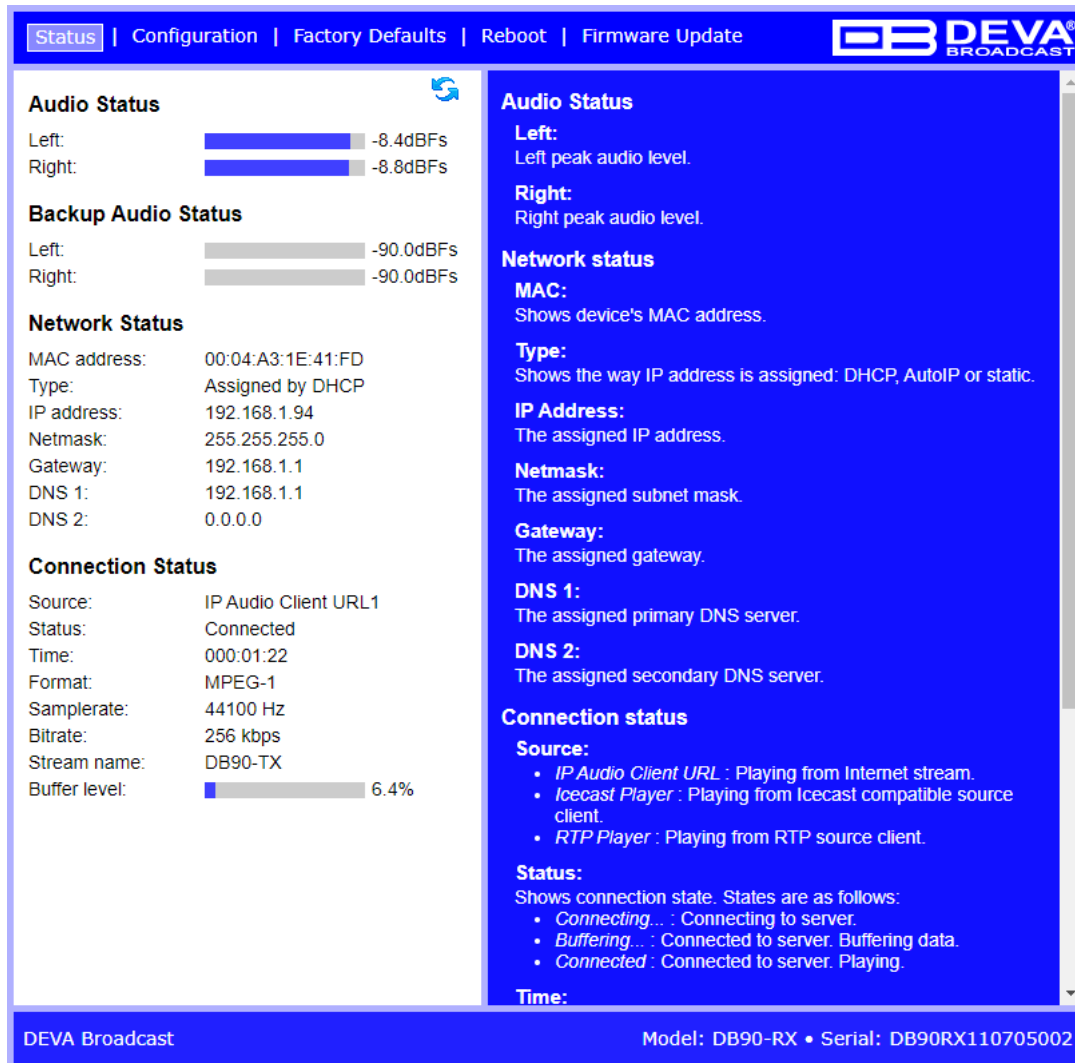
The screenshot shows the main page of the DEVA Broadcast WEB Interface. The top navigation bar includes links for Status, Configuration, Factory Defaults, Reboot, and Firmware Update. The main content area is divided into two columns. The left column displays Audio Status (Left: -8.4dBfs, Right: -8.8dBfs), Backup Audio Status (Left: -90.0dBfs, Right: -90.0dBfs), Network Status (MAC address: 00:04:A3:1E:41:FD, Type: Assigned by DHCP, IP address: 192.168.1.94, Netmask: 255.255.255.0, Gateway: 192.168.1.1, DNS 1: 192.168.1.1, DNS 2: 0.0.0.0), and Connection Status (Source: IP Audio Client URL1, Status: Connected, Time: 000:01:22, Format: MPEG-1, Samplerate: 44100 Hz, Bitrate: 256 kbps, Stream name: DB90-TX, Buffer level: 6.4%). The right column displays Audio Status (Left: Left peak audio level, Right: Right peak audio level), Network status (MAC: Shows device's MAC address, Type: Shows the way IP address is assigned: DHCP, AutoIP or static, IP Address: The assigned IP address, Netmask: The assigned subnet mask, Gateway: The assigned gateway, DNS 1: The assigned primary DNS server, DNS 2: The assigned secondary DNS server), and Connection status (Source: IP Audio Client URL : Playing from Internet stream, Icecast Player : Playing from Icecast compatible source client, RTP Player : Playing from RTP source client, Status: Shows connection state. States are as follows: Connecting... : Connecting to server, Buffering... : Connected to server. Buffering data, Connected : Connected to server. Playing, Time:). The bottom status bar shows DEVA Broadcast, Model: DB90-RX, and Serial: DB90RX110705002.

