

NetUP Streamer.
User's manual



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Introduction

Intended audience

This manual is intended for IPTV service providers using NetUP solutions. An overall knowledge of TV broadcasting systems and IP networking is assumed. The document covers basic functionality of device, recommendations for its configuration and operation.

Notation conventions

Code blocks;

 *Notes*

 *Warnings related to incomplete compatibility with older versions of NetUP.tv NetUP.tv*

 *Generic warnings*

About NetUP Streamer

NetUP Streamer allows to receive and relay streams from the following sources:

- satellites;
- terrestrial antennas;
- cable networks;
- IP providers;
- streams of Internet broadcasting;
- IP cameras;
- storage.

Headend stations NetUP Streamer are presented in three models:

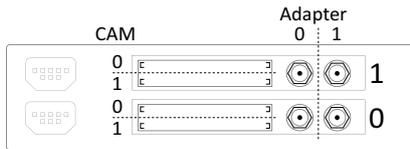
- **NetUP Streamer mini** – the compact headend station allows to receive streams from 4 satellite transponders and relay 50 or more channels;
- **NetUP Streamer 8x** – the station for TV providers which allows to receive streams from 8 satellite transponders and relay 100 or more channels with the total speed of over 900Mbps;
- **NetUP Streamer 16x** – the station for TV providers which has redundant power supply and hot-swap storage and allows to receive streams from 16 satellite transponders and relay 200 or more channels.

 *NetUP Streamer may be supplied with additional features: transcoding and content encryption before broadcasting and create a mosaic channel*

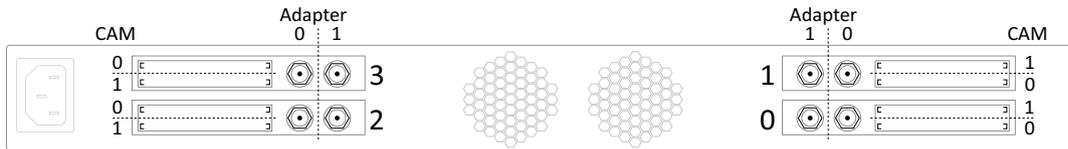
Additional features requires a separate license. To purchase the license, please contact the NetUP managers.

Numbering of NetUP Streamer inputs

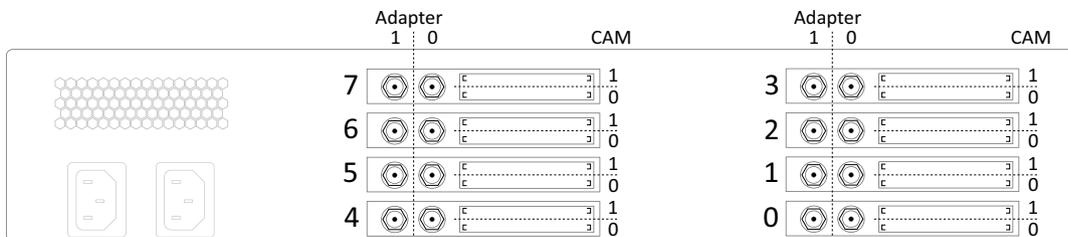
Inputs located on the rear panel of NetUP Streamer and numbered as follows:



NetUP Streamer mini



NetUP Streamer 8x



NetUP Streamer 16x

All-in-one solution from NetUP

NetUP Streamer may use as a stand-alone solution and as part of the NetUP IPTV Combine.

NetUP IPTV Combine is an unique all-in-one device. It includes all the tools necessary for the operator:

- **Middleware** – provides communication between content sources and customer's TV set-top boxes.
- **Billing** – manages the customer base and commercial services.
- **Streamer** – receives and relays content to a local network or the Internet.
- **VoD/TVoD server** – stores content.

NetUP IPTV Combine, similar to NetUP IPTV Streamer, is represented by three models:

- **IPTV Combine mini** – a compact station for networks serving up to 50 customers, with full functionality;
- **IPTV Combine 8x** – an Ideal solution for networks serving up to 500 customers, for example, for hotels, cruise liners;
- **IPTV Combine 16x** – a productive solution for large companies.

To know more information about NetUP IPTV Combine, please contact the NetUP managers.

LCD panel

Introduction

In order to set up the NetUP's server equipped with LCD panel, do the following:

1. Plug the network and power cables into the device.
2. Switch power on. You shall see **Startup...** on the LCD panel.
3. Use the LCD manager for the initial setup of the system.

i LCD manager provides a convenient way to monitor the CPU and LAN interface load on the device front panel, as well as to assign IP addresses to network adapters.

Statistics screen

Among other items, the LCD menu contains two statistics screens. The default screen displays the network adapters traffic transfer rate. The lower line of the screen presents the total rate of input and output traffic separated by "/".

Use **Up** and **Down** buttons to navigate through menu elements. Press **Up** to switch to the CPU load screen.



First number is the total CPU load. Three subsequent numbers give, correspondingly, the portions of CPU load related to user tasks (**u**), system tasks (**s**), and awaiting data from the peripherals (**w**). Press **Down** to return to the traffic statistics screen.

Press **Down** to navigate to the rest of menu items:

- **Reboot system** – restart server
- **Shutdown system** – shutdown server
- **Generate (Reset) password** – generate a new admin password

i **Generate password** allows to reset the administrator's password. The new administrator's password is displayed on the LCD until a key is pressed on the front panel

Set IP address and subnet mask

1. Select the Network setup screen and press **Enter** to go to settings menu.
2. Press **Up** and **Down** to select the network interface and press **Enter**.