Username and Password may be requested if the Access Control is enabled and a page other than STATUS is selected (see “Web Server Settings” on page 24). Defaults values are user and pass.



The screenshot shows an "Authentication Required" dialog box. It contains a message: "A username and password are being requested by http://192.168.20.40. The site says: 'Secure Area'". Below the message are input fields for "User Name:" and "Password:". At the bottom are "OK" and "Cancel" buttons.

STATUS



Information regarding DB90-RX's current status can be found in this section of the WEB Interface:

- Audio Status;
- Backup Audio Status;
- Network Status;
- Connection Status;

NOTE: The Audio and Backup Audio signals levels are dynamically updated.

Network Status section contains information about the MAC address and current IP address, Network mask and Gateway and the method in which are assigned: Static Allocation or allocated by DHCP server. Shown are also the primary and secondary DNS servers.

Connection Status shows which one of the three available URLs is currently in use, device status (connected or disconnected), connection time, stream parameters and name.

Please note that if a compressed stream is used, Sample rate and Bitrate will be taken from the stream. If the stream is in uncompressed format (PCM) then what is displayed for Sample rate and Bitrate is what is set in the Configuration page.

In the upper right corner is located *LIVE DATA* icon. Clicking on the icon will toggle live data *ON* and *OFF* as follows:



- live data is ON



- live data is OFF.

DB90-RX CONFIGURATION

The screenshot displays the configuration web interface for the DB90-RX device. The top navigation bar includes links for Status, Configuration (selected), Factory Defaults, Reboot, and Firmware Update. The DEVA BROADCAST logo is on the right. Below the navigation bar, the 'Network' tab is selected, with sub-tabs for IP Audio and Backup Audio. The main content area is divided into two columns. The left column contains the 'General' settings, including DHCP (Enabled), IP Address, Netmask, Gateway, Primary DNS, and Secondary DNS, all with input fields showing 0.0.0.0. Below this is the 'IP Voice Announcement' section with a radio button for 'Enabled'. The 'WEB server' section includes fields for Port (80), Username (user), and Password (pass). The 'Other settings' section has a Name field (DB90-RX). The 'SNMP' section includes a 'Download' button for the MIB File, and radio buttons for Agent (Disabled), Agent Port (161), Manager Port (162), Agent ID (0), Community (DEVA90), and Manager IP (0.0.0.0). A 'Save' button is at the bottom of the left column. The right column contains a blue sidebar with 'Network settings' and 'Web settings' sections. The 'Network settings' section includes descriptions and default values for DHCP, IP Address, Netmask, Gateway, Primary DNS, and Secondary DNS. The 'IP Voice Announcement' section includes a description and default value for the IP Address. The 'Web settings' section includes descriptions and default values for Port and Username. The bottom of the interface shows the DEVA Broadcast logo and the device's Model (DB90-RX) and Serial (DB90RX110705002) numbers.

Status | **Configuration** | Factory Defaults | Reboot | Firmware Update

DEVA
BROADCAST

Network | IP Audio | Backup Audio

General

DHCP: ☒ Enabled ☐ Disabled

IP Address: 0.0.0.0

Netmask: 0.0.0.0

Gateway: 0.0.0.0

Primary DNS: 0.0.0.0

Secondary DNS: 0.0.0.0

IP Voice Announcement

IP Address: ☒ Enabled ☐ Disabled

WEB server

Port: 80

Username: user

Password: pass

Other settings

Name: DB90-RX

SNMP

SNMP MIB File: Download

Agent: ☐ Enabled ☒ Disabled

Agent Port: 161

Manager Port: 162

Agent ID: 0

Community: DEVA90

Manager IP: 0.0.0.0

Save

Network settings

DHCP:
Enable or disable DHCP client.
The DHCP client is used to automatically obtain the network settings.
Default: Enabled

IP Address:
Static IP address. Not used if DHCP client is enabled.
Example: 192.168.0.2

Netmask:
Static subnet mask. Not used if DHCP client is enabled.
Example: 255.255.255.0

Gateway:
Static gateway. Not used if DHCP client is enabled.
Example: 192.168.0.1

Primary DNS:
Static primary DNS server. Not used if DHCP client is enabled.
Example: 192.168.0.1

Secondary DNS:
Static secondary DNS server. Not used if DHCP client is enabled.

IP Voice Announcement

IP Address:
IP Address of the device may be announced via the audio outputs at start-up. This feature is useful when the IP address is unknown. For example when connecting to the device for the first time.
Default: Enabled

Web settings

Port:
TCP port of the web server.
Default: 80

Username:
User name for the web server. It is used to restrict the access to all configuration pages.
If both Username and Password are left blank no security is

DEVA Broadcast Model: DB90-RX • Serial: DB90RX110705002

General Network Settings

The network addresses could be set manually (static IP) or automatically via a **DHCP Server**. To set static **IP**, **MASK**, **GATEWAY** and **DNS** addresses, the **DHCP** should be disabled. In order for the built-in **DHCP** client to be activated, the function should be enabled. When the **DHCP** client is activated, all assigned values will be shown in the relevant fields.

IP Voice Announcement

IP Address – Enable or disable voice announcement of DB90-RX's IP Address. The option is Enabled by default. It is recommended the user to disable the option once the initial setup is completed.

Web Server Settings

- *Port* – sets the TCP port of the WEB Server. Default value is 80.
- *Username* – sets the preferred user name to be used. The Default value is user.
- *Password* – allows the password to be customized. The Default value is pass.

NOTE: DB90-RX provides you with a protected access to the device settings. Options to setup username only, password only and both are available. If the username and password fields are left blank, protected access option will be disabled.

SNMP Settings

Specify **Agent ID**, **Agent Port**, **Read/Write Communities**, **Manager IP** and **Manager Port**.

Agent – enables/disables SNMP Agent.

Agent ID – is used for identification of the device among others, when an SNMP notification is being sent.

Press the [Download] button to download the latest available DB90-RX SNMP MIB file.

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.

Other Settings

Name – Name of the device. This name is used to identify the device in local network and is used as title on all web pages. Up to 63 alpha-numeric characters can be entered.

NOTE: In order the applied settings to be used press the [Save] button. Please have in mind that some settings may reset the DB90-RX.

Status | **Configuration** | Factory Defaults | Reboot | Firmware Update

Network | **IP Audio** | Backup Audio

Source Priority
Main: IP Audio Client
Backup 1: RTP Player
Backup 2: Icecast Player

RTP Audio Player
Port: 5004
Decoder: MPEG1 / auto (MP3)

Icecast Audio Player
Port: 5555
Username: source
Password: pass
Decoder: MPEG1 / auto (MP3)

IP Audio Client 1
URL: http://185.187.81.218:8000/d
Decoder: MPEG1 / auto (MP3)
Channels: 2
Prebuffer: 32768
Buff. Timeout: 30 sec
Gain Adjust: 0 dB

IP Audio Client 2
URL:
Decoder: MPEG1 / auto (MP3)
Channels: 2
Prebuffer: 32768
Buff. Timeout: 30 sec
Gain Adjust: 0 dB

IP Audio Client 3
URL:
Decoder: MPEG1 / auto (MP3)
Channels: 2
Prebuffer: 32768
Buff. Timeout: 30 sec
Gain Adjust: 0 dB

Analog Audio Output
Analog Level: 100 %

Save

RTP Audio Player
Port:
RTP Audio Player port.
Default: 5004
Decoder:
Select decoder. For HE-AAC and MPEG1 the sample rate is automatically determined by the stream.
Default: MPEG1 / auto.

Icecast Audio Player
Port:
Icecast Audio Player port.
Default: 5555
Username:
IP Audio Authorization username.
Default: source
Password:
IP Audio Authorization password.
Default: pass
Decoder:
Select decoder and sample rate. For PCM (uncompressed) sample rate can be 32, 44.1 or 48 kHz. For HE-AAC and MPEG1 the sample rate is automatically determined by the stream.
Default: MPEG1 / auto.

IP Audio Client
URL:
URL of the stream server. If current connection fails for some reason the device automatically switches to the next server. Up to 63 characters.
Decoder:
Select decoder and sample rate. For PCM (uncompressed) sample rate can be 32, 44.1 or 48 kHz. For HE-AAC and MPEG1 the sample rate is automatically determined by the stream.
Default: MPEG1 / auto.
Channels:
Number of channels in PCM stream: 1 or 2.
Note: This is not used for encoded stream.
Prebuffer:
Minimum data amount in the buffer needed to start playing. Must be in the range 10240-64512.
Default: 32768
Buffering Timeout:

DEVA Broadcast
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Through this screen are applied all needed settings to the alternative sources. The backup sources priority is user-defined and can be set through the relevant section. If the audio from the main source disappears, the DB90-RX will automatically switch to the first backup source; if it also fails, the unit will switch to the second. Once a source with higher priority is restored, the unit will switch back to it.