3. If you need to **edit IP address** press **Enter** and then press **Up** or **Down** to select an octet for editing. The selected octet will be indicated by a symbol ">".
4. Select the last octet of the IP address and press **Enter** to go to **edit the subnet mask..** Press **Up** or **Down** to increase or decrease the number of mask bits. Press **Enter** to go to the save settings dialog.
5. Select **Save changes** to save the IP address and the mask and select **Discard** to cancel settings. Buttons **Up** and **Down** switch between options, with currently selected option emphasized with brackets. Press **Enter** to confirm the selection.
6. When the settings are done, set up your DNS server (via its config file) to associate the IP address just entered with `mw.iptv` domain name.

Generate new administrator's password

1. Starting from the statistic screen, press **Up** until you see the **Reset Password**.
2. Press **Enter** to generate new password and apply it to all system components. The password will be displayed on the LCD screen.

Web interface

Overview

Web interface is used for setting up various server parameters and client's STBs.

To access the web interface, enter an **IP address of Middleware server** in your browser's address bar. On the opened page enter the login and the password specified in the equipment passport.

 *It is strongly recommended to change the password immediately after logging in for the first time. For more info, see **Security** on page 23*

The left panel of the web interface contains links to settings pages, pages are organized into groups. The presence of pages and groups depends on the hardware configuration of the server and the privileges of the currently logged in system user.

For the NetUP Streamer server administrator, the web interface includes:

Group	Page	Function
Streaming	DVB to IP gateway	Control the NetUP Streamer, see CAM module parameters, set up transponders and output streams
IPTV	SNMP agents	Set up SNMP, download the MIB file
System administration	Files	Download the Administrator's Guide
	Power Management	Reboot and shutdown server
	Update	Update firmware
	Status	Get info about the services
	Backup	Manage backup
System configuration	Network	Manage network interfaces and VLANs
	Routing	Manage user routing rules
	Security	Change the admin password
	Date and time	Select timezone and set up server time
	Licence	Download licenses
System status	About	Get info about components, license and server hardware
	Connections	Get info about NetUP.tv systems
	Storage	Get info about disk space usage

How to get started?

1. Open the [DVB to IP gateway](#) page (the **Streaming** group) in the web interface.

How to get started?

2. Click **Expand input** on an input panel. If the input signal is not configured or turned off, the expanded panel displays only adapter settings. If the input signal is enabled, click **Expand input settings** to show the adapter settings panel.

Input 0.0
Input 0.0 ✎

Select a preset
New preset

Input mode
DVB-S2

Get transponder settings

Frequency	Symbol rate	Polarization	LNB type	LNB low frequency
10 250 MHz	27 500 KSym/s	Vertical / Right	Dual Ku band	9 750 MHz

LNB high frequency	LNB switch frequency	Tone (22 kHz)	
10 600 MHz	11 700 MHz	<input type="checkbox"/>	

Enable input

DISCARD **APPLY**

3. Set the input parameters in one of the following ways:

- **manually** – select **Input mode** (DVB-S, DVB-S2, DVB-T, DVB-T2, DVB-C Annex A, ISDB-T) and fill in all the parameters. Each of Input modes has its own set of parameters, and the list of available modes depends on the DVB adapter type. For more info, see **Input modes** on page 13
- **get settings from satellite database or browse network** – click on the **Get transponder settings** button on the right and select the option: **Satellite database** or **Browse network**. In the opened window select one of the available transponders to fill in its parameters in the form

i **Browse network** is available for DVB-S and DVB-S2

- **upload settings from preset** – click **Select a preset** and choose one from the list. The preset settings will be displayed in the form. If necessary, you can change parameter values.

i Changing parameter values in the web form does not affect the preset. For more info, see **Configure an input using a preset** on page 14

4. Check the **Enable input** box.
5. Click on **Apply** button to active the settings. As a result, the panel displays input signal quality indicators and the list of programs for the selected frequency.

i If you use a preset to set up an input, click on **Apply** and choose one of the actions: **Apply input settings** or **Apply both input and streaming settings**, because the preset can store not only the parameters to configure the input, but also the parameters to configure output streams.
If the preset stores only the parameters to configure the input, the panel displays the **Load** button

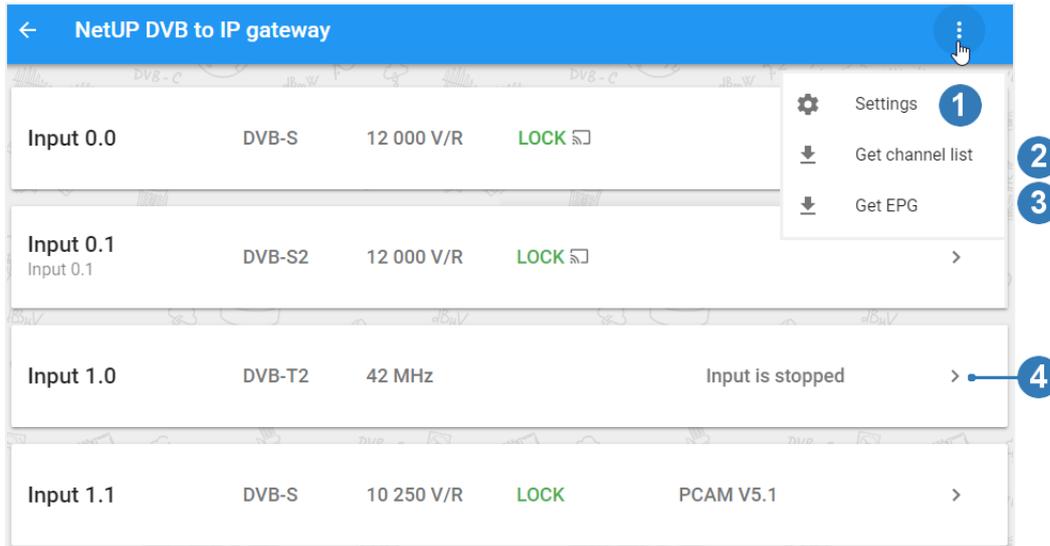
Streaming

DVB to IP gateway

This page displays all available inputs. Each input has its own panel.