RTP Audio Player

- Port – RTP Audio Player port. Default: 5004
- Decoder – Select decoder. For HE-AAC and MPEG1 the sample rate is automatically determined by the stream. Default: MPEG1 / auto.

Icecast Audio Player

- Port – Icecast Audio Player port. Default: 5555
- Username – IP Audio Authorization username. Default: source
- Password – IP Audio Authorization password. Default: pass
- Decoder + Sample rate – Select decoder and sample rate. For PCM (uncompressed) sample rate can be 32, 44.1 or 48 kHz. For HE-AAC and MPEG1 the sample rate is automatically determined by the stream. Default: MPEG1 / auto.

IP Audio Client

- URL – URL of the stream server. Up to 3 URLs can be defined. Up to 63 characters can be entered.
- Decoder + Sample rate – Select decoder and sample rate. For PCM (uncompressed) sample rate can be 32, 44.1 or 48 kHz. For HE-AAC and MPEG1 sample rate is determined automatically from the stream. Default value is HE-AAC / auto.
- Channels – Number of channels in PCM stream: 1 or 2. **NOTE:** This is not used for encoded stream.
- Prebuffer – Minimum size of data in buffer before playing starts. Must be in the range 10240-65535. Default value is 32768.
- Buffering timeout – Seconds to wait for buffer to fill up. If the timeout is reached the device will skip to next server. Default value is 30s.
- Gain Adjust - Audio gain adjust from -10 to 10 dB. Default value is 0dB.

NOTE: “Gain Adjust” is digital. If the sum of Signal Level and Gain is greater than 0dBfs the signal will be distorted.

Analog Audio Output Settings

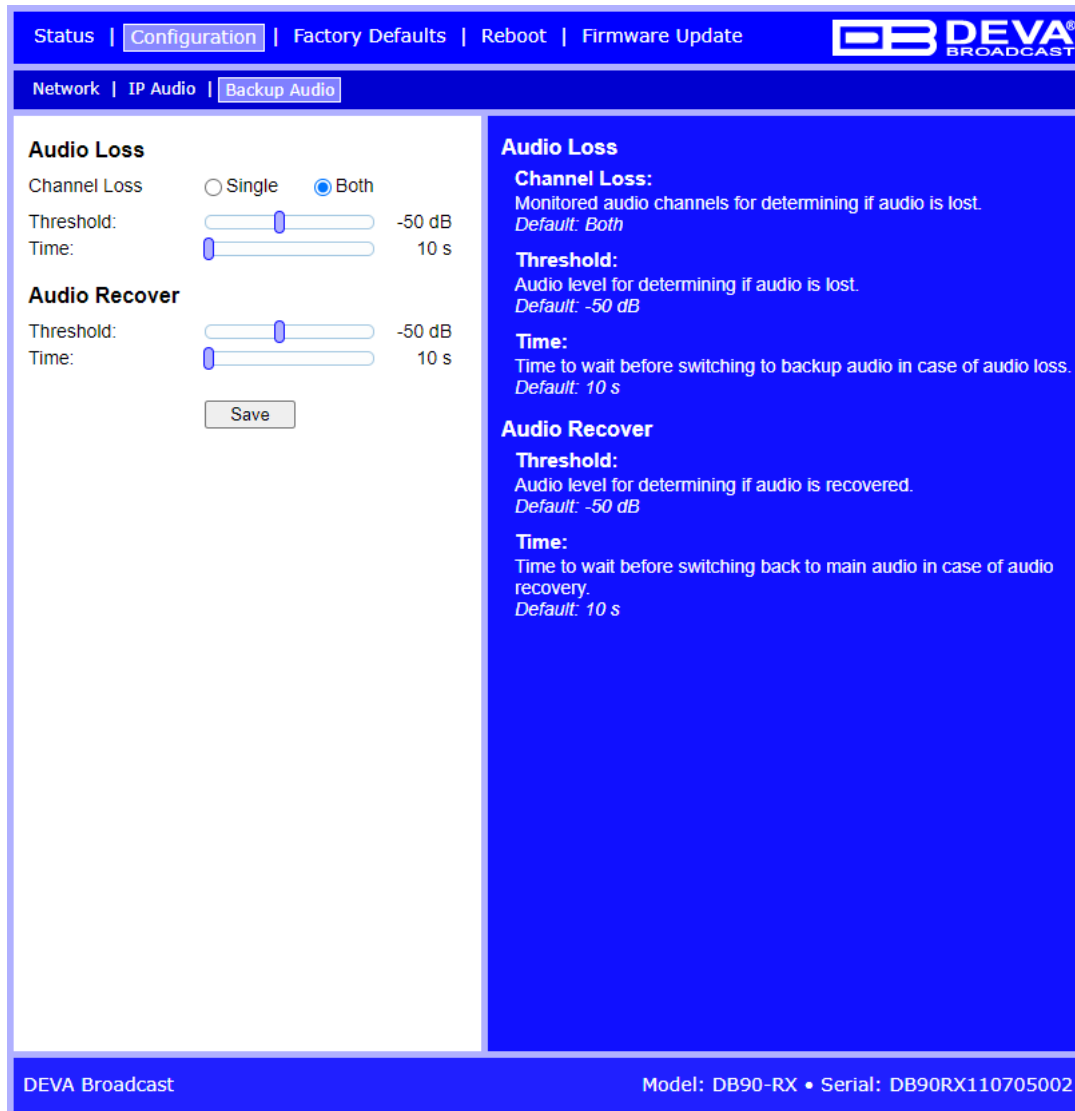
- Analog Level – Analog output volume from 0 to 100%. Default value is 100%.

NOTE: In order to ensure normal operation when PCM is used, it is necessary to select the same sample rate at both encoding and decoding side.

Audio Source Switching

DB90-RX has one Main and two alternative Backup Stream Audio Sources. Switching between streams is immediate and is performed automatically when connection with the current stream is lost according to specified **Source Priority**

NOTE: When current Stream is Backup 1 or Backup 2 and connection to Main is restored there will be instantaneous switch back to Main.



Status | **Configuration** | **Factory Defaults** | **Reboot** | **Firmware Update**

Network | **IP Audio** | **Backup Audio**

Audio Loss

Channel Loss: ☐ Single ☒ Both

Threshold: -50 dB

Time: 10 s

Audio Recover

Threshold: -50 dB

Time: 10 s

Audio Loss

Channel Loss:
Monitored audio channels for determining if audio is lost.
Default: Both

Threshold:
Audio level for determining if audio is lost.
Default: -50 dB

Time:
Time to wait before switching to backup audio in case of audio loss.
Default: 10 s

Audio Recover

Threshold:
Audio level for determining if audio is recovered.
Default: -50 dB

Time:
Time to wait before switching back to main audio in case of audio recovery.
Default: 10 s

DEVA Broadcast

Model: DB90-RX • Serial: DB90RX110705002

Audio Loss

- Channel Loss – Monitored audio channels for determining if audio is lost. Default: Both
- Threshold – Audio level to determining if audio is lost. Default: -50 dB
- Time – Waiting time before switching to backup audio in case of audio loss. Default: 10 s

Audio Recover

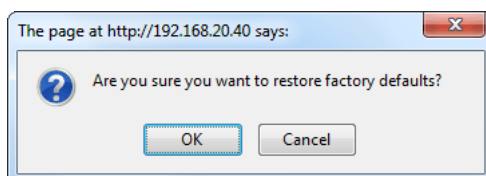
- Threshold – Audio level for determining if audio is recovered. Default: -50 dB
- Time – Time to wait before switching back to main audio in case of audio recovery. Default: 10 s

FACTORY DEFAULTS SETTINGS



To restore the DB90-RX to its factory defaults, follow the steps listed below:

- Press the “Restore” button.
- A new window will appear:



- Confirm that you want to restore factory defaults.
- Wait for the process to complete.

NOTE: All the settings will be restored to their factory defaults except the Network Settings, they will remain the same.

Upon completion of the process DB90-RX settings will have the following values:

Stream Default Settings

- URL 1, URL 2 and URL 3 – blank fields
- Decoder + Sample rate: MPEG1 / auto (MP3)
- Channels: 2
- Volume: 100 %
- Prebuffer: 32768
- Buffering timeout 30 s
- Gain Adjustment: 0dB

Output Levels

- Analog Output: 100%

Network Default Settings

All General Network Settings will remain unchanged.

WEB Server Default Settings

All WEB Server Settings will remain unchanged.

SNMP Default Settings

- Agent : Disabled
- Agent Port: 161
- Community: DEVA90
- Manager IP: 0.0.0.0
- Manager Port: 162
- Agent ID: 0

Other Default Settings

- Name: DB90-RX

HARDWARE RESET

This process will fully restore DB90-RX to its Factory Defaults, including the Network settings. Hardware Reset can be done by following the next steps:

- Disconnect the power supply cable from the unit.
- Locate the RESET button on Rear panel.
- Press and hold the RESET button.
- Connect the power supply cable to the unit.
- Keep holding the RESET button until the POWER led starts blinking.
- Release the RESET button.
- Wait for DB90-RX to reboot with the factory default settings.