If an Input is enabled, the panel displays *mode and frequency of the input stream, signal decoding information, and CAM name*.

If an Input is not enabled, the panel displays *Input is stopped*.



*Inputs in the web interface are numbered as inputs on the rear panel of the NetUP Streamer (see **Streamer** on page 2)*

The following actions are available on the page:

1. Tune the page interface

Click on the Interface options button and select *Settings*. In the opened window, enable or disable the available options and click *Close*. For more info, see **Interface options** on page 10

2. Get channel list

Click on the Interface options button and select *Get channel list*. In the opened window, select a format: *XML* or *M3U*, and click *Download* or *Copy*.

3. Get EPG

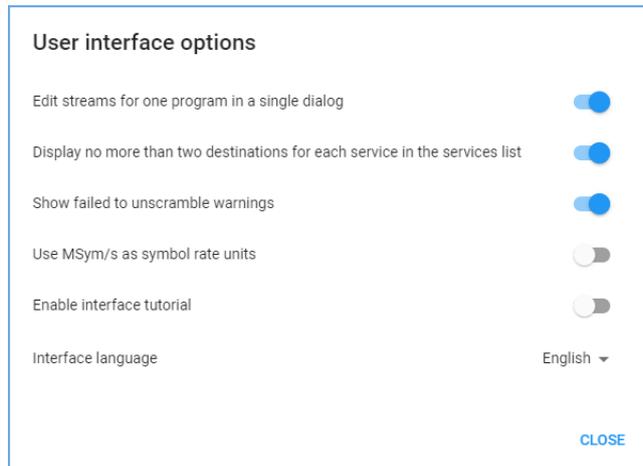
Click on the Interface options button and select *Get EPG*. In the opened window, select a format: *JSON* or *XMLTV*, and click *Download* or *Copy link to EPG*.

4. Expand the panel with input settings

Left-click on the corresponding button on the input panel you want to configure. For more info, see **Input panel** on page 10

Interface options

Click the button in the upper-right corner of the **DVB to IP gateway** page to open the Interface options window and enable / disable the following options:



- **Edit streams for one program in a single dialog** – enable the option if you want to set up all output streams for one program in a single common window. For more info, see **Set up streaming** on page 18.
- **Display no more than two destinations for each service in the services list** – enable the option if you want to display no more than two destinations for each service in the common list of services in the input panel.
- **Show failed to unscramble warnings** – disable the option if you want to hide warnings about decoding errors on the **NetUP DVB to IP gateway** page.
- **Use MSym/s as symbol rate units** – enable the option if you want to switch symbol rate units. Default symbolic speed is in KSym/s.
- **Enable interface tutorial** – enable the option if you want to run a short tutorial on NetUP DVB to IP gateway.
- **Interface language** – select English or Russian for the interface.

Input panel

Click *Expand input* on an input panel to access its settings.

#	Program name	Access	Destination	Streaming
3	THT4 Comedy Club Classic 16+	🔒		📺
4	RU TV Тема 16+	🔒		📺

If you have already configured the signal for the selected input, the expanded input panel displays:

- **Signal quality indicators**

- **Input settings**
- **CAM parameters**
- **Programs and streams**

If the input signal is not set or turned off, the expanded input panel only includes transponder settings. How to configure the input signal, see **How to get started?** on page 7.

 Click on the pencil icon under the input number, write 'Input name' and save it.

Signal quality indicators

Click *Expand input* on an input panel to see quality indicators

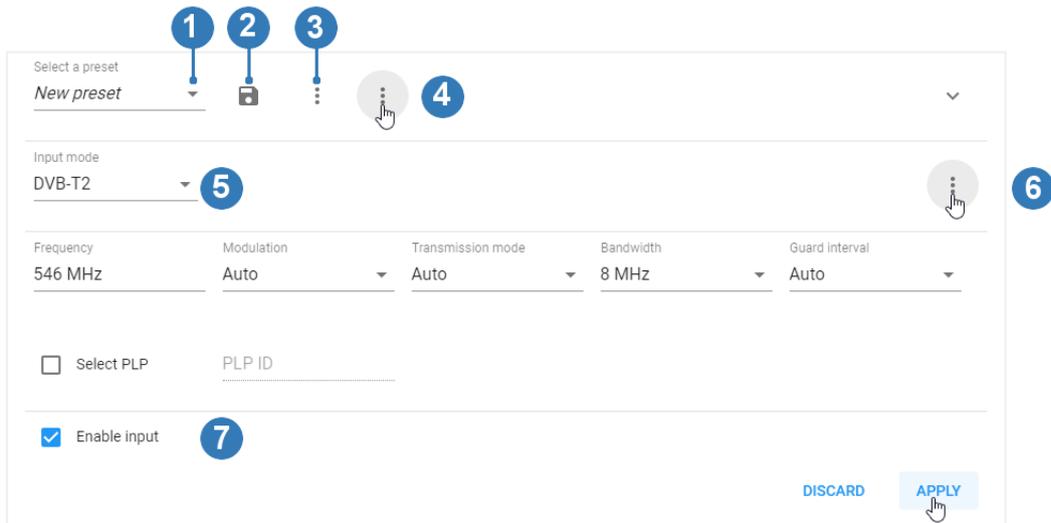
If the input is enabled, there are the following indicators:

- **Signal** – denotes presence of the signal (red means no signal);
- **Carrier** – denotes presence of the carrier frequency (red means no carrier);
- **FEC** – denotes the error correction;
- **Sync** – denotes synchronization with the signal;
- **Lock** – means that the adapter has locked on the signal and is decoding it successfully;
- **PSI** – program specific information: PAT, PMT, SDT, NIT, EIT, and etc. Click on the indicator to see more;
- **SNR** – signal to noise ratio;
- **BER** – bit error rate;
- **Statistics** – transport stream statistics. Click on the indicator to see more;
- **Signal strength** – signal strength in percent.