Upon completion of the process DB90-RX settings will have the following values:

Network Default Settings

- DHCP: enabled

WEB Server Default Settings

- Port: 80
- Username: user
- Password: pass

All other settings will have the factory default values described in chapter [“Factory Defaults Settings”](#).

NOTE: Once the process is completed, the DHCP Client will be enabled. The DB90-RX will obtain IP Address from DHCP server shortly.

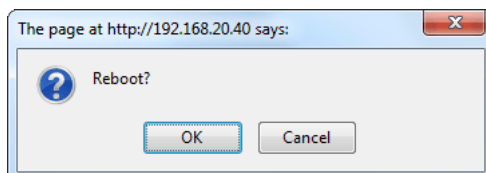
ATTENTION: Please note that the WEB Server’s Port, Username and Password will be changed, so it is possible the page not to be loaded after restoring factory defaults. You may be asked to re-enter the encoder’s address and/or username and password.

REBOOTING



To reboot the DB90-RX, follow the steps listed below.

- Press the “Reboot” button.
- The following dialog warning window will appear:



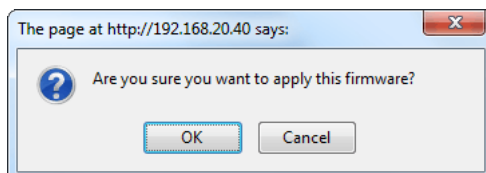
- Confirm that you want to reboot the device.
- Wait for the process to complete.

FIRMWARE UPDATE

The screenshot shows the DEVA Broadcast web interface. At the top, there is a navigation bar with links: Status | Configuration | Factory Defaults | Reboot | Firmware Update. The DEVA BROADCAST logo is on the right. The main content area is divided into two panels. The left panel, titled 'Firmware', shows the current version 'v3.5.1519, Mar 20 2017 09:34:28' and an 'Update Firmware' section with a 'File:' label, a 'Choose File' button, and the text 'No file chosen'. Below this is an 'Upload' button. The right panel, titled 'Update Firmware', has a 'File:' label and the instruction 'Select firmware file to upload.' The bottom status bar shows 'DEVA Broadcast' on the left and 'Model: DB90-RX • Serial: DB90RX110705002' on the right.

To update the device firmware, follow the steps listed below:

- press [Browse]/[Choose File] and select the new firmware file.
- After having pressed the [Upload] button, a dialog window will appear.



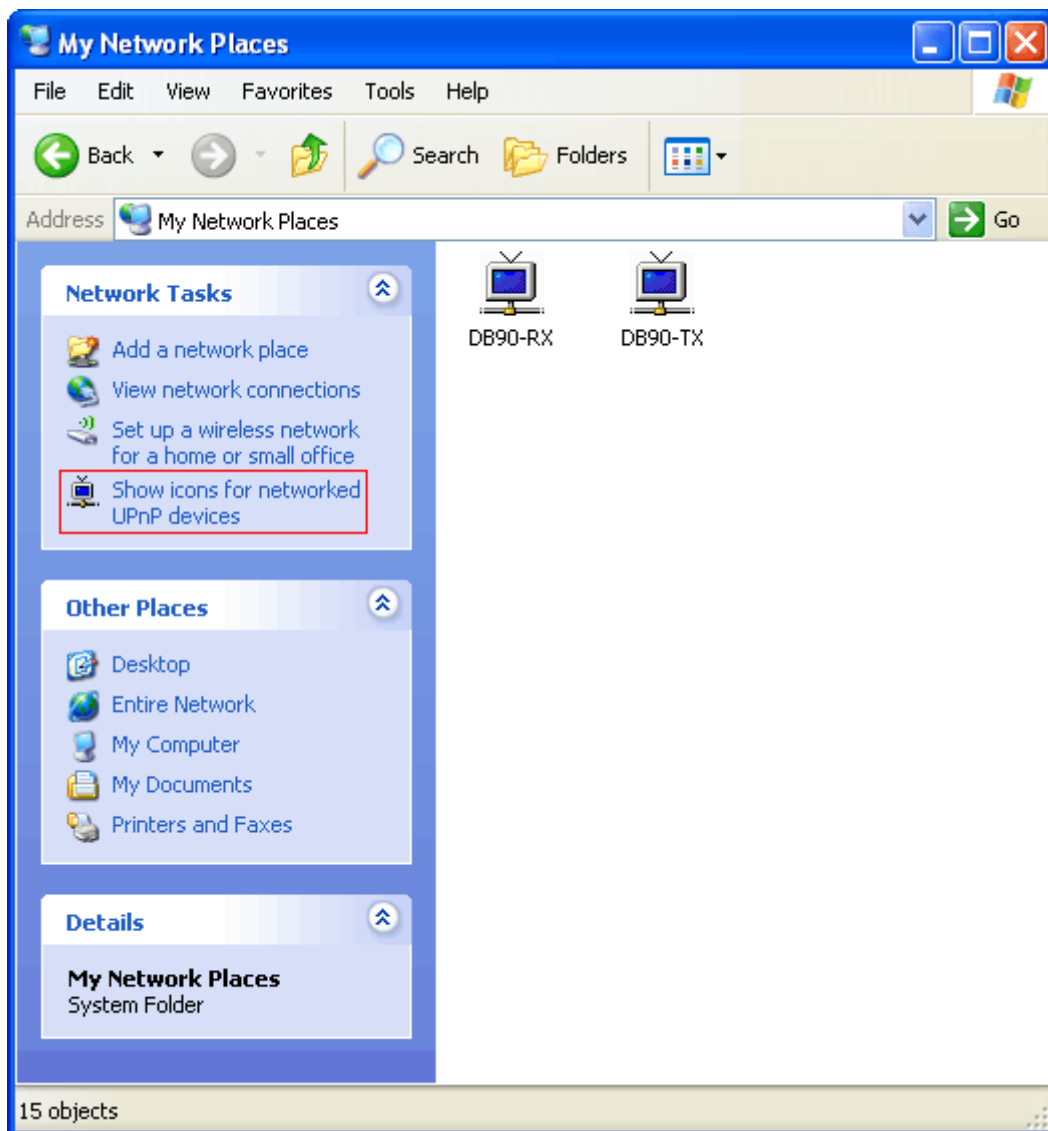
- Confirm the firmware update and wait for the process to complete.