The status of the indicators changes after each update of the input signal parameters.

Input settings

Click *Expand input settings* to access to the settings.



The screenshot shows the 'Input settings' panel with the following elements and callouts:

- 1**: 'Select a preset' dropdown menu.
- 2**: 'New preset' button.
- 3**: 'Save' icon.
- 4**: 'More options' (three dots) icon.
- 5**: 'Input mode' dropdown menu (currently set to DVB-T2).
- 6**: 'More options' (three dots) icon for the input mode.
- 7**: 'Enable input' checkbox (checked).

Other visible settings include:

- Frequency: 546 MHz
- Modulation: Auto
- Transmission mode: Auto
- Bandwidth: 8 MHz
- Guard interval: Auto
- Select PLP: (with PLP ID field)
- Buttons: DISCARD and APPLY

The following actions are available on the panel:

1. Upload input and streaming settings from a preset

Select a preset from the list and the web form displays the parameters stored in the preset. If necessary, you can

change parameter values.

i Changing parameter values in the web form does not affect the preset. To find out how to modify a preset, please see **Configure an input using a preset** on page 14

At the bottom of the panel, click *Apply* and select *Apply input settings* to upload only input settings, or select *Apply both input and streaming settings* to load the input settings first and then click *Load* to upload the streaming settings from the same preset.

i Input settings and streaming settings from the same preset are downloaded separately. If the preset stores only input settings, the panel displays **Load**. If a preset stores input and streaming settings, the web form displays **Apply**

2. Save or edit a preset

Set the parameters to configure the input and click *Apply*. If necessary, set up streaming settings, then select from the preset list *New preset* and click *Save preset*. In the opened window write the preset name and click *Save*.

i The preset stores input and streaming settings. Read more here **How to get started?** on page 7

Select a preset from the preset list, modify input settings and / or streaming settings, apply changes and click *Save preset*. In the opened window edit the preset name, if necessary, and click *Save*.

i For more info, see **Create and edit a preset** on page 13

3. Delete a preset

Select the preset from the list and click *Delete preset*.

i Deleting a preset does not affect the broadcasting. A set of preset settings is used only to quickly fill out web forms

4. Import or export a preset

Click *Other actions* and select *Import*. In the opened window select a file and click *Open*.

Select a preset from the list, click *Other actions* and select *Export*. The preset will be uploaded to a file.

i Exporting and importing templates is done in json format

5. Set transponder parameters manually

Select *Input mode* (DVB-S, DVB-S2, DVB-T, DVB-T2, DVB-C Annex A, ISDB-T), set all parameters manually and click *Apply*.

i Each of Input modes has its own set of parameters, and the list of available modes depends on the DVB adapter type. For more info, see **Input modes** on page 13

6. Get transponder settings

Click *Get transponder settings* and select one of available lists: *Satellite database* or *Browse network*. In the opened window, select one of available transponders to fill in the form using its parameters.

i Browse network is available for DVB-S and DVB-S2

7. Enable or disable an input

Check or uncheck the corresponding flag on the input panel and click *Apply*.

i After disabling the input, all output streams will be automatically disabled. After re-enabling the input, all output streams that were set up before disabling will be automatically enabled

Input modes

Input mode	Parameter	Description
DVB-S/DVB-S2	Frequency	The signal frequency
	Symbol rate	The rate of symbol transfer
	Polarization	Vertical / Right, Horizontal / Left or Disabled
	LNB type	Dual Ku band, Single Ku band, C band. Once it is selected, the corresponding values of LNB parameters appear in their fields
	LNB low frequency	The LO frequency for the low-frequency range of satellite signal. See the hardware specifications for particular values
	LNB high frequency	The LO frequency for the high-frequency range of satellite signal
	LNB switch frequency	The border between satellite signal frequency ranges
	Port group	A, B, C, D or off
	Tone	Enables controlling the LNB by feeding a special 22 kHz tone to it
DVB-C Annex A	Frequency	The signal frequency
	Modulation	QAM 16, QAM 32, QAM 64, QAM 128, QAM 256 or Auto
	Symbol rate	The rate of symbol transfer
DVB-T/DVB-T2	Frequency	The signal frequency
	Modulation	QPSK, QAM 16, QAM 64 or Auto
	Transmission mode	1K, 2K, 4K, 8K, 16K, 32K or Auto
	Bandwidth	8MHz, 7MHz or 6MHz
	Guard interval	1/32, 1/16, 1/8, 1/4 or Auto

i For DVB-S2 and DVB-T2, the **Select PLP** option is available

PLP (Physical Layer Pipe) is a logical channel that may carry one or multiple services. You can specify the ID of the channel that you want to receive in the corresponding field.

Create and edit a preset

i See the description of web interface pages here: **DVB to IP gateway** on page 9 and **Input settings** on page 11

1. Open the **DVB to IP gateway** page (the **Streaming** group) in the web interface.
2. Click **Expand input** on an input panel and then click **Expand input settings**.
3. Select the **New preset** from the preset list.
4. Fill in the transponder parameters manually or by selecting from the available list (for more info, see **How to get started?** on page 7), set up other input parameters and click on **Apply**. As a result, the panel displays input signal quality indicators and the list of programs for the selected frequency.