IMPORTANT NOTE: If the firmware is downloaded from www.devabroadcast.com, the file must be unzipped prior to the upgrade.

UPnP discovery in Local Networks

DB90-RX implements UPnP which lets you easily find it in your local network. For this purpose your system should have UPnP enabled ([see “UPnP Activation” on page 34](#)). To discover the device follow the next steps:

- Connect the device to the local network.
- Open “My Network Places” on your computer.
- Find the decoder’s icon.
- Double click it to open the DB90-RX web interface.

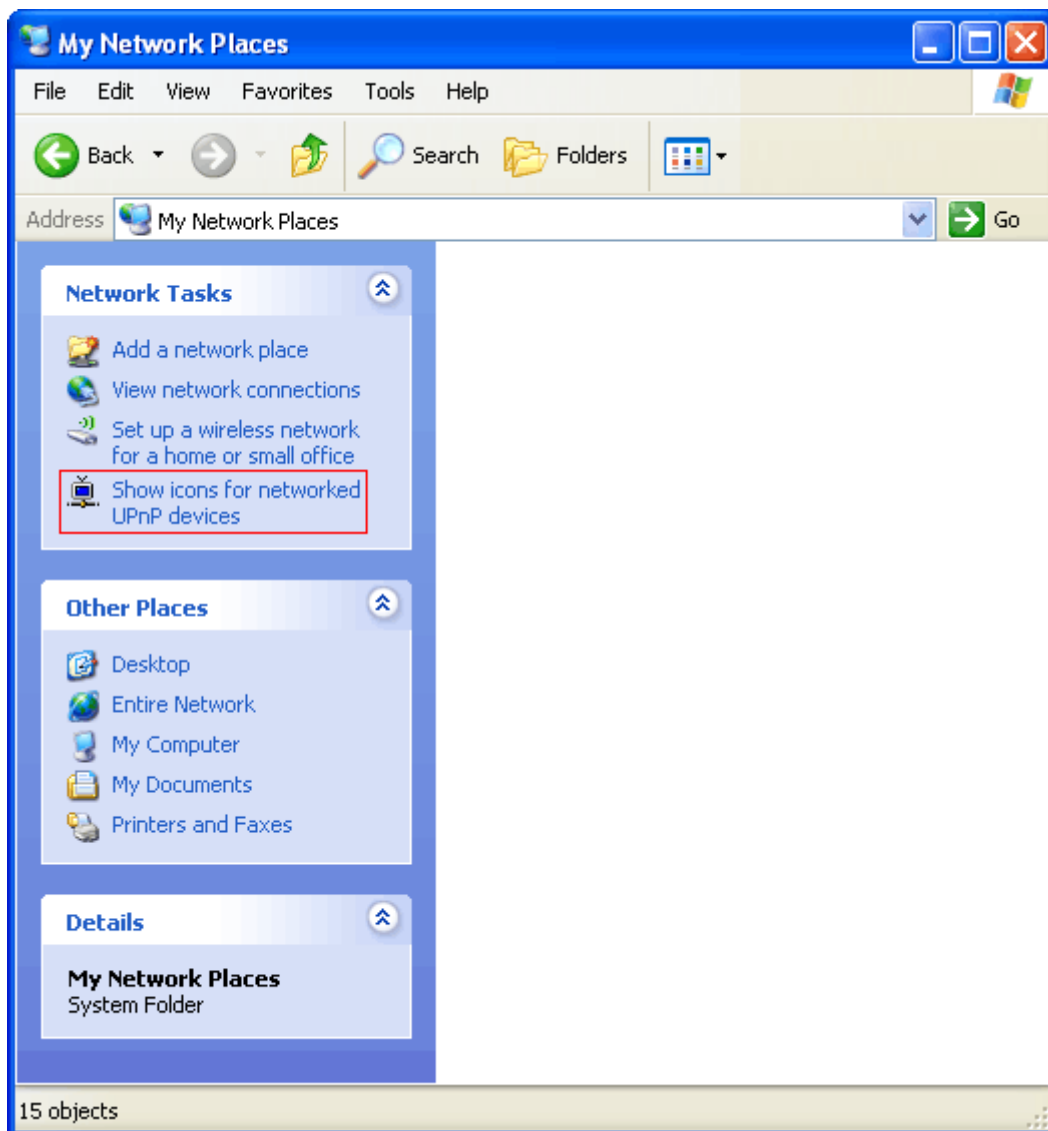


UPnP Activation

NOTE: The following explanations apply to Windows XP SP2 or SP3! If you use another operating system, please contact your system administrator.

Open “My Network Places”. If you have the caption displayed in the picture below, click on it. Then click “Yes” and wait for the process to complete. Now you should see the device. If you still have troubles finding the device, please see

<http://support.microsoft.com/kb/941206> or contact your system administrator.



WARRANTY TERMS AND CONDITIONS

I. TERMS OF SALE: DEVA Broadcast Ltd. products are sold with an understanding of “full satisfaction”; that is, full credit or refund will be issued for products sold as new if returned to the point of purchase within 30 days following their receipt, provided that they are returned complete and in an “as received” condition.

II. CONDITIONS OF WARRANTY: The following terms apply unless amended in writing by DEVA Broadcast Ltd.

A. The Warranty Registration Card supplied with this product must be completed and returned to DEVA Broadcast Ltd. within 10 days of delivery.

B. This Warranty applies only to products sold “as new.” It is extended only to the original end-user and may not be transferred or assigned without prior written approval by DEVA Broadcast Ltd.

C. This Warranty does not apply to damage caused by improper mains settings and/or power supply.