5. Set up streams and then save the preset. Parameters of all configured streams will be saved into the preset. For more info, see **Set up streaming** on page 18

***i** If you only need to save the input settings in the preset, skip this step*

6. Click on **Save preset**. In the opened window write **Preset name** and click **Save**.
7. If you need to **edit a preset**, select the preset from the list, change settings for the input or the streaming or both, apply the changes and then click **Save preset**. In the opened window, you can save changes and rename the preset.

Configure an input using a preset

***i** See the description of web interface pages here: **DVB to IP gateway** on page 9 and **Input settings** on page 11*

1. Open the **DVB to IP gateway** page (the **Streaming** group) in the web interface.
2. Click **Expand input** on an input panel. If the input signal is not configured or turned off, the expanded panel displays only adapter settings. If the input signal is enabled, click **Expand input settings** to show the adapter settings panel.
3. **Select a preset** from the list and the web form displays the parameters saved in the preset. If necessary, you can change parameter values.

***i** Changing parameter values in the web form does not affect the preset. To find out how to modify a preset, please see **Create and edit a preset** on page 13*

4. Click **Load** or **Apply => Apply input settings** to activate the settings from the preset. As a result, the panel displays input signal quality indicators and the list of programs for the selected frequency.

***i** If a preset stores only input settings, the web form displays Load. If a preset stores input and streaming settings, the web form displays Apply*

***!** Input settings and streaming settings from the same preset are downloaded separately*

5. Click **Apply => Apply input settings** and the bottom part of the panel will display the streams which were saved in the preset.

***!** When loading the streaming settings, the system compares addresses of the existing streams with stream addresses that need to be downloaded from the selected preset. If the system finds identical addresses, it will generate an error and stop broadcasting streams that were downloaded from the preset*

6. Check the stream addresses and change their settings or enable streams manually. To do it, open the Stream setup window, select a stopped stream, change its **Address**, check the **Enable stream** box and click *Apply*.

Stream setup

Streams list for program #3 ACB TV

ID	Destination	Type	Comment	Scrambling	Bitrate	State	Action
2	235.114.0.101:1234	UDP			5 420 kbps		
3	235.114.0.1:1234	UDP					

[ADD STREAM](#)

Stream #3 settings

Type: **UDP**

Address: **235.114.0.1** This address is occupied

Port: **1234**

Interface: **default**

TTL: **1**

Comment: _____

Enable stream

For more info, see **Set up streaming** on page 18

CAM parameters

Click *Expand input* on an input panel to see the CAM parameters:

- CAM status or name

If CAM is not enabled, the panel displays only “CAM: missing”

- RM (Resource manager)
- AI (Application information)
- CA (Conditional Access Support)
- MMI (Man-Machine Interface)

Click MMI to close MMI session

- Menu (CAM settings)
- Messages

Click on RM, AI, CA indicator to see more details about CAM.

Programs and streams

Click *Expand input* on an input panel to see the list of received programs and to set up streams.

#	Program name	Access  3	Destination	4  Streaming
810	MTV Dance BIG TUNES! (16+)	 > 	udp://@235.114.2.1:1234	5   6
811	MTV Hits BIG FAT HITS (16+)	 > 	udp://@235.114.2.2:1234	
812	MTV Rocks BIGGEST! HOTTEST! LOUDE...	 > 	udp://@235.114.2.3:1234	
813	VH1 European HITS DONT LIE	 > 	udp://@235.114.2.4:1234	

 You can see the list of received programs, if you have configured the input signal. How to configure the input signal, see **Web interface: Stream setup** on page 17

The following actions are available on the panel:

1. Open program properties

Click on a *Program number* to see program properties.

2. Open the program schedule for the near future

Click on a *Program name* to see the names of the program that is on the air and the next one.

3. Test descrambling

Click on the corresponding button, then select programs in the opened window, and click *Test*. The test results will be displayed opposite each of the programs.

 This option is available for encrypted streams. If the lock is closed, the stream is encrypted. If the lock is opened, the stream is decrypted

4. Hide idle services

Click on the corresponding button on the panel, now only programs with active streams are shown. Click on this button again to show all programs.

5. Copy an output stream address

Click on the copy icon next to the stream address. If the program has more than one output stream, click the copy icon and select the address you want to copy. If the stream is one, it will be copied immediately after clicking.

6. Set up streaming

Click on the corresponding button opposite of the program you want to set up output streams for. In the opened **Stream setup** window, add and configure required number of streams, then click *Apply* and close the window. Added streams will appear in the program list in the column *Destination*.

 The description of the *Stream setup* window is in the next section. See an example of setting up a stream here **How to get started?** on page 7

Stream setup

On the input panel, opposite the required program, click on the button in the **Streaming** column to open the **Stream setup window**. The window is divided into two parts: **Streams list** and **Stream settings**.

Stream setup

Streams list for program #2030 13 CTC

ID	Destination	Type	Comment	Scrambling	Bitrate	State	Action
3	235.0.1.1:1234  1	UDP			3 222 kbps		 2
11	235.0.0.11:1234	UDP			3 222 kbps		
12	13-CTC	HTTP Progressive			3 013 kbps		

 3 ADD STREAM

Stream #3 settings  4

Type	Address	Port	Interface	TTL
UDP	235.0.1.1	1234	default	64

Comment

Enable stream

<input checked="" type="checkbox"/>	2031	video, H.264		2 800 kbps
<input checked="" type="checkbox"/>	2032	audio, MP3		198 kbps

NIT SDT EIT

[CANCEL](#) [APPLY](#) 

 Edit streams for one program in a single dialog, if the corresponding option is enabled in the interface settings (see **Interface options** on page 10).

The following actions are available in the window:

1. Copy an output stream address

Click on the copy icon next to the stream address. The stream address will be copied to clipboard.

2. Delete an output stream

Move the mouse over the line with the stream you want to delete and the *Action* column will display the delete icon. Click on this icon and the *State* column will display the appropriate mark. Click *Back* to uncheck the mark or click *Apply* to delete the selected stream (streams).

3. Add a stream

Click *Add stream* and set the stream parameters. Click *Apply* to save the added stream (streams).

4. Configure stream settings

Add a stream or select the existing one with the left mouse button and make sure that the *Stream settings panel* displays the required stream ID. Select the stream *Type* and fill in the parameter fields. Each type of stream has its

own set of parameters. Then check PIDs and service tables (NIT, SDT, EIT) that you want to include in the stream. If necessary, change settings of other streams and click *Apply* to save changes.

i In the Stream list, the State column displays the pencil icon for streams which have been edited and the plus icon for streams which have been added.

Set up streaming

i See the description of web interface pages here: **DVB to IP gateway** on page 9 and **Input settings** on page 11

1. Open the **DVB to IP gateway** page (the **Streaming** group) in the web interface.
2. Click **Expand input** on an input panel. If necessary, configure the input. For more info, see **How to get started?** on page 7
3. In the program list, opposite the program, in the **Streaming** column, click on the button to open the **Stream setup** window.

i The Stream setup window is divided into two parts: *Stream list* and *Stream settings*

4. In the opened window, in the **Stream settings**, select a stream **Type** and set up the other parameters. Each type of stream has its own set of parameters.

Stream setup

Streams list for program #2030 13 CTC

ID	Destination	Type	Comment	Scrambling	Bitrate	State	Action
3	235.0.1.1:1234	UDP			3 222 kbps		
11	235.0.0.11:1234	UDP			3 222 kbps		
12	13-CTC	HTTP Progressive			3 013 kbps		

6 ADD STREAM

Stream #3 settings **4**

Type: UDP | Address: 235.0.1.1 | Port: 1234 | Interface: default | TTL: 64

Comment:

Enable stream **5**

<input checked="" type="checkbox"/>	2031	video, H.264		2 800 kbps
<input checked="" type="checkbox"/>	2032	audio, MP3		198 kbps

NIT | SDT | EIT

7 CANCEL APPLY

5. Mark flags in front of PIDs and service tables (NIT, SDT, EIT) that you want to include in the stream.

6. Click **Add stream**, if you need to add another stream for the selected program, and repeat the steps number 4 and 5.

***i** If you need to add several streams of the same type for one program, we recommend **adding a two-digit number in the Address field to the last digit in the fourth octet, which is one more than the previous one**, for example, if the address of the 1st stream is 235.114.3.1, then for the 2nd stream, the address can be 235.114.3.1 **01**, and for the 3rd one – 235.114.3.1 **02**. In this case it is easier to avoid IP address conflict*

7. Click **Apply**, if you want to save changes or click **Close** to close the window without saving changes.

***i** Edit streams for one program in a single dialog, if the corresponding option is enabled in the interface settings (see **Interface options** on page 10).*

8. If you want to edit a stream, click on a line with stream's parameters in the **Streams list** to select one and make changes in the Stream settings. The **State** column in the **Streams list** displays a pencil opposite the stream that has been changed. Click **Apply**, if you want to save changes or click **Close** to close the window without saving changes.

IPTV

SNMP agents

This page contains the list of communities entitled to make SNMP requests.

The following actions are available on the page:

1. Download MIB file

Click *Download MIB-file* to get the .txt file. The NetUP's MIB file contains a template for the following information:

netupCpuTable	containing information about every CPU (core) in the system	
netupCpuEntry	an element that describes each row of the table and combines elements:	
	netupCpuIndex	the CPU number
	netupCpuLoad	the CPU load level
	netupCpuTemp	the CPU temperature
netupStreamerTable	containing information about every streamer in the system	
netupStreamerTableEntry	an element that describes each row of the table and combines elements:	
	adapterNumber	the adapter number
	netupBER	the bit error rate
	netupSNR	the signal to noise ratio
	netupLOCK	the signal lock status
netupStorageTable	containing information about every hard drive in the system	
netupStorageTable	an element that describes each row of the table and combines elements:	
	netupStorageIndex	the storage number
	netupStorageDevice	the path to the storage (for example, "/dev/sda1")
	netupStorageMountPoint	the mounting point of the storage (for example, "/mnt/hdd")
	netupStorageFilesystem	the file system of the storage

netupStorageTable	containing information about every hard drive in the system	
	netupStorageBlockSize	the block size on the storage
	netupStorageFragmentSize	the fragment size on the storage
	netupStorageSize	the storage size
	netupStorageFree	the free space on the storage

For the system as a whole:

netupMemPhisTotal	the total memory size
netupMemPhisFree	the free memory size
netupMemPhisBuffers	the buffer size
netupMemPhisCached	the cache memory size
netupMemSwapTotal	the maximum size of the swap file
netupMemSwapFree	the free space within the swap file
netupStbClients	the number of connected STB clients
netupPcClients	the number of connected PC clients
netupTotalClients	the total number of connected clients

 To request all available parameters, download the MIB file, pass it to the SNMP daemon, and run the following command: `snmpwalk -v2c -c netuptest 10.1.0.77 NETUP-MIB::netup`

2. Add an agent

Click *Add agent*, then in the opened window, fill in the fields and click *Save*.

3. Edit parameters of a community or delete it

Left-click on the community's IP address. In the opened window make changes and click *Save* to apply them or click *Delete* to remove the community.