D. This Warranty does not apply to damage caused by misuse, abuse, accident or neglect. This Warranty is voided by unauthorized attempts at repair or modification, or if the serial identification label has been removed or altered.

III. TERMS OF WARRANTY: DEVA Broadcast Ltd. products are warranted to be free from defects in materials and workmanship.

A. Any discrepancies noted within TWO YEARS of the date of delivery will be repaired free of charge, or the equipment will be replaced with a new or remanufactured product at DEVA Broadcast Ltd. option.

B. Parts and labor for factory repair required after the two-year Warranty period will be billed at prevailing prices and rates.

IV. RETURNING GOODS FOR FACTORY REPAIR:

A. Equipment will not be accepted for Warranty or other repair without a Return Material Authorization (RMA) number issued by DEVA Broadcast Ltd. prior to its return. An RMA number may be obtained by calling the factory. The number should be prominently marked on the outside of the shipping carton.

B. Equipment must be shipped prepaid to DEVA Broadcast Ltd. Shipping charges will be reimbursed for valid Warranty claims. Damage sustained as a result of improper packing for return to the factory is not covered under terms of the Warranty and may occasion additional charges.

PRODUCT REGISTRATION CARD

- All fields are required, or warranty registration is invalid and void

Your Company Name _____

Contact _____

Address Line 1 _____

Address Line 2 _____

City _____

State/Province _____ ZIP/Postal Code _____

Country _____

E-mail _____ Phone _____ Fax _____

Which DEVA Broadcast Ltd. product did you purchase? _____

Product Serial # _____

Purchase date ____ / ____ / ____

Installation date ____ / ____ / ____

Your signature*

*Signing this warranty registration form you are stating that all the information provided to DEVA Broadcast Ltd. are truth and correct. DEVA Broadcast Ltd. declines any responsibility for the provided information that could result in an immediate loss of warranty for the above specified product(s).

Privacy statement: DEVA Broadcast Ltd. will not share the personal information you provide on this card with any other parties.