System administration

Files

Here you can download the "NetUP.tv Administrator's Guide" in Russian or English.

Power Management

Here you can *Reboot* and *Shutdown* the server. Whenever the server needs to be reloaded or shut down, this should be done exclusively by means of these controls; abnormal termination may lead to system failure.

Update

This page allows to update the firmware. This page lists the uploaded firmware files together with their uploading dates, build numbers, and possible actions. Click a firmware to open detailed information popup: **Delete** or **Install**.

Connect to the server via ftp (use login **update** and administrator's password). Refresh the page, select the uploaded file from the list and click **Install**.

 *Incompatible firmware versions are recognized and displayed in the list as damaged files*

Status

The page displays:

- **Backup** – backup status;
- **Timezone** – selected timezone;
- **Licence** – license number and owner;
- **Internet** – Internet connection status;
- **Server password** – password for SSH and FTP connection;
- **Status of adapters and system components** – NetUP IPTV Core, Middleware, Billing, etc.;
- **Connections between systems** – connection presence.

 *Using the corresponding button, you can collect diagnostic information about the services to send it to technical support*

Backup

The page contains the list of backups – .tar.bz2 archives that contain the system settings.

 *The page is present only on IPTV Core servers*

The following actions are available on the page:

1. Create a backup manually

Click *Create* to save an additional copy of system settings.

 *Automatic backup is made every day*

2. Delete, download a backup or restore system settings

Left-click on an archive. In the opened window click one of the following buttons: *Delete* – remove the archive, *Download* – load the tar.bz2 archive, *Restore backup* – apply system settings from the archive.

 *Before restoring a backup, make sure that the backup was NOT created during the period when you used the firmware related to the another release. For more info, see the **Firmware** page (the **System** group) in the manager web interface. The release number is first two digits of the product version, for example, 2.0, 2.2, etc.*

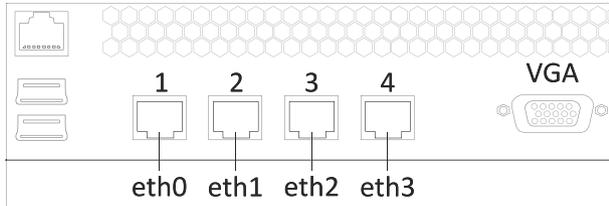
 *How to restore and automatically download backups, read here: **System maintenance: Backup copies on page 26***

System configuration

Network

This page displays the list of all network adapters installed on the system, including virtual. Each adapter has the individual panel in the page.

The adapters in the web interface are related to the network adapters on the front panel of NetUP streamer:



i The network adapter №1 on the front panel of NetUP streamer is the eth0 in the web interface, №2 – eth1, №3 – eth2, №4 – eth3

The following actions are available on the page:

1. Create a VLAN (virtual adapter)

Click *Add VLAN*. In the opened window select the *Network interface*, that you want to use for creating a virtual one, write the *VLAN ID* and *IP address/mask*, then click *Save*.

i The VLAN name will be composed of the physical interface name and the entered ID

2. Connect to IPTV Core

Click *Change Core IP*, then in the opened window, write *IP address* and click *Save* to connect to IPTV Core. As result, in the *IPTV Core web interface*, on the *Connections* page, should appear information about the connection to this server.

i Change Core IP button is only present on non IPTV Core servers

3. Assign IP Address to Adapter

Click *Add alias* on an adapter panel. In the opened window, write *IP address/mask* and click *Save*.

i The list of all IP addresses assigned to the adapter is displayed on the adapter panel in the *Aliases* column

4. Display adapter load statistics in graphic

Click *Statistics* on an adapter panel to see the statistic.

5. Set the main interface

Left-click on the IP address (*Inet adress*) of an adapter. In the opened window check the *Main interface* box and click *Save*.

i The default main interface is eth0

6. Edit an IP-address or delete it

Left-click on the IP address (*Inet adress* or *Aliases*) you want to edit. In the opened window change the IP address and click *Save*. You cannot delete Main IP or the last remaining IP address of the adapter.

! The address assigned for the main interface is used for the component's interaction (see **Connections** on page 24) and thus is absolutely crucial for the system's operation. It can never be deleted

7. Change the IP addresses range served by the DHCP server

Left-click on the IP addresses range in the *DHCP server* column on the panel of an adapter. In the opened window specify the required range and, if necessary, add static addresses, then click *Save* to apply changes.

8. Stop or start DHCP server

Click *UP / DOWN* on the panel of an adapter. In the opened window click *OK* to switch the server.

i The *UP / DOWN* button is also the DHCP server status indicator

9. Delete a VLAN

Click *Delete VLAN* on the panel of an adapter. In the opened window click *OK* to delete the selected adapter.

Routing

This page displays *User routing rules* and *System routing table*.

The following actions are available on the page:

1. Add a user routing rule

Click *Add rule*, then in the opened window, write *IP address/mask*, *Gateway*, select *Network interface* and click *Save*.

 *Automatic backup is made every day*

2. Edit or delete a rule

Left-click on a rule. In the opened window make changes and click *Save* to apply them or click *Delete* to remove the rule.

3. Show or hide the system routing table

Click on the *Show / Hide* button.

 *The system routing table is needed for correct system operation*

Security

Use this page to change the access password.

 *Server admin password is used for SSH and FTP access*

Services

This page displays the list of the system services and their statuses (*started* or *stopped*).

 *Left-click on a service name. In the opened window click *Start* or *Stop* to switch the service*

Date and time

Use this page to set the server date and time, and select timezone. These features are only available for the IPTV Core.

The following actions are available on the page:

1. Set time manually

Click *Set time*, then in the opened window write *Date* and *Time*, then click *Save*.

2. Select timezone

Click *Select*. In the opened window, select timezone and click *Save*.

 *Set the correct timezone before uploading the license (see **Licence** on page 24), otherwise the system may work incorrectly*

3. Add an NTP server

Click *Add*. In the opened window write the address of an NTP server and click *Save*.

4. Delete an NTP server

Left-click on the address of the server you want to remove and click Delete in the opened window.

 For each NTP server, you can see a synchronization status: **Filed** – the last sync attempt has failed; **SYNC** – the sync has been performed successfully; **Reserved** – this time server has not been used yet.

Licence

This page displays information about uploaded licenses (components, numbers, expiration dates and restrictions). Use this page to upload new licenses.

 Set the correct timezone before uploading the license (see **Date and time** on page 23)

 Make sure the new license is fully compatible with the old one before uploading it

System status

About

This page keeps info about the NetUP.tv system: product and firmware versions, build numbers of individual systems, information about the license and server hardware (CPU, memory, hard drives and network interfaces).

Connections

This page displays all the systems of the NetUP.tv. Each of the systems has a separate panel. The panel displays a list of systems with which interaction is possible. Addresses of interacting systems are links.

Connections		
NetUP IPTV Core		
NetUP IPTV Relay (license 3349)	Connected	10.1.0.119
NetUP IPTV CDN Server (license 2475)	Not connected	N/A
NetUP IPTV Streamer (license 2545)	Connected	10.1.0.119
NetUP IPTV Streamer (license 2525)	Offline	10.1.0.114

The following actions are available on the page:

1. Change a system address (server host)

Left-click on the system address you want to change. In the opened window write the address manually or click *Auto detect* to detect the address automatically, then click *Apply* to save changes.

Storage

This page displays disk space usage and S.M.A.R.T. and RAID condition report.

Storage

Storages	
/dev/sda1	
Mount point	/mnt/hdd
Size	917G
Free	429G
Usage	<div style="border: 1px solid #ccc; width: 100px; height: 15px; background-color: #e0e0e0; display: flex; align-items: center;"><div style="width: 51%; background-color: #4f81bd; color: white;"></div>51%</div>
S.M.A.R.T.	OK (details)

 Click on details to see the detailed S.M.A.R.T. or RAID condition report

System maintenance

Backup copies

Automatic backup copies are created daily. Besides, a backup may be created at any time via web interface on the **Backup** page (the **System administration** group).

To set up daily automatic download of the backup files, set up the download program (for example, wget) to get the data from the URL containing the authentication data:

```
http://login:password@10.1.0.102/  
page/backup/download_backup.php?file=backup_current.tar.bz2
```

Go to the **Backup** page in the web interface. Left-click on a backup and click **Restore backup** in the opened window if you want to roll back to the backup.

 *Firmware of different versions of the NetUP.tv system may not be consistent with each other. If you need to return and use the firmware related to previous releases, contact the NetUP technical support department*

If you want to use the backup that is stored on an external device, at first you must connect to the server via FTP or SCP, using *system-backup* user name and the administrator's password and upload the backup.

Editing IP table rules

User rules should be added to the */netup/sysconfig/iptables/50user.xml* file

 *If there is no 50user.xml file in the specified directory, create it*

The user rules file has `<config>` root element with an optional `disabled` attribute. If the `disabled` attribute is used with any value, rules from this file will be ignored.

The `<config>` element may contain an arbitrary number of `<table>` elements with a mandatory `name` attribute.

Each `<table>` element may contain an arbitrary number of `<chain>` elements with mandatory `name` and optional `policy` attributes.

Each `<chain>` element may contain an arbitrary number of `<rule>` elements without attributes.

Each `<rule>` element may contain an arbitrary number of `<option>` elements with mandatory `name` and `value` attributes. If an option is not supposed to have a parameter, leave the `value` attribute empty. If an option is supposed to have several parameters, assign those parameters, separated by spaces, to one `value` attribute

When finished editing, save the file and launch the */netup/bin/configure-iptables.py* utility.

The utility returns:

- 0, when no errors occurred
- 1, when an error occurred while applying rules (except rules, described in the *50user.xml* file)
- 2, when an error occurred while applying rules from *50user.xml*. In this case a `disabled` attribute has been added to the `<config>` root element and the rules from this file were ignored.
- 3, in case of any other errors

Here is an example of a configuration file:

```
<?xml version="1.0" encoding="UTF-8"?>
<config>
  <table name="filter">
    <chain name="INPUT">
      <rule>
        <option name="-i" value="lo" />
        <option name="-j" value="ACCEPT" />
      </rule>
      <rule>
        <option name="-p" value="tcp" />
        <option name="-m" value="tcp" />
        <option name="--dport" value="3306" />
        <option name="-j" value="mysql" />
      </rule>
    </chain>
    <chain name="mysql" />
  </table>
</config>
```

Network troubleshooting

If an STB does not play streaming video, this may be due to network errors. To rule out possible communication problems, plug the STB and the streamer into the same switch. If the streaming video still does not show up, attach a PC instead of the STB and check that the media is actually streamed to the specified multicast address, and that no extraneous signal is streamed together with it. The VLC media player may be used to view the video stream on PC (<http://www.videolan.org/vlc/>). Open its main menu and select **Media – Open Network Stream**.

NetUP server troubleshooting

Connect a monitor and keyboard to the server to debug it. Use HDMI or VGA to connect the monitor and USB to connect the keyboard.

NetUP server factory reset

If your NetUP server needs a factory reset, please contact NetUP technical support.



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Current version of this document is distributed together with the NetUP.tv solution and is accessible via its web interface, see **Files** page

